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The Representation of Pictorial Space in "Ukie"

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Abstract. I analysed the methods of drawing used in the *ukie* picture titled, *'Interior of a Kabuki Theater'*, which shows a playhouse, including both the audience space and the stage. The results of the analysis indicated that two different methods of drawing were used within the same picture, one-point perspective for the audience space and combined oblique projection for the stage. This is not a mere result of incorrect technique but closely related to what the artist of the picture wanted to express through the drawing. The artist was also able to create the feeling of actually being inside the theater through the use of one-point perspective and to show the content of the play through the use of combined oblique projection, thus placing emphasis on the main actors. The use of two different methods of drawing also gives a sense of movement, a shakiness, which adds tension to the scene. Space that has this tension is related to the Japanese concept of *ma*.

Key Words: representation, pictorial space, perspective, oblique projection

1 Introduction

Among *ukiyoe* prints created during the mid-eighteenth century in Japan there were works known as *ukie*. For these *ukie* works, artists utilized a Western method of linear perspective that was introduced to Japan at that time. This Western method of perspective drawing revealed a 'natural view', which was the primary method of perspective employed in *ukie*. In this paper[1] I will show that alongside this convention other quite different methods of expressing perspective – those developed within *yamatoe* traditional Japanese painting – can also be found in *ukie*. In addition to demonstrating the different methods by which space is represented, I will discuss how the representation of space is related to the meanings of the picture and how it reflects aspects of Japanese culture.

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2 Ukie – 'Interior of a Kabuki Theater'

2.1 Ukie

Ukie prints reflect the influence of Western perspective which entered Japan during the eighteenth century when restrictions on imports of written materials (with the exception of those related to Christianity) were relaxed. The majority of imported material came from Holland, by way of China. Prior to this, the prevalent means of expressing space in Japan was through the use of oblique projection and axonometric projection. Drawings of this type were explanatory expressions of a scene – not depiction of things as they really look. Such traditional Japanese paintings are called *yamatoe*. *Ukie* that were influenced by the West, however, came to express a scene in ways close to natural perspective. Using linear perspective, these pictures could emphasize the depth of the picture plane and a feeling of distance. The people of the time felt they had come across a new way of seeing. As *yamatoe* was a very formal tradition which underwent few changes, it held less appeal to the common people than the novel *ukiyoe* prints. In response to popular demand for fresh ideas, the *ukie* artists were probably attracted by the new expression of space that they found in Western pictures.

2.2 Interior of a Kabuki Theater

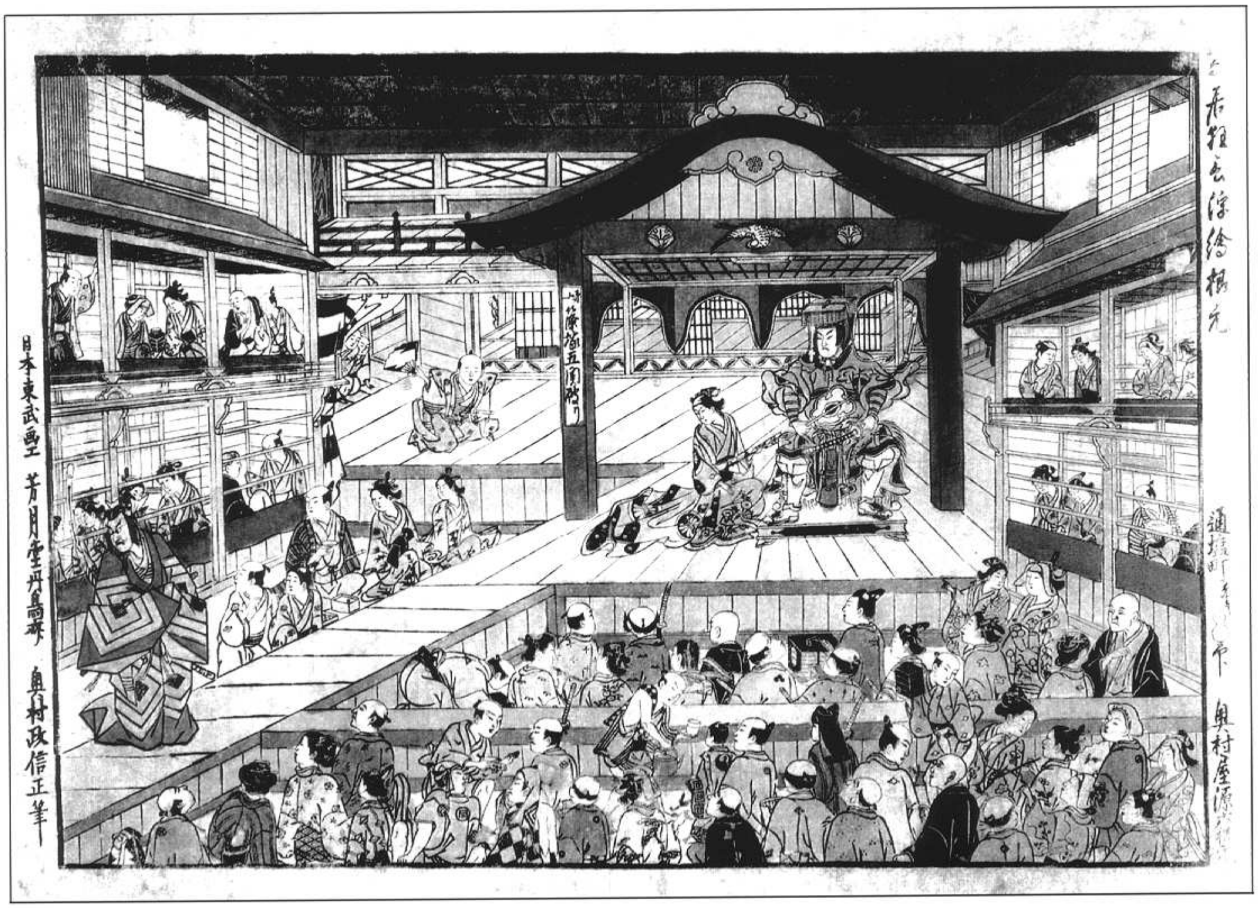

Figure 1: The Ukie, *'Interior of a Kabuki Theater'*

I will limit my discussion to an analysis of the 1743 *ukie* titled *'Interior of a Kabuki Theater'* [2] (Fig. 1), which shows a playhouse, including both audience and stage. The viewer can see the activity of the common people in the theater. The representations in these interiors express a charged atmosphere, as if the air were pressured and the space pulsing with tension. This print is the eldest extant *ukie* of the theater genre. The Japanese title of this print includes the word 'root' or 'origin', probably meaning that this was the first *ukie* depicting a play house. This print and *ukie* prints were widely used as advertisements of plays.

As indicated in Fig. 1, the composition of the picture shows the interior of a play house with the stage in the center and the elevated runway called *hanamichi* on the left side [1]. The characteristic features of the picture are as follows:

- Audience space:
  - The audience sits in two levels of boxes *(sajiki)* on the left and right and on the floor before the stage.
  - On the left there are two and a half boxes in view and on the right there are one and a half.
  - There is a grid-work ceiling.
  - Between the floors there are narrow raised aisles called *ayumi*.
  - There are six people and three empty seats in the front row. Behind the *ayumi* there are seven people and six empty seats.
- Stage:
  - The stage is divided into three parts: the main stage in the back *(honbutai)*, the projecting stage under the roof *(tsukebutai)* and the left section of the main stage *(hashigakari)* (see also Fig. 6).
  - The *hanamichi* connects with the *tsukebutai*.
  - On the *tsukebutai* there are two actors, on the *hashigakari* there is one actor and on the *hanamichi* there is one actor.

3 The Drawing Methods

To analyse the spatial recession, the lines indicating the depth of the audience space and the stage have been extended. My analysis of the audience space and the stage is shown in Fig. 2 and Fig. 3, respectively. As shown in Fig. 2, the lines from the ceiling and the lines from the side boxes converge at around the central portion of the picture. This indicates that the audience space is basically drawn as one-point perspective. However, a detailed analysis of the audience space shows the following:

- The lines from the ceiling and the lines from the side boxes do not converge at one point.
- Where the floor line meets the horizontal line of the audience boxes, spaces can be drawn between the stage and the boxes. The structure depicted makes no sense architecturally.
- The left-hand audience boxes are deeper than those on the right. The left-hand boxes are taller than those on the right. These structures also do not make sense architecturally.

[2] Masanobu OKUMURA: Ukie, *Interior of a Kabuki Theater*, Oobann Benie, 32.4 cm - 45.9 cm, 1743. Museum für Ostasiatische Kunst, Berlin.

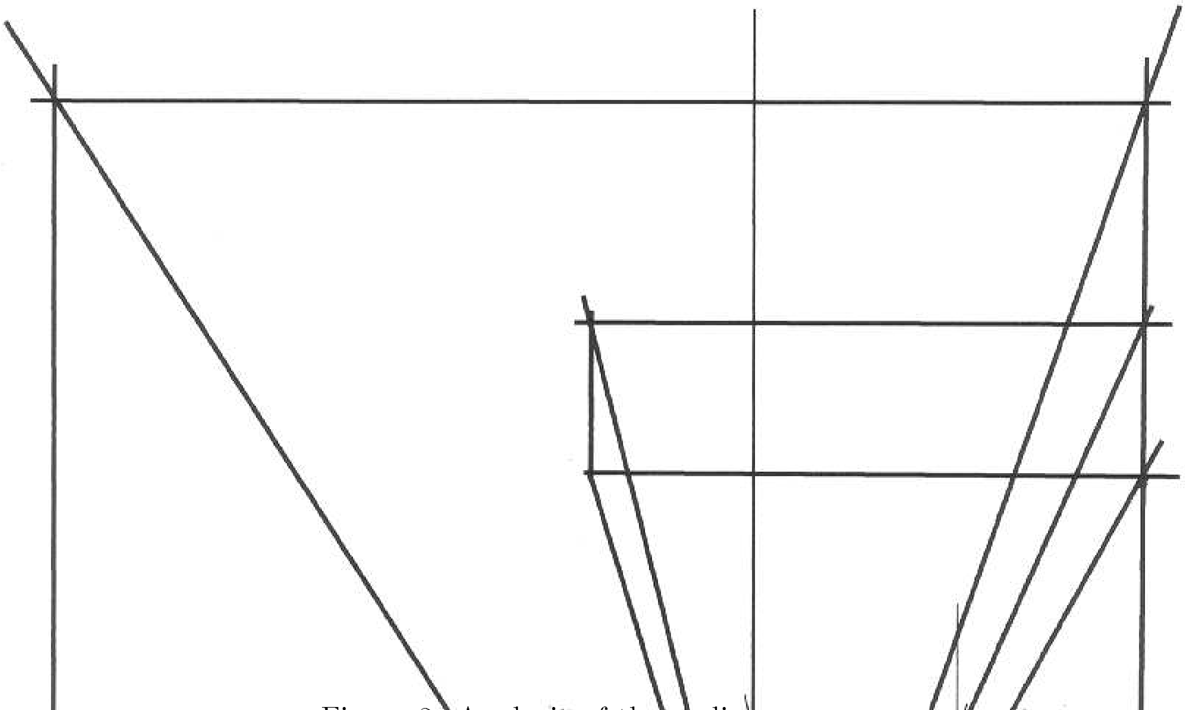

Figure 2: Analysis of the audience space

These results indicate that the one-point perspective method used in the picture is imprecise.

As shown in Fig. 3, the analysis of the stage indicates the following:

- The parallel lines of the left and right floorboards are almost parallel.
- If a line (a-a') were drawn down the center of the *tsukebutai*, then the lines of the floor boards would be symmetric.
- The line of the extreme left floorboard has a 27.5° angle and the line of the right extreme has a 20.5° angle.

These results indicate that the stage is drawn as a combination of left and right oblique projection. It should be recalled here that prior to *ukie*, the prevalent means of expressing space in Japan was through the use of oblique projection. The combined left and right oblique projection is the traditional perspective which can be found in medieval Japanese mandala and depiction of architecture [2].

This analysis reveals that in *'Interior of a Kabuki Theater'* two different methods of drawing were used within the same print: One-point perspective for the audience space and combined oblique projection for the stage.

3.1 The Audience Space

To analyse further, the audience space has been redrawn according to the correct use of one-point perspective projection under the following conditions:

- The bottom line of the picture frame shows the picture plane (PP).
- The visual center (Vc) has been determined as the point where many of the lines of Fig. 2 converge. A horizontal line (HL) passes through Vc.
- The distance points (D_1, D_2) have been determined around the points where diagonals of the ceiling grids and of the plan of the audience boxes converge. It should be noted here that the ceiling grids and the plan of the audience boxes are squares.

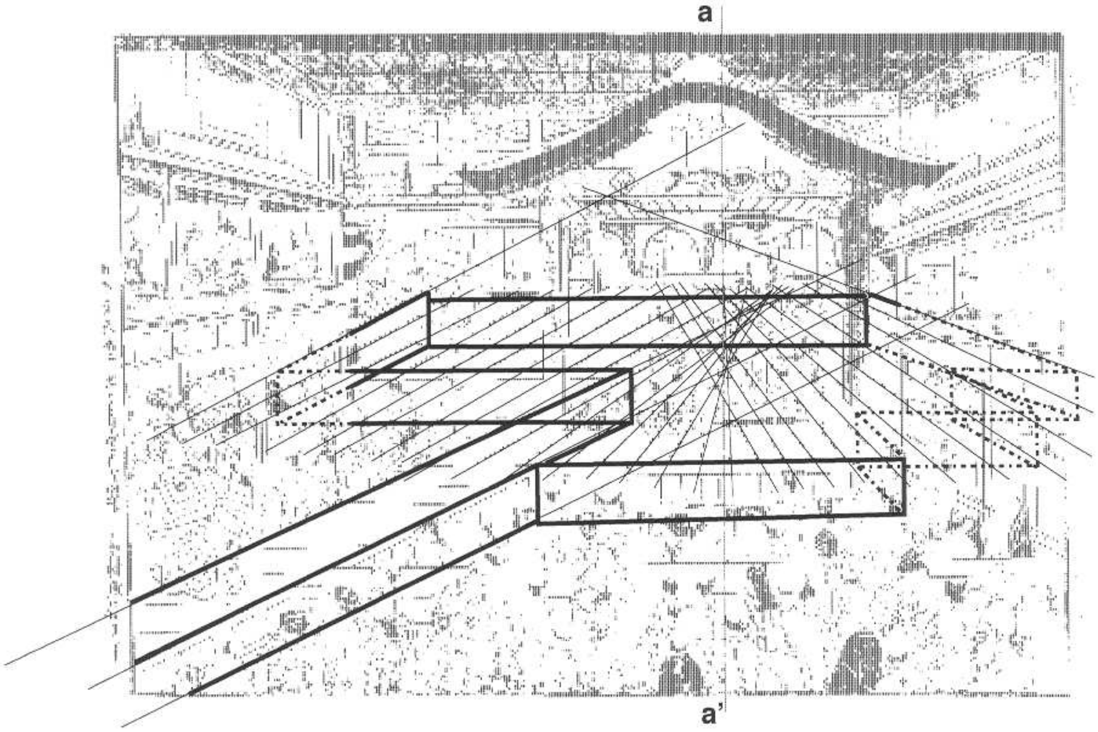

Figure 3: Analysis of the stage

Through the reconstruction of the audience space according to correct one-point perspective, the following assumptions have been made:

- The position of the back ceiling line drawn to the front corners of the stage comes to the front row of the audience seats.
- The left box meets the *hashigakari*.
- The right box meets the *tsukebutai*. The right side has one fewer box than the left side.
- Each box size is consistent. The heights are also consistent.

The correct one-point perspective drawing is shown with bold lines in Fig. 4. This figure also shows the lines of Fig. 2 in gray. A comparison between the correct one-point perspective and the original one indicates that the former shows depth much more smoothly. The dotted circle in Fig. 4 indicates the visual field which can be determined as the intersection of the visual cone and the picture plane. It should be noted that the audience space is out of the visual field, i.e., the distance of the eye is too short to give a natural view. In other words, the depth of the audience space is emphasized in the drawings.

3.2 The Stage

A revised drawing that shows the combined right and left oblique projection of the stage, as well as the floor plan, has been constructed under the following conditions:

- The width of the *hashigakari* and the *honbutai* determines the width of the other elements.
- The depth has been estimated by using the size of the side boxes close to the stage. It should be noted that the side boxes could be considered as squares.
- The floors of the stages and the *hanamichi* are horizontal.

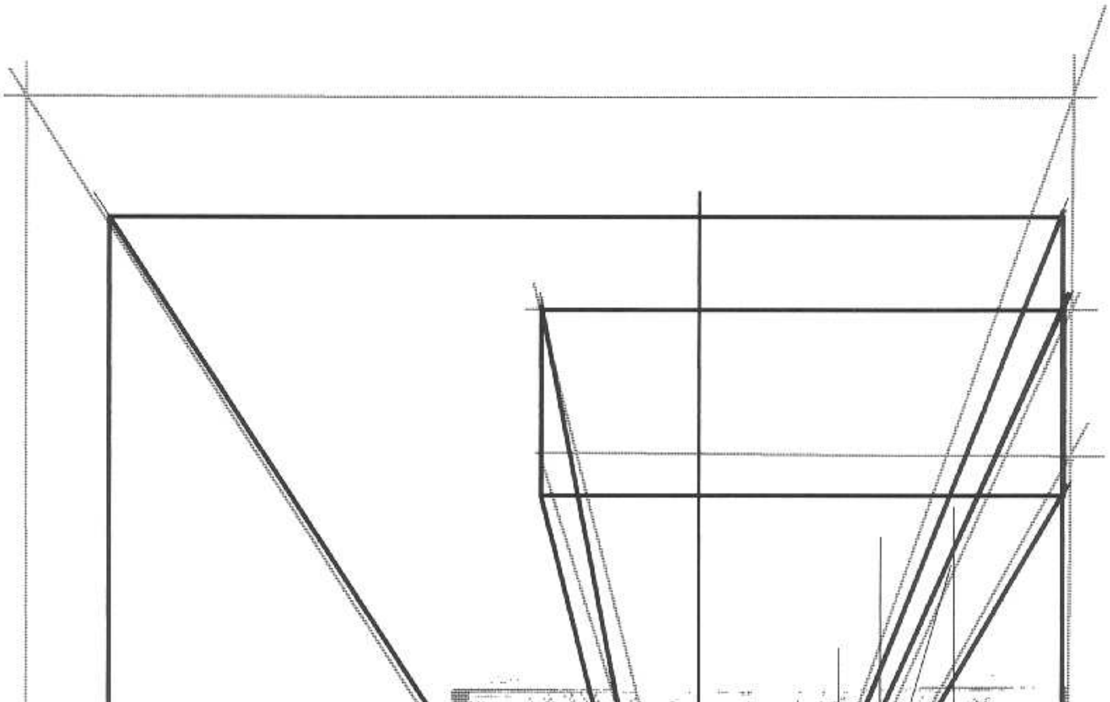

Figure 4: Perspective projection of the audience space.

- Both angles of oblique projection are 27.5° (the left is originally 27.5°). On the left side of the center line the floor rises at an angle from left to right and on the right side of the central line the floor rises from the right to left.

The revised drawing of Fig. 3 is shown in Fig. 5. A comparison of Fig. 3 and Fig. 5 indicates that they are similar, suggesting that the stage was basically drawn according to combined oblique projection.

The floor plan is shown in Fig. 6. It is interesting to compare the plan with the actual floor plan shown in Fig. 7 [3]. The depth of the stage in Fig. 6 is much narrower than that in Fig. 7, i.e., the actual depth. This may be because of the effect of linear perspective in the original drawing, although the predominant method of drawing is oblique projection.

3.3 The Audience Space and Stage

Fig. 8 is based on the original print. Fig. 9 is a drawing of both the audience space and the stage using correct one-point perspective. The stage in Fig. 9 has been drawn by using the actual floor plan shown in Fig. 7 under the perspective conditions of Fig. 4. The recession back into space shown in Fig. 9 is much more smooth than in Fig. 8, but because the distance of eye is short the shape is distorted.

A comparison of the actors on the *hanamichi* in Fig. 8 and Fig. 9 and the actors on the *tsukebutai* show that the actors of Fig. 8 are too large. In other words, the actors on the *tsukebutai* are emphasized in the original drawing. It should be noted here that these are the main actors.

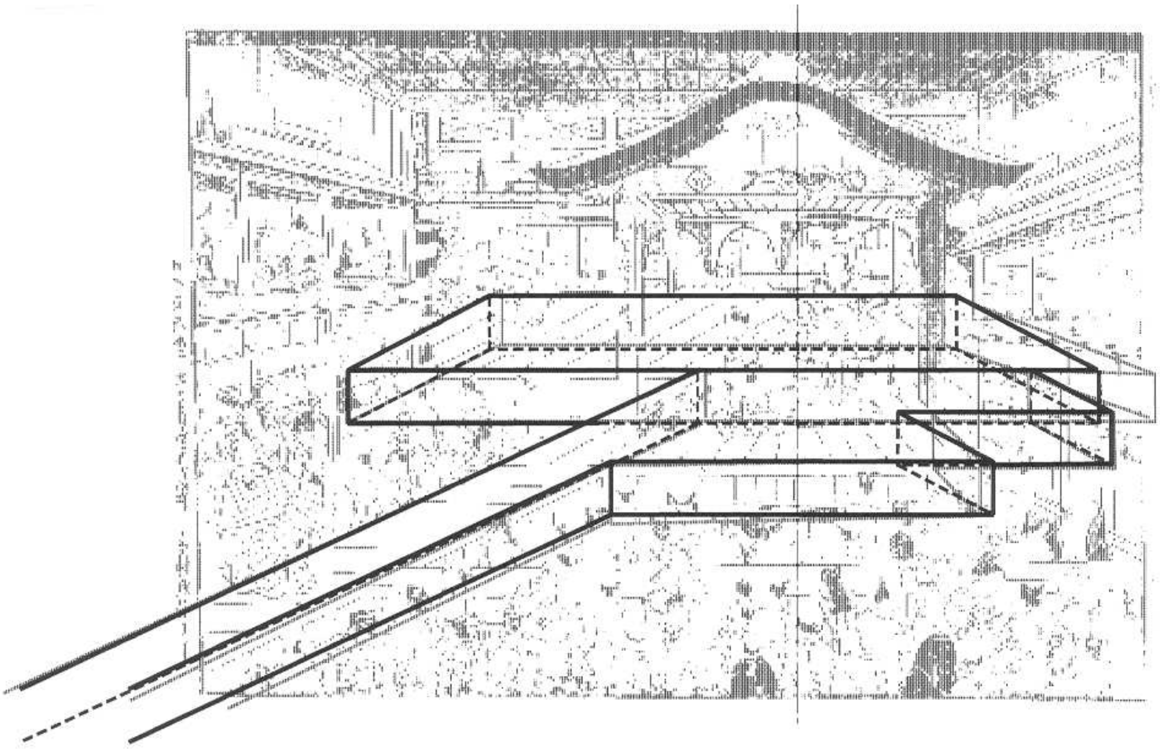

Figure 5: Oblique projection of the stage

4 Analysis of Space

4.1 Representation and Meaning

As discussed above, there are various special features of the spatial techniques used in this print:

1. Within a single picture plane there coexist a one-point perspective drawing and an oblique projection (left and right combined). The former is used for the audience space, the latter for the stage.
2. The one-point perspective drawing is not precise; it is only conceptual.
3. Because the distance of eye is short, the view of the audience space is unnatural. In other words, the depth of the audience space is emphasized.
4. The main actors are depicted quite large.

These inconsistencies are not simply a result of incorrect technique. They are also special characteristics of the print. The meaning of the print is tied to the technique. The artist of this print wanted to give the feeling of actually being inside the theater interior. He accomplished this through the use of one-point perspective. He also wanted to show the content of the play, and accomplished this by using oblique projection and by depicting the main actors quite large. It should be recalled here that prints of this type were produced as advertisements of plays.

4.2 Relation between Space and Time – Japanese Concept of 'Ma'

In this *ukie* two different ways of representing space coexist. In addition, perspective lines do not meet perfectly. The theater space is not tightly constructed. The imperfect structure

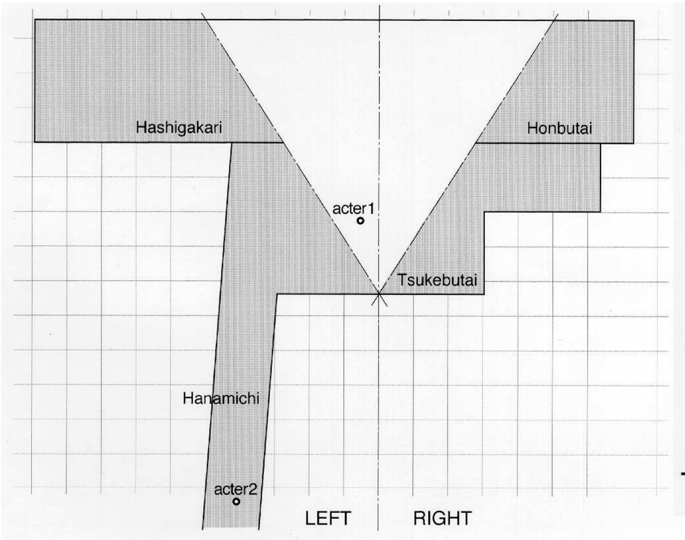

Figure 6: Plan of the stage

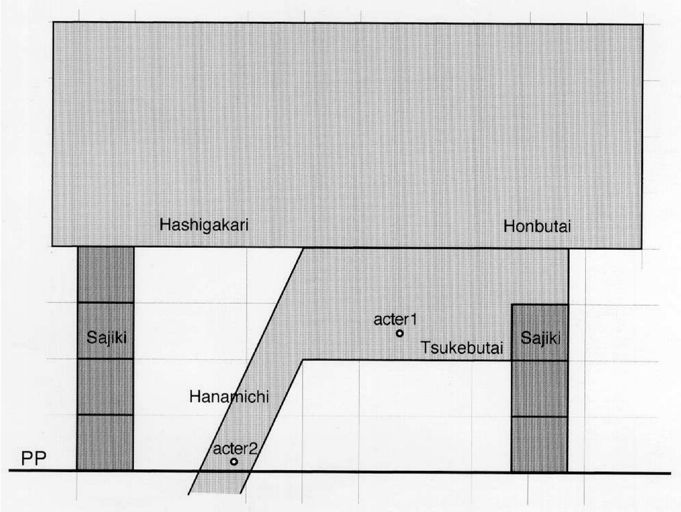

Figure 7: Plan of the interior

gives a sense of movement, a shakiness, which adds tension to the scene. Space that has this tension seems to be related to the Japanese concept of em ma, which includes both space and time. The architect Arata Isozaki explains the concept of *ma* as:

“According to Western notions, space in a three-dimensional and a four-dimensional world results from the addition of the time element to the spatial dimensions. In Japanese thought, however, space is composed of strictly two-dimensional facets. Depth is created by a combination of two-dimensional facets. Time-scales (flows) measure the spaces between these facets. In other words, in Japan four-dimensional space is visualized as the result of combining two two-dimensional facets and two time-measurements. The basic reason for the use of the word *MA* to express both time and space seems to be that the Japanese have understood space as an element formed by the interaction of facets and time” [4].

In post-Renaissance Western paintings, space is depicted through linear perspective. The representation of space is smooth as if the air is flowing through the space. This flowing sense is connected to the expression of time, I think. Time in the West is depicted as if it moves linearly at a consistent pace. For example, the expression of time in Vermeer’s pictures gives the impression of being arrested, as if a clock suddenly stopped. But in Japanese traditional *yamatoe*, the entire scene is explained via a bird’s eye view, i.e., oblique projection. At the same time, objects are viewed up close in detail. The movement of time is, thus, provided by viewers, who make their way through the picture [5]. In other words, different times coexist in a single picture. In *ukie*, Western perspective projection and Japanese oblique projection are mixed. Thus the depiction of space, and hence the expression of time, is different from both Western pictures and *yamatoe*. Time in *ukie* is stopped in a manner similar to that of Western pictures. But there seems to be an atmosphere of anticipation for when time will suddenly start again.

In traditional Japanese painting space is represented by the Japanese concept *ma*. In traditional Japanese music time is expressed by the same concept of *ma*. Western music has a regulated rhythm that repeats. Japanese music, on the other hand, has an irregular rhythm. In Western music, tension increases through the buildup of a constant rhythm. This is different to Japanese music, where tension is created through the irregular cut of irregular rhythm. If

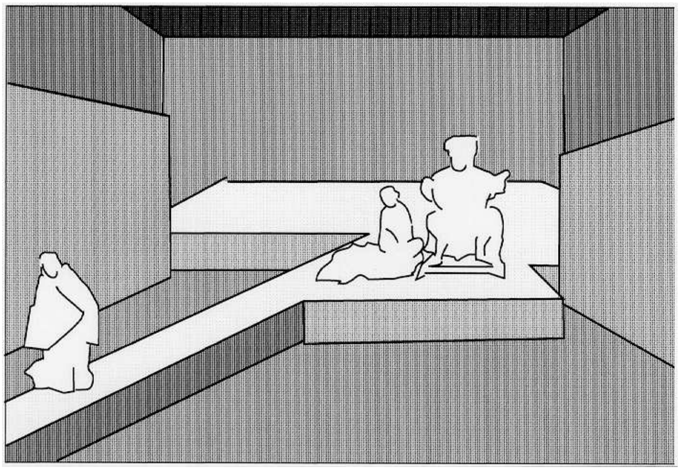

Figure 8: Mixed projection of the audience space and the stage

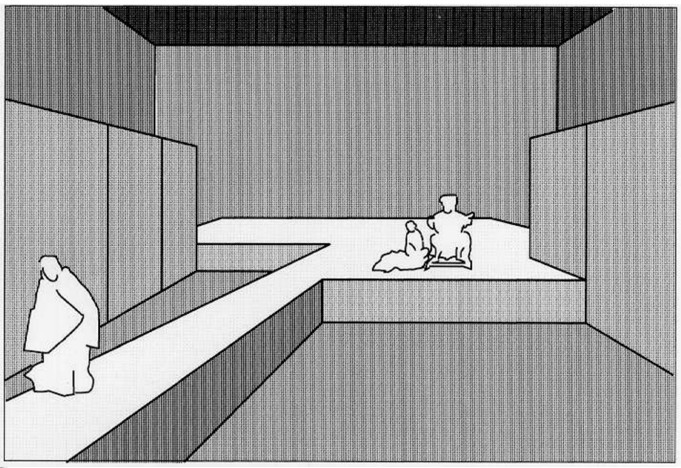

Figure 9: Perspective projection of the audience space and the stage

the rhythm were constant, the tension would disappear. This discontinuous rhythm entices one to listen for unexpected changes, building tension [6]. In the *ukie*, this same tension is expressed through *ma*. The concept of time and space connoting *ma* in this print heightens the perception of audience excitement within the theater.

4.3 Impact of 'Interior of a Kabuki Theater'

After this print, many others were produced with a similar style and composition. These later prints are rendered using more correct perspective projection[3]. They show a larger audience space, and come closer to a natural view. However, the oblique projection of the stage remains the same. From the back rows to the stage, people in the audience are shown in decreasing size. The actors on stage, however, remain rather large. The artists of *ukie* had to work out how to depict solid and empty spaces by reconciling the traditional *yamatoe* style with the newly introduced Western techniques. The artists who worked in this new technique produced many *ukie* prints for the people within a short time. But the popularity of *ukie* was short. Due to lacking essential Japanese sentiment and literary culture, these prints came to be viewed as formulaic.

5 Summary and Conclusion

I analysed the methods of drawing used in the *ukie* print titled *'Interior of a Kabuki Theater'*, which shows a playhouse, including both the audience space and the stage. The results of the analysis indicated that two different methods of drawing were used within the same print, one-point perspective for the audience space and combined oblique projection for the stage. This is not simply a result of incorrect technique, but closely related to what the artist of the picture wanted to express through the drawing. The artist was also able to create the feeling of actually being inside the theater through the use of one-point perspective and to show the content of the play through the use of combined oblique projection, thus placing emphasis on

[3]There are many *ukie* prints with the same composition, for example prints by Utagawa Toyoharu (1767-1789 numerous works) and Katsushika Hokusai (1787 one work).

the main actors. The use of two different methods of drawing gives a sense of movement, a shakiness, which adds tension to the scene. Space that has this tension seems to be related to the Japanese concept of *ma*.

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