

# Creating Aesthetic Experience by Blending Styles

## A Study of Hans Wegner's Chairs

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In this study, we used chairs designed by Hans Wegner, the celebrated Danish furniture designer, as examples to investigate whether blending contrastive styles can lead to designs that are both typical and novel. We also sought to confirm whether such designs positively correlate with aesthetic preference. We selected 27 representative Wegner chairs as stimuli, as well as eight IKEA chairs, eight Ming chairs, and nine Windsor chairs to represent the Scandinavian, the Ming, and the Windsor styles, respectively. We then asked 60 Taiwanese participants who were not familiar with Wegner chairs to evaluate the total number of 52 chairs. The results showed that the contradictory meaning of "both typical and unique" was positively correlated with aesthetic preference. However, neither "both eastern and western" nor "both traditional and modern" showed significant correlation with aesthetic preference. All three cases of semantic vagueness, "neither typical nor novel", "neither eastern nor western", and "neither traditional nor modern" were negatively correlated with aesthetic preference. It also appears that a Wegner chair more successfully blended Danish style with other styles to achieve being "both typical and unique", when it was made of the light-color wood and infused with little amount of Ming style or Windsor style characteristics.

**Keywords:** *Product Semantics, Contradictory Meanings, Style Blending*

### 1. Introduction

In our previous studies, we used pictures of 88 chairs that cover a wide range of shape variations to investigate the relationship between typicality-novelty and aesthetic preference. Our results showed an inverted-U relationship between typicality-novelty and aesthetic preference [11]. To distinguish between cases of semantic contradiction (e.g. both typical and novel) and cases of semantic vagueness (e.g. neither typical nor novel) that clustered around the middle of the inverted-U curve, we developed the four-quadrant method for measuring contradictory semantics [8] and found a positive correlation between semantic contradiction and aesthetic preference, as well as a negative correlation between semantic vagueness and aesthetic preference [9,10]. In this study, we conducted further investigation on contradictory semantics in product design. In particular, we seek to answer to the question: How to create products that are both typical and novel? Could blending contrastive styles lead to designs that are both typical and novel? In addition, would such designs with contradictory meanings positively correlate with aesthetic preference?

We selected chairs designed by the Danish furniture designer, Hans Wegner, as stimuli for this study. Danish furniture gained international fame after World War II. The successful combination of design and technology in Danish furniture simultaneously delivers aesthetics and functionality. And, Hans Wegner was one of the most

celebrated Danish furniture designers. In his lifetime, he designed more than 500 chairs, over 100 of which went into mass production. To the rest of the world, Wegner's chairs came to represent Danish Modern Design [5,6,15]. However, many Wegner chairs were influenced by foreign styles. For example, the series of China Chairs show influences of Ming style chairs from China, and the Peacock Chair exhibits characteristics of the Windsor style chairs from England [14,15].

For our study, the large number of Wegner chairs, which were designed by the same designer but had different styles, provided a good basis for selecting stimuli. We were particularly interested in the perception of the series of China Chairs by Taiwanese participants. Would they be evaluated as having contradictory semantics (both typical and novel, both traditional and modern, both eastern and western)? Would they elicit higher aesthetic preference? For comparison purposes, we also investigated the perception of Wegner's chairs which show characteristics of the Windsor style from UK, where both sources of styles were western.

## **1.2 Measurement of Blending Styles**

It is not easy to verbally define a "style" or to measure it [4]. According to Smith [13], a style is "the recognition of a quality shared among many things". Thus, to be recognized as a "style", it is necessary that a common set of characteristics are recognized as shared among a group of works, as argued by Beardsley [2]: "No feature of any work is a stylistic feature of that work unless it belongs to a class or family of features that marks that work as having, or being in, a style – that is, as belonging to a group of works identified as a group by that class or family of features."

In this research, we did not attempt to define different styles verbally. Instead, we used pictures of representative chairs to visualize a particular style. The IKEA, the Ming, and the Windsor styles were visualized by using 8 IKEA chairs, 8 Ming chairs, and 9 Windsor chairs, respectively. Because participants of our study are Taiwanese locals, we chose the more familiar IKEA furniture as a representative of Scandinavian style. We expected that the Wegner chairs would be perceived to be more similar to IKEA furniture, while different from Ming and Windsor style.

## **2. Research Method**

### **2.1 Stimuli**

Based on documented lists of Wegner chairs [12,14,15], we collected color photos of 116 Wegner chairs from the internet, books and magazines. To be comparable to Ming and Windsor chairs, we focused on 72 Wegner chairs that are wooden dining chairs with four legs. We then asked five pretest participants to conduct card sorting and grouped the 72 chairs according to similarity. By selecting representative chairs from the resulting groups, we arrived at a subset of 27 Wegner chairs, as shown in Figure 1. Each chair is represented by a 6 cm x 6 cm color photo.

As discussed above, we also included eight IKEA chairs, eight Ming chairs, and nine Windsor chairs to represent the Scandinavian, the Ming, and the Windsor styles, as shown in Figure 2. The IKEA chairs were chosen from the mass-produced wooden dining chairs from the company website (<http://www.ikea.com>). The Windsor chairs included various styles of seatback, including sack-back, hoop-back, comb-back, continuous arm, low back, rod back, and fan back [1,16]. Finally, the Ming chairs included loop-bracket chairs, official's hat chairs, and rose (or mei-guei) chairs [3]. Again, each chair is represented by a 6 cm x 6 cm color photo.



Figure.1 27 Wegner chairs



Figure.2 Chairs representing three different styles

## 2.2 Participants

Sixty five participants were recruited from engineering, management and design departments of Ming-Chi University of Technology in Taiwan. To avoid influence by preconception, we included questions in the experiment to check a participant's knowledge about Wegner chairs. If a participant has previously seen more than three of the Wegner chairs (either on internet or in books) or if a participant possessed background information about any of the chairs (such as the designer, his style, or production method), we excluded his/her experiment results from further analysis. After excluding 5 participants due to prior knowledge, we had a total number of 60 participants (32 male and 28 female; 18 to 20 years of age). Participants were paid a small compensation for taking part in the experiment.

## 2.3 Procedure

The experiment was conducted in three stages: measurement of aesthetic preference, measurement of contradictory semantics, and classification of styles. For each participant, the entire experiment took about one and a half hours to complete.

In the first stage, a participant divided 52 chairs (27 Wegner chairs, 8 IKEA chairs, 8 Ming chairs, and 9 Windsor chairs) into 9 groups, according to the perceived levels of "ugly – beautiful". To facilitate this task, the participant was first asked to divide the chairs into three groups, representing low, medium and high levels, and then to further divide each of these groups into three subgroups, thus arriving at a total of 9 groups. We then mapped the 9 groups to the 9-point rating scale.

In the second stage, a participant evaluated the chairs by using the 4-quadrant method [8,9,10] for three adjective pairs: “typical – unique”, “eastern – western”, and “traditional – modern”, as shown in Figure 3. Using the "typical-unique" adjective pair as example, a participant would place each of the 52 stimuli in one of the four quadrants: "typical (T)", "unique (U)", "both typical and unique (+T+U)" and "neither typical nor unique (-T-U)". The participant could place different numbers of stimuli in a quadrant, or could even leave an empty quadrant. Each participant was presented the three adjective pairs in a randomized order. After each of the 4-quadrant sorting task, the researcher conducted an interview to understand why some of the chairs were considered to be “both typical and unique”, “both eastern and western”, or “both traditional and modern”.

unique <i>T%</i>	both typical and unique <i>+T+U%</i>	eastern <i>E%</i>	both eastern and western <i>+E+W%</i>	traditional <i>Tr%</i>	both traditional and modern <i>+Tr+M%</i>
neither typical nor unique <i>-T-U%</i>	typical <i>U%</i>	neither eastern nor western <i>-E-W%</i>	western <i>W%</i>	neither traditional nor modern <i>-Tr-M%</i>	modern <i>M%</i>

Figure.3 The 4-quadrant method

In the third stage, a participant matched the 27 Wegner chairs to the Scandinavian style, the Ming style, the Windsor style, or to other, if none of the styles were applicable. The three styles were represented visually by examples as shown in Figure 2.

### 3. Results

#### 3.1 Contradictory Semantics and Aesthetic Preference

We first analyzed the relationship between aesthetic preference and the three adjective pairs, “typical – unique”, “eastern – western”, and “traditional – modern” (Figure 3) for the 27 Wegner chairs. For a particular chair, we estimated its degrees of typicality, uniqueness, semantic contradiction (both typical and unique), and semantic vagueness (neither) by using the percentages of participants who classify the stimulus in quadrants T, U, +T+U, and -T-U, respectively. We used the notions *T%*, *U%*, *+T+U%*, and *-T-U%* to denote the corresponding percentages. We adopted similar notions for the other adjective pairs “eastern – western”, and “traditional – modern”.

We found expected results for the adjective pair “typical – unique”. As shown in Figure 4, the data for the 27 Wegner chairs show positive correlation between “both typical and unique (+T+U%)” and aesthetic preference, while negative correlation between “neither typical nor unique (-T-U%)” and aesthetic preference. The correlation between “typicality (*T%*)” and aesthetic preference is not significant, nor is the correlation between “uniqueness (*U%*)” and aesthetic preference. These results confirm our previous findings [9] and also the findings in [7].

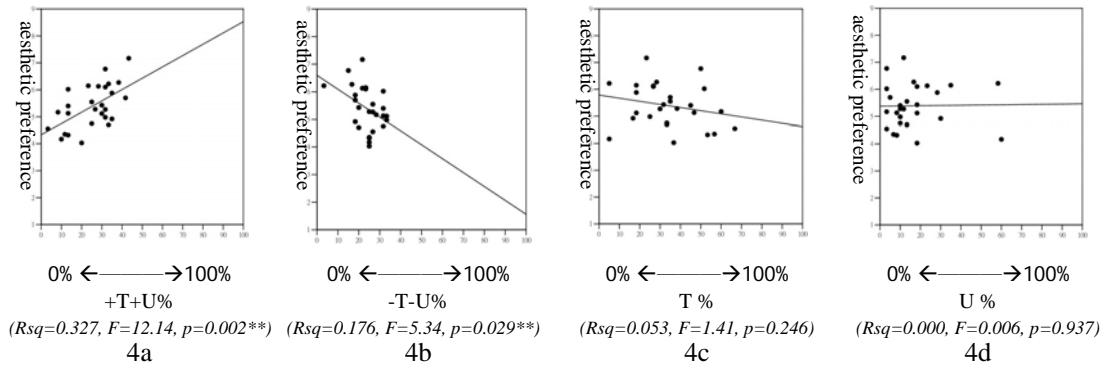


Figure.4 Correlations between aesthetic preference and 4-quadrant percentages +T+U%, -T-U%, T%, and U%.

For the other two adjective pairs “eastern – western”, and “traditional – modern” (Figures 5 and 6, respectively), we failed to find positive correlation between contradictory semantics and aesthetic preference. The correlation between “both eastern and western (+E+W%)” and aesthetic preference is not significant, nor is the correlation between “both traditional and modern (+Tr+M)” and aesthetic preference. For these two adjective pairs, aesthetic preference positively correlated with being perceived as more “western (W%)” and more “modern (M%)”, while negatively correlated with being perceived as more “eastern (E%)” and more “traditional (Tr%)”. Vagueness is not good, however. We found that semantic vagueness-- “neither eastern nor western (-E-W%)” and “neither traditional nor modern (-Tr-M%)”--negatively correlated with aesthetic preference.

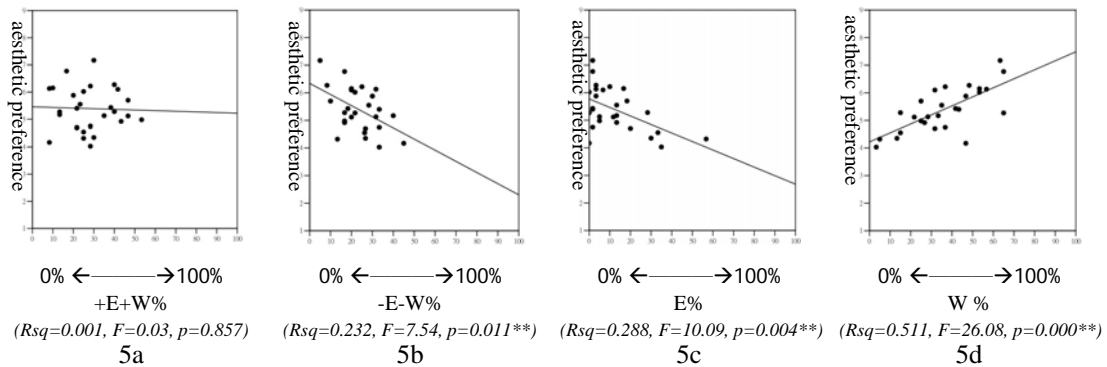


Figure.5 Correlations between aesthetic preference and 4-quadrant percentages +E+W%, -E-W%, E%, and W%.

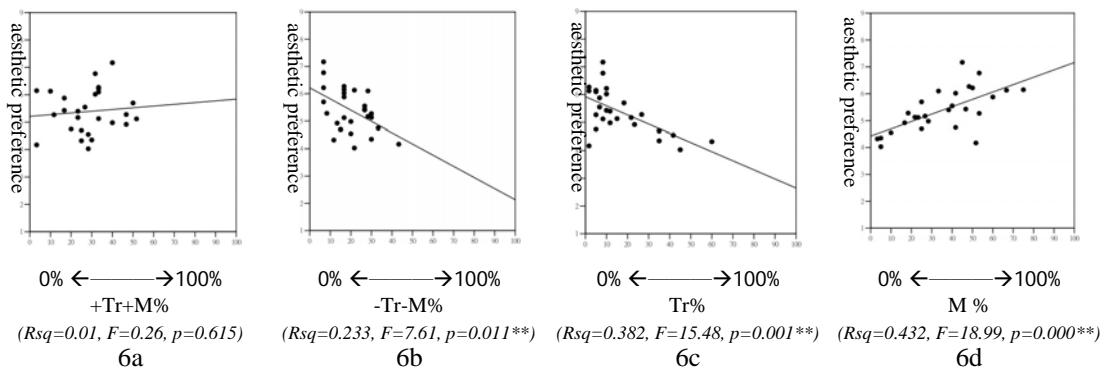


Figure.6 Correlations between aesthetic preference and 4-quadrant percentages +Tr+M%, -Tr-M%, Tr%, and M%.

### 3.2 Blending Styles and Aesthetic Preference

To investigate whether blending contrastive styles can lead to aesthetically pleasing designs, we focused on the 10 Wegner chairs in Figure 7, where chairs (a) to (d) were deemed to be influenced by the Windsor style, and chairs (e) to (j) by the Ming style [12,14,15].

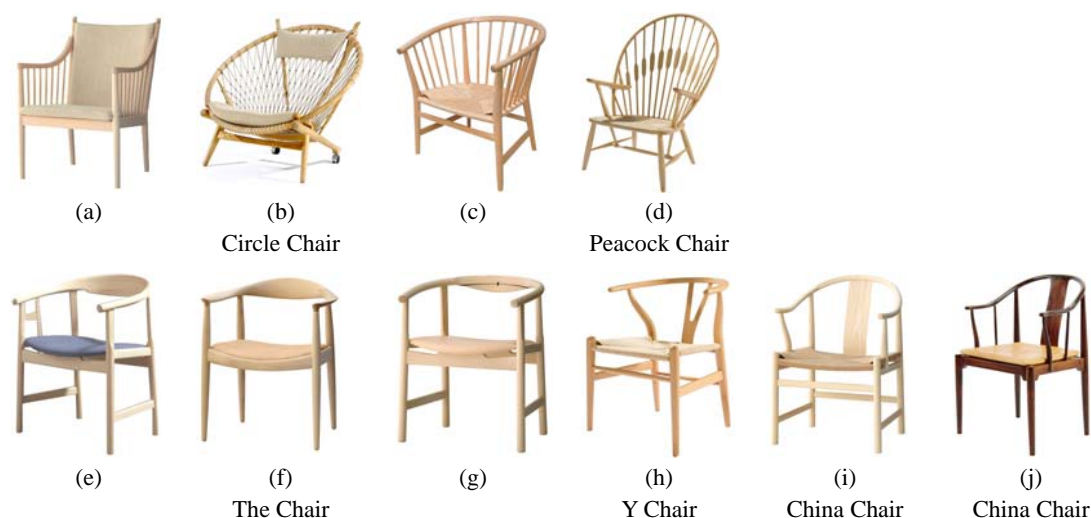


Figure.7 Wegner chairs influenced by the Windsor style (a)~(d), and by Ming style (e)~(j)

We first checked aesthetic preference for the 27 Wegner chairs (Figure 1), and the three different styles of chairs (Figure 2): IKEA chairs, Winsor chairs, and Ming chairs. The box plots of aesthetic preference for the four groups of chairs are shown in Figure 8a. One-way ANOVA showed significant difference in the aesthetic preference for the four groups of chairs ( $F=19.661$ ,  $p<0.05$ ). Post hoc LSD tests showed that Wegner chairs and IKEA chairs were not significantly different in aesthetic preference ( $mean=5.39$ ,  $4.99$ ,  $p>0.05$ ), and both were aesthetically preferred over either the Windsor chairs or the Ming chairs ( $p<0.05$ ). In addition, the Windsor chairs received significantly higher ratings in aesthetic preference than the Ming chairs ( $mean=4.06$ ,  $3.27$ ,  $p<0.05$ ).

Figures 8b ~ 8d summarized the relationship between aesthetic preference and the percentages of participants who classified the Wegner chairs as similar to the IKEA chairs (8b), the Windsor chairs (8c), and the Ming chairs (8d), respectively. We first examine chairs (a) to (d), which were documented to be influenced by the Windsor style. Chair (a), which was classified by 20% of the participants as Windsor style (Figure 8c) and by 21.7% as Scandinavian style (Figure 8b), received a relatively high value of aesthetic preference ( $mean=7.17$ ). Chair (b), which was classified by 23.3% of the participants as Windsor style (Figure 8c) but by none (0%) as Scandinavian style (Figure 8b), also received a relatively high value of aesthetic preference ( $mean=6.22$ ). Chairs (c) and (d), which were classified almost unanimously as Windsor style (91.7%, 100%) (Figure 8c) and not at all as Scandinavian (0%, 0%) (Figure 8b), on the other hand, received relatively lower values of aesthetic preference ( $mean=5.28$ ,  $4.92$ ). Overall, the distribution in Figure 8c indicates that chairs blended with low levels of Windsor style were more aesthetically preferred than those with high levels of Windsor styles.

We next look at chairs (e) to (j), which were documented to be influenced by the Ming style. Chairs (e) to (i) were classified by 11.7%, 11.7%, 13.3%, 26.7%, and 45% of the participants respectively as closer to the Ming style, while they were classified by 41.7%, 48.3%, 43.3%, 31.7%, 18.3% of the participants as closer to the Scandinavian style. These chairs received high to average values of aesthetic preference, from chair (e)

(*mean*=6.27) and chair (g) (*mean*=6.10) to chair (h) (*mean* = 5.12). On the other hand, chair (j), which was classified by most as the Ming style (86.7%) and very few as the Scandinavian style (3.3%), received a much lower value of aesthetic preference (*mean*=4.32). Again, the distribution in Figure 8d indicates that chairs blended with low to medium levels of Ming style were more aesthetically preferred than those with high levels of Ming style.

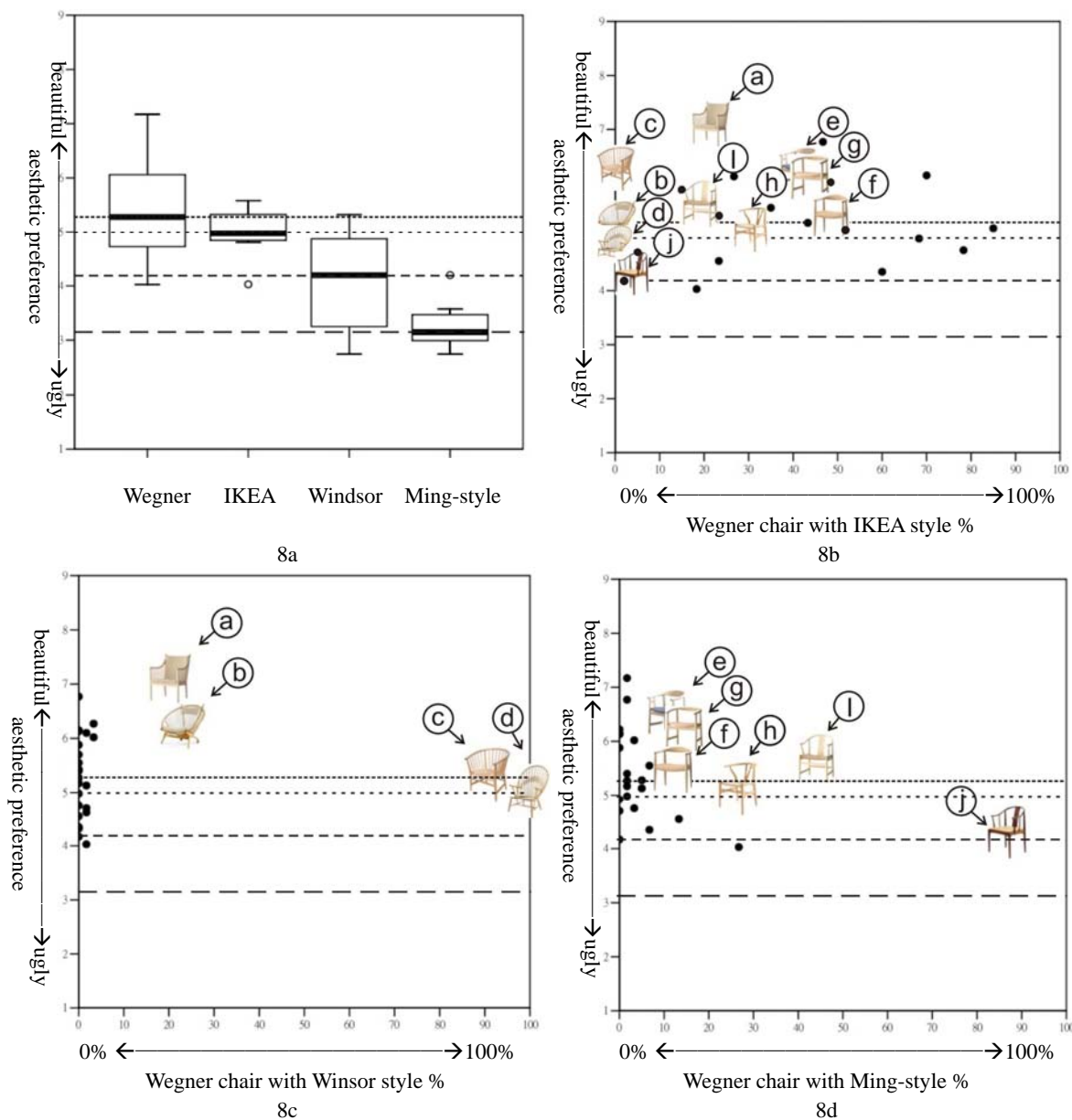


Figure.8 Blending styles of Wegner chairs and aesthetic preference

Figures 9a and 9b showed the relationship between the percentage of participants classifying a particular chair as “both typical and unique” (+T+U%) and the percentages of participants who classified the Wegner chairs as similar to the Windsor chairs (9a), and the Ming chairs (9b), respectively. To judge whether a chair obtained a relatively high percentage of being “both typical and unique”, we used 25% as the threshold, which is the probability that a chair is in a quadrant, if it is equally likely to be placed in one of the 4 quadrants. The dotted line in each diagram thus corresponds to the 25% threshold. As can be observed in Figures 9a and 9b, most chairs with

blending styles were recognized by more than 25% of the participants as being both typical and unique. The only exception is chair (j), the China chair designed by Hans Wegner in 1944. Interviews conducted after the 4-quadrant method revealed that the shape and the dark color of chair (j) caused it to be less often classified as “both typical and unique”.

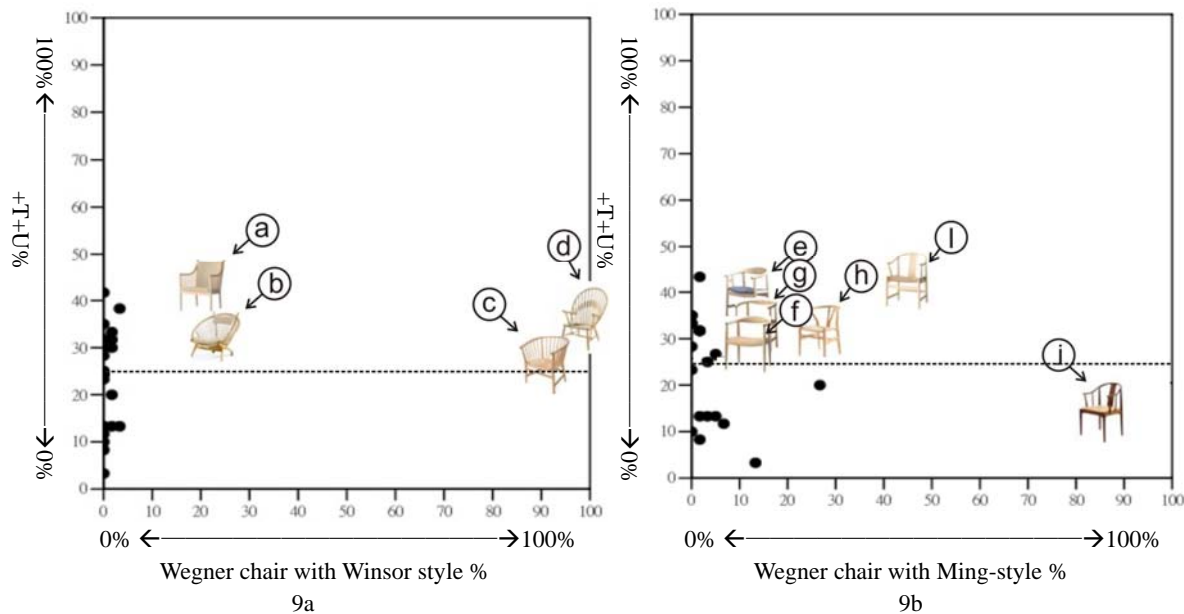


Figure.9 Blending styles of Wegner chairs and percentages of being “both typical and unique”

#### 4. Conclusions and Discussions

In this research, we selected chairs designed by Hans Wegner as stimuli to investigate the influence of blending styles on contradictory semantics, and, in turn, on aesthetic preference. The results showed that "both typical and unique" was positively correlated with aesthetic preference. However, neither "both eastern and western" nor "both traditional and modern" showed significant correlation with aesthetic preference. All three cases of semantic vagueness, "neither typical nor novel", "neither eastern nor western", and "neither traditional nor modern" were negatively correlated with aesthetic preference. In addition, a Wegner chair more successfully blended with other styles to achieve "both typical and novel", when it was made of the light-color wood and infused with small amount of Ming style or Windsor style characteristics.

Wegner’s series of China chairs (chairs (e) to (j) in Figure 7) were Danish design blended with characteristics of Ming chairs. In the context of a Chinese society, we therefore included the adjective pairs “eastern-western” and “traditional-modern” in our study to investigate whether blending styles (Danish + Ming) would result in designs that are “both eastern and western” and “both traditional and modern”, which in turn might lead to higher aesthetic preference. However, experiment results did not show that aesthetic preference positively correlated with either “both eastern and western” (Figure 5a) or “both traditional and modern” (Figure 6a). Instead, aesthetic preference positively correlated with being “western” (Figure 5d) and “modern” (Figure 6d), while negatively correlated with being “eastern” (Figure 5c) and “traditional” (Figure 6c). After carefully examining the stimuli, we found several factors that could result in “mis-classification” of a stimulus, including color and past experience. Chairs made of light-color wood were perceived as more modern, while those made of dark-color wood were perceived as more traditional, such as chair (j) in Figure 7. Several Wegner chairs blended with Windsor styles



were classified as being “both eastern and western”, contrary to our expectation. In interviews conducted after the 4-quadrant method, some participants mentioned that they had seen chairs similar to Windsor style in their youth, hence chairs with Windsor styles were perceived by some participants as “eastern” and “traditional”. Figure 10 shows two examples of bamboo chairs that have Windsor style characteristics. In future study, we hope to conduct studies with participants from western countries to further investigate the relationship between contradictory meaning and aesthetic preference.



Figure.10 Bamboo chairs with Windsor characteristics

## 5. Acknowledgement

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