

The Preference on Korean Traditional Motifs and It's Relationship with Motif Images

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Abstract

The purposes of this study were to investigate preference and images of Korean traditional motifs, and to identify the relationship between them. The subjects consisted of 369 male and 356 female undergraduate students. The experimental materials used in this study were 48 stimuli and a questionnaire composed of 7-point semantic differential scales of 26 adjectives. Twelve motifs selected from 3 groups of Korean motifs were used as pattern design stimuli. Twelve repeated patterns were constructed from them to be applied on a CAD-simulated dress. The data were analyzed by ANOVA, Duncan's multiple range test, and regression.

The major findings were as follows:

1. *Category, composition type, and application object had a significant effect on the preference. Interpretation type has no significant effects on the preference independently, but it had interaction effects when combined with composition type, and category.*

Especially the composition type had a greater effect than the other variables on the preference. Cloud motif and its abstract and decorative type were found to be more related to the preference than the other category and interpretation type. On the basis of the analysis results, image charts and preference charts were developed. By combining information from the image chart and preference chart, motifs and images preferred by consumers may be selected and developed into new valuable designs.

2. *The preference was affected mainly by 'quality' image followed by 'simplicity', 'interest', and 'modernity' image. The preference on pattern design was affected by 'quality', 'simplicity', 'interest', and 'modernity' image in the order, while the preference on clothing design was affected by 'quality', 'interest', 'simplicity', and 'modernity' image in the order. The relationship between the preference and sensibility images has been represented by equations.*

Key words : Korean traditional motif, category of motif, interpretation type of motif, composition type of motif, application object of motif.

I. Introduction

The competitive environment in the world fashion market of the 1990's forces fashion designers as well as textile designers to dif-

ferentiate their design from others. For example, some designers are adopting traditional elements in their design world.

As a representative element of traditional design, Korean traditional motifs have been used frequently since they are good medium

to present Korean-style image to the world of international fashion market.

Recently the approach of Kansei engineering has been introduced in design field researches and the importance of evaluating motif images quantitatively as well as qualitatively is rapidly increasing. Advanced countries in fashion business are trying to examine images of their fashion products perceived by customers and analyze customers' preferences on their products. The competitive environment of the world fashion market requires scientific researches on fashion products. One of the most urgent studies of such type in Korea is the measurement of Korean traditional motif images and preference on them.

The outcome from this study can be used as a fundamental data for systematical design development using Korean traditional motifs.

The purposes of this study are

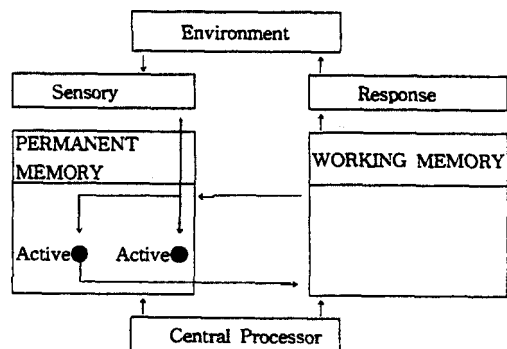
- 1) To quantify the preference on Korean traditional motifs according to their category, interpretation type, composition type, and application object.
- 2) To investigate the relationship between the preference and sensibility images and develop related equations.

II. Theoretical background and Research model

1. Information Processing

The theoretical perspective of this study is information processing which cognition is viewed as. Cognition involves the acquisition, storage, retrieval, and use of knowledge.¹⁾ The model of cognition contains major structural components involving sensory input, working and permanent memory, a central processor, and a response system. The sensory component extracts information from briefly held input. Basic features of the stimulus are extracted and combined in sen-

sory system. The second structural component is permanent and working memory. The coded physical stimulus passes into the memory system, where it is compared with information and generally find approximate match with a pattern in memory. Permanent memory which is the vast long-term reservoir of information contains representations of input, semantic information, skills, processing programs, and values. Active memory is the activated portion of permanent memory that contributes to current processing. The processes of coding, storing, and retrieving are associated with permanent memory. Working memory holds and processes information that is the current focus of attention. Information is coded, held, transferred to permanent memory, and retrieved by working memory. Thus working memory is a kind of "work space" for ongoing, deliberate cognitive activity. The central processor which is the decision-making structure supervises the flow and processing of information within the system, based on goals of the person, thus filling the functional aspect of the system. The final structural component is response system. This system temporarily holds, organizes, and produces output. The output of response system will become part of the environment for sensory input.²⁾



〈A preliminary working model of cognition〉

¹ M. W. Matin and H. J. Foley. *Sensation and Perception*(3rd ed.), (Allyn and Bacon, 1992), 2.

² D. H. Dodd. *Cognition: Mental Structure and Processes*, (Allyn and Bacon, 1980), 11-22.

Park and Lee³⁾ referred that cognitive science is not interested in external condition, but in internal process of information processing. Cognitive science is recognized as the same as the model of information processing of computer, input-processingoutput, and it is based on the process of psychology which occurs when confronting objects or any phenomena. The phenomena inputted from exterior is recognized as information and coded, operated and stored through special information processing as a psychological process is achieved. As a result, Images or responses come out. By processing synthetically the information which is obtained from continuous learning and circulation of memory, a range of familiarity is widen and it acts as an important role to increase preference. Preference is men's attitude toward objects, and is a response appeared when content of stimulus from perception and cognition is systematized as a knowledge.⁴⁾

2. Research Model

A research model(Fig. 1) was developed, which was constructed to find out cause and effect relation between the preference and images on the basis of cognitive information processing.

Visual Stimuli consist of 24 pattern design stimuli and 24 clothing design stimuli using

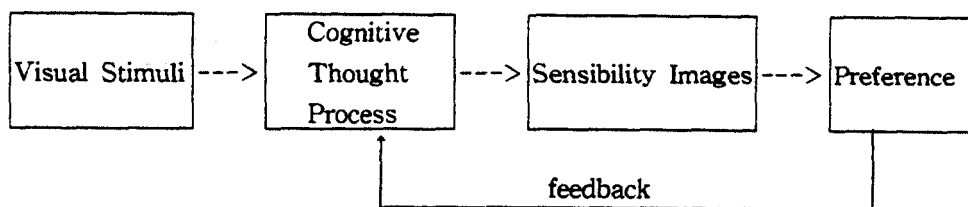
Korean traditional motifs. A cognitive thought process includes perception and cognition. Through cognitive thought process, the sensibility image of a Korean traditional motif is extracted from the corresponding stimuli. Preference is presented as an attitudinal response of knowledges past through cognitive thought process.

The formed preference processes through cyclic psychological process with feedback. The independent variables in this study are category, interpretation type, composition type, and application object. Category is composed of three levels of lotus, cloud, and crane motif, and interpretation type is composed of four levels of realistic, stylized, abstract, and decorative type. Composition type is composed of two levels of single-motif and repeated-motif type, and application object is composed of two levels of pattern design and clothing design.

The dependent variables are the images and preference of Korean traditional motifs.

3. Images of Korean Traditional Motifs

Chang & Kim⁵⁾ developed classification system of Korean traditional patterns which was structured with 3 levels of prototypes which were category, interpretation type, and composition type. Category means the sort of Korean traditional patterns. Interpretation type means presentation method according



<Fig. 1> Research model.

³⁾ Park, Y. M. and Lee, D. A Study on the Cognitive Scientific explanation for Design Ideation, *Journal of Korean Society of Design Studies*, 21 (1997), 1-12.

⁴⁾ Lim, Y. N. *Design Ergonomics*, (Seoul, Mijinsa), 173 (1994).

⁵⁾ Chang, S. K. and Kim, J. S. Prototype Extraction for the Categorization of Lotus and Crane Patterns using Qualitative and Quantitative Approaches, *Journal of the Korean Society of Clothing and Textiles* 20, 1(1996), 1016-1026.

to the degree of complexity and transformation. There were 4 interpretation types which were realistic, stylized, abstract, decorative types. And composition type which is according to the repeat of motif were single-motif type and repeated-motif type.

Chang⁶⁾ found out the images of Korean traditional patterns using lotus, crane, cloud motifs. Four dimensions were emerged accounting for the dimensional structure of the images of Korean traditional patterns. These dimensions were 'simplicity', 'quality', 'interest', and 'modernity' dimension. Among them, 'simplicity' and 'quality', were the major dimensions. Category, interpretation type, composition type, and application object had significant effects on the images of above-mentioned dimensions.

The application object had a significant effect on 'simplicity' and 'modernity' image, and the composition type on 'quality' and 'interest' image. On the basis of the analysis result, image charts were developed according to the variables.

III. Procedures

1. Operational Definition

1) Pattern

Pattern means visual texture presented by single-motif or repeated-motif on the surface of fabric.

2. Subject

In order to investigate the relationship between the preference and sensibility images of Korean traditional motifs, the survey was executed to 780 female and male undergraduate students in Taejon and Chungcheong

area in the period of the 23rd of November, 1998 to the 4th of December, 1998.

725 completed questionnaires were received. 55 of them were eliminated because of insincere responses.

3. Stimuli

According to 3 levels of categories, 4 levels of interpretation types, 2 levels of composition types, and 2 levels of application objects, 24 pattern design stimuli and 24 clothing design stimuli were simulated on CAD(Computer Aided Design). 831 Korean traditional motifs were collected from reference books.⁷⁾ Twelve representative motifs for this study were selected by a professional group of 2 professors and 3 graduate students from them: 564 lotus, 140 crane, and 127 cloud motifs. They were simulated as repeated patterns with a 1/2 drop or brick repeat method. Horizontally longer motifs were repeated with brick repeat method and vertically longer ones with 1/2 drop repeat method. The ratio between figure and ground was around 5:3 and the number of repeat was from 12 to 18. These single-motif and repeated-motif patterns were applied to a simple one-piece dress. The color was controlled to black and white. The size of pattern stimuli was 14 × 9.5 cm and the size of clothing ones was 6.3 × 13.5 cm. (Fig. 2)

4. Instrument

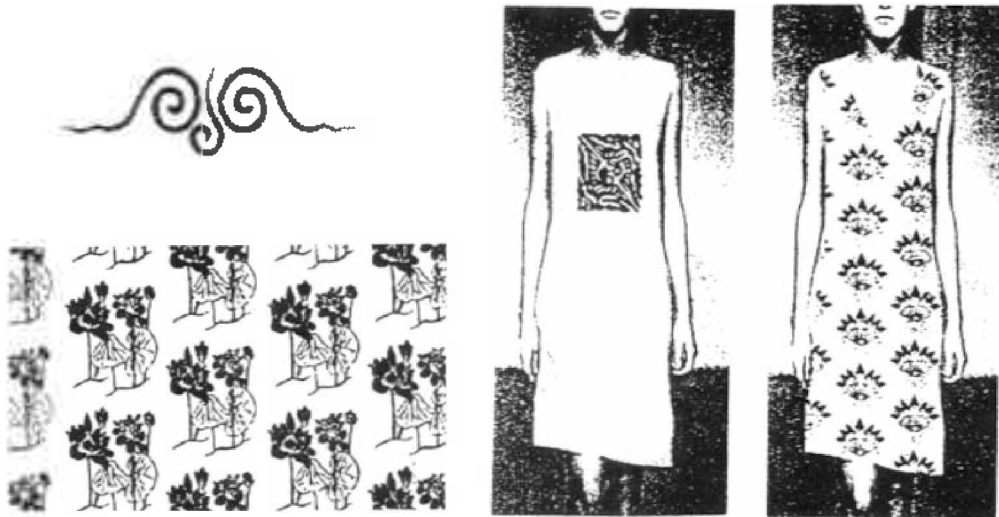
The instrument was developed on the basis of previous researches on the images of pattern design. The questionnaire included two sections, one on sensibility image and the other on preference. The former included 22 adjectives and the latter included one adjective. Responses of the subjects were mea-

⁶⁾ Chang, S. K. Effects of Category, Interpretation Type, Composition Type, and Application Object on Images and Preference on Korean Traditional Patterns, Unpublished Doctoral Dissertation, Chungnam University (1999).

⁷⁾ Lim, Y. J. *Traditional Motifs*, (Seoul: Mijinsa 1991)

Lim, Y. J. *History of Traditional Patterns*, (Seoul, Mijinsa, 1983).

Seo, H. H. *Korean's Patterns*.



<Fig. 2> Pattern stimuli and clothing stimuli.

sured by using a series of 7-point semantic differential scales in which they were asked to indicate their degree of agreement. The reliability of the measuring instrument was tested by calculating Cronbach α in a pre-test and calculating reliability between a pre-test and a retest. Cronbach α was .85 and the level of reliability between two tests was .80 so that the reliability of instrument was verified. The validity was examined by judge group discussions. The judge group was the same one who selected the representative motifs.

5. Data Analysis

SAS was used for statistical analysis of the data. ANOVA, the Duncan's multiple range test, and regression were used.

IV. Results and Discussion

1. Preference Evaluation according to Independent Variables

Four-way ANOVA was performed to identify the effects of independent variables and the Duncan's multiple range test to show significant differences among their levels (Table

1).

It was found that category, composition type, and application object had significant effects on preference. But interpretation type had no significant effects. Especially composition type had a greater effect than the other variables. Duncan's multiple range test revealed that the subjects preferred cloud motif to lotus or crane motif, single-motif type to repeated-motif type, and clothing design to pattern design.

2. Interactions between Independent Variables

The interactions between category and interpretation type, between interpretation type and composition type, and between composition type and application object had significant effects on preference. Especially the interaction between composition type and application object had a greater effect than the other ones (Table 2).

<Fig. 3> is a plot to show the interaction between interpretation type and category. When motifs were presented in a realistic type, crane motif was the most preferred, but

<Table 1> Preference evaluation according to independent variables

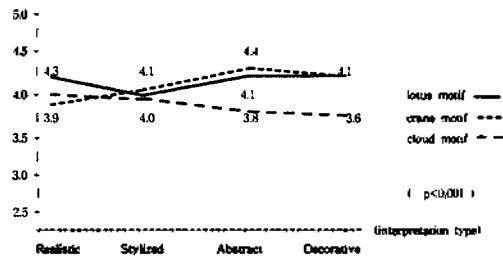
Independent variable	Level	Preference		
		Mean	F-value	Duncan
Category	Lotus	4.16	9.76***	A*
	Crane	4.12		A
	Cloud	3.86		B
Interpretation type	Realistic type	4.09	0.84 ^{N.S.}	
	Stylized type	4.03		
	Abstract type	4.09		
	Decorative type	3.97		
Composition type	Single-motif pattern	3.63	190.45***	B
	Repeated-motif pattern	4.47		A
Application object	Pattern design	4.14	9.81**	A
	clothing design	3.95		B

** p<.01, *** p<.001, N.S. : not significant.

*: Duncan's multiple range test.

lotus motif the least preferred. When motifs were presented into a stylized, an abstract, and a decorative type, cloud motif was the most preferred, but crane motif the least preferred. Abstract type had the greatest preference difference according to category, while stylized type had the smallest difference.

It is desirable that when a design using motifs of realistic type is done, crane motif should be applied, and when a design using motifs of stylized, abstract, and decorative type, cloud motif should be applied.

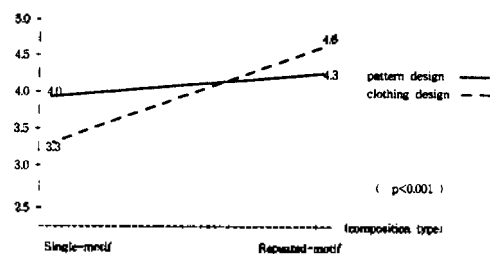


<Fig. 3> Interaction effect on preference between category and interpretation type.

<Table 2> Interaction between independent variables

Source	Preference (F-value)
Category × Interpretation type	3.06**
Interpretation type × Composition type	3.01*
Composition type × Application object	68.80***

* p<.05, ** p<.01, *** p<.001.



<Fig. 4> Interaction effect on preference between composition type and application object.

(Fig. 4) is a plot to show the interaction between composition type and application object. For different composition types, clothing design had quite different preferences. While, pattern design showed a negligible difference. When single-motif type was applied, clothing design was preferred to pattern design, but when repeated-motif type was applied, both of them were not preferred and clothing design had the lower preference. This result indicates that composition type strongly affected on preference.

It is desirable to apply single-motif type rather than repeated-motif type when a design using Korean traditional motifs is performed.

There existed rather insignificant interaction between interpretation type and composition type (data not shown). The design with single-motif type was preferred to the one with repeated-motif type with no regards to the interpretation type. Among the four interpretation types, decorative type showed the smallest difference in the preference for the two composition types.

3. Detailed Preference Evaluation for Various Combinations of Independent Variables

ANOVA and the Duncan's multiple range test were performed in two ways. The former was done to identify the effects of compo-

<Table 3> Comparison of preference according to composition type and application object

Category Interpretation type Composition type&application object	Lotus motif				Crane motif				Cloud motif				F- value
	R	S	A	D	R	S	A	D	R	S	A	D	
Pattern design w/S-M type	4.259 ^a	3.855	4.203	4.387	3.893	4.033	4.295	4.159	3.758	3.508	3.952	3.393	*
Duncan	AB ^b	AB	AB	A	AB	AB	A	AB	AB	AB	AB	B	2.24
Clothing design w/S-M type	3.635	3.032	2.951	3.254	3.213	3.207	3.613	3.373	3.323	3.125	3.262	3.383	N.S. 1.00
Duncan													
Pattern design w/R-M type	4.593	4.145	4.545	4.574	4.233	4.387	4.613	4.345	4.476	4.567	3.474	3.774	** 2.79
Duncan	A	AB	A	A	AB	A	A	A	A	A	B	AB	
Clothing design w/R-M type	4.763	5.175	4.917	4.362	4.361	4.576	4.903	4.727	4.600	4.733	4.339	4.032	*
Duncan	AB	A	AB	AB	AB	AB	AB	AB	AB	AB	AB	B	2.19

* $p < .05$, ** $p < .01$, N.S.: not significant.

^a: Mean of Evaluation Scores.

^b: Duncan's multiple range test (only statistically significant results were listed).

R: realistic type, S: stylized type, A: abstract type, D: decorative type, S-M: single-motif, R-M: repeated-motif.

sition type and application object. The latter was done to identify the effects of category and interpretation type (Table 3).

As a result of the former, a significant difference in the preference was found in every combinations of category and interpretation type except the combination of cloud motif and decorative type. In the latter, a significant difference was found in every combination of application object and composition type except the combination of clothing design and single-motif type.

Clothing design and pattern design with single-motif type was preferred to the one with repeated-motif type. The combination of clothing design and single-motif type was the most preferred, while the combination of clothing design and repeated-motif type was the least preferred. The combinations of pattern design and single-motif, and pattern design and repeated-motif showed intermediate preference values. It indicates that composition type plays a great role in clothing design.

Cloud motif presented in decorative type among pattern designs with single-motif type, cloud motif presented in abstract type among pattern designs with repeated-motif type, and cloud motif presented in decorative type

among clothing designs with repeated-motif type were preferred to the others. From this, it can be seen that almost all of the abstract and decorative types of cloud motif were preferred.

4. Preference Chart

On the basis of the analysis results, preference charts and image charts were developed. Table 4 shows the degree of preference according to category, interpretation type, composition type, and application object. (Table 5) shows the degree of sensibility image according to category, interpretation type, composition type, and application object.

These charts can provide guidelines for choosing preferred patterns or images in the development of new designs using Korean traditional motifs.

5. The Relationship between the Preference and Images of Korean Traditional Motifs

Regression was performed to evaluate the effect of four sensibility images on the preference. The coefficients of the variables were standardized. R² was 0.53 and all of the four images had a significant effect for the level of p<0.001. 'Quality' image had the greatest

<Table 4> Preference chart of Korean traditional motifs

	Category	Lotus motif								Crane motif								Cloud motif								
	Interpretation type	R		S		A		D		R		S		A		D		R		S		A		D		
	Composition type	S-M	S-M	S-R	S-R	S-R	S-R	S-R	S-R	S-R	S-R	S-R	S-R	S-R	S-R	S-R	S-R	S-R	S-R	S-R	S-R	S-R	S-R	S-R	S-R	
Preference	Pattern design		X																							
	Clothing design			x	○	X	●	x	○		○		●	x		X	○				x	●	X		x	

(● : very positive X : very negative ○ : positive x : negative)

R: realistic type S: stylized type, A: abstract type, D: decorative type, S-M: single-motif, R-M: repeated-motif.

<Table 5> Image chart of Korean traditional motifs

I m a g e s	Interpretation type	Lotus motif				Crane motif				Cloud motif														
		R	S	A	D	R	S	A	D	R	S	A	D											
		S-M	R-M	S-M	R-M	S-M	R-M	S-M	R-M	S-M	R-M	S-M	R-M	S-M	R-M									
Sim- plicity	Pattern			x			x			X	⊙							x	X					
	Clothing	○	x	⊙	x	○	X	○	○				⊙			X	○	X	⊙	x				x
Quality	Pattern			⊙		X	○	○	⊙			X							X					⊙
	Clothing		X		x	⊙	x	○		⊙	○		X						X	⊙		○		
In- terest	Pattern													⊙	X			X			⊙	○	○	
	Clothing		⊙	X		x	x					X			⊙	x	⊙	x	X	○		○		
Mo- dernity	Pattern	X				⊙			x	⊙	x	x	○	X		x	X							
	clothing		○			⊙	○									⊙	X	○	⊙					

(⊙ : very positive X : very negative ○ : positive x : negative)

R: realistic type, S: stylized type, A: abstract type, D: decorative type, S-M: single-motif, R-M: repeated-motif.

effect. 'Modernity' image had a negligible effect. The relationship between the preference and the sensibility images could be represented by the following equation.

$$P' = 0.576 Qi' + 0.322 Si' + 0.307 Ii' + 0.064 Mi' \quad (p < 0.001)$$

P : The preference of Korean traditional motifs

Qi : Quality image,

Ii : interest image

Si : Simplicity image

Mi : modernity image

The effects of sensibility images for the two different application objects were separately evaluated. In the case of pattern design, 'simplicity', 'quality', and 'interest' image had a significant effect for the level of $p < 0.001$, while 'modernity' image for the level of $p < 0.05$. The preference of pattern design was affected mainly by 'quality' image followed by

'interest' image, 'simplicity' image, and 'modernity' image in the order. In clothing design, all of the four images had a significant effect for the level of $p < 0.001$. The preference on clothing design was affected mainly by 'quality' image followed by 'simplicity' image, 'interest' image, and 'modernity' image in the order. It can be interpreted that 'quality' image is the most important factor for both application objects.

The relationship between the preference and four sensibility images for the two application objects could be represented by the following equations, respectively.

$$Pf' = 0.506 Qi' + 0.371 Ii' + 0.315 Si' + 0.048 Mi' \quad (p < 0.001)$$

$$Pc' = 0.614 Qi' + 0.304 Si' + 0.255 Ii' + 0.096 Mi' \quad (p < 0.001)$$

Pf : The Preference of pattern

Qi : quality image

- Pc* : The Preference of clothing
Ii : interest image
Si : Simplicity Image
Mi : Modernity Image

V. Conclusion

The purpose of this study was to measure the preference on Korean traditional motifs and to investigate the relationship between the preference and sensibility images.

1. Category, composition type, and application object had significant effects on preference. Interpretation type didn't have any significant effect on preference independently, but it had interaction effects when combined with composition type, and category. Especially the composition type had a greater effect than the other variables on the preference. Cloud motif and its abstract and decorative type were related to the preference.
2. On the basis of the analysis results, image chart and preference chart were developed. By combining informations from image chart and preference chart, patterns and images preferred by consumers may be selected and developed into new valuable designs.
3. The preference was affected mainly by 'quality' image followed by 'simplicity', 'interest', and 'modernity' image. The preference on pattern design was affected by 'quality', 'simplicity', 'interest', and 'modernity' image in the order, while the preference on clothing design was affected by 'quality', 'interest', 'simplicity', and 'modernity' image in the order. The relationship between the preference and sensibility images could be presented by equations. When pattern design or clothing design using Korean traditional patterns are done, 'quality' image has to be considered mostly. But simplicity image has to be considered more than interest image in clothing design, and

interest image more than simplicity image in pattern design.

In conclusion, the preference of Korean traditional motifs was found to be a function of category, interpretation type, composition type, and application object. Significant relationships existed between the preference and motif images which could be measured by cognitive thought processing of visual stimuli. The 'quality' image was found to be the most influential factor in determining the motif preference, followed by 'interest', 'simplicity' and 'modernity' image. These findings strongly support the research model which explains the relationship among sensibility images, visual stimuli of Korean traditional motifs and motif preferences. The research result implies the importance of quantitative evaluation of the motif image as well as the preference for developing high-touch and high-tech fashion products.

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