New Rug Design Classification Using Classification Schemes

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Abstract

Classification facilitates the communication between those with a unified specialty, especially the scientific researchers; to use into equations or in models, in the industrialize field people needs to govern to a unified classification, so they can deal in the same terms (Vanda broughton, P. 21).

Some of the authors see that some rug classification systems are not purely approach wholly satisfactory (Mercedes Viale Ferrero, p. 6). The major purpose of the classification is to group or to collocate, subjects that are related in some way (Vanda broughton, P. 21).

Since classifying rugs and carpets can be done according to a number of criteria; their country of origin, weaving group, design, colors, materials, price (L. Allane, P: 10.), so it is important to make benefit of classification tools, like classification schemes, which has many benefits; It allows a user to find an individual object quickly on the basis of its class or group. It conveys semantics of an object from the definition of its kind.

So the main objective of this research is to develop new hierarchical classification schemes for the rug and carpets which based mainly on rug design terminologies and the country of origin, the researcher hopes these hierarchies will help researchers, designers, engineers and marketers, especially in the field of rug industry, and be a good reference.

Introduction:

To build a new rug design classification scheme in this research, the researcher has used many principles and steps.

- The first step is to collect rug design concepts, then to use the properties of these concepts as the basis of the arrangement, these properties could be; country of origin, design, colors, design kind or sort (classic , modern, oriental...) and design features like, special motifs, special layouts...
- The first principle and the second step is grouping; in which the researcher has used the properties of the collected concepts as a bases of an arrangement and forming relationships, in which the classification system is still linear ordering.
- The third step is to form relationships between the class and its subdivision, in which the classification system is going to form the idea of hierarchy.
- To form the collected concepts, classes, ordination and subordination within a hierarchical structure; faceted classification scheme is the chosen and most suitable scheme in this research. Relationships between the classes and subdivision in a hierarchical way. Relationships between the categories'

elements are the common attributes.

Table 1 provides an overview of the six key process classification schemes and taxonomies used in this study.

A- Classification and Taxonomy Review

Classification in the narrower meaning Suppe called "narrower sense of classification is the systematic classification involved in the design and utilization of taxonomic schemes such as the biological classification of animals and plants by genus and species." (Frederik Suppe and Henry E. Bliss, 1989, 292)

In LIS, the term "classification" is used to refer to three distinct but related concepts: a system of classes, ordered according to a predetermined set of principles and used to organize a set of entities; a group or class in a classification system; and the process of assigning entities to classes in a classification system(Elin K. Jacob, p. 522.).

The structure and order of a classification will vary according to the principles that are used to make the initial grouping (Vanda broughton, P. 21.).

Classification as process involves the orderly and systematic assignment of each entity to one and only one class within a system of mutually exclusive and nonoverlapping classes. This process is lawful and systematic: lawful because it is carried out in accordance with an established set of

principles that governs the structure of classes and class relationships; and systematic because it mandates consistent application of these principles within the framework of a prescribed ordering of reality. The scheme itself is artificial and arbitrary: artificial because it is a tool created for the express purpose of establishing a meaningful organization; and arbitrary because the criteria used to define classes in the scheme reflect a single perspective of the domain to the exclusion of all other perspectives(Elin K. Jacob, p. 522).

B- Principles of Classification

Two ideas are fundamental to any system of classification: grouping and ordering.

B-1-Grouping is the primary act of the classification. The principle used to make, create a group is sometimes called the principle of division or characteristic of division this is the technical term of prosperity or attribute that all the members of the group have in common(Vanda broughton, P. 6).

B-2 Ordering is the second stage of classification process. Ordering means; logical or comprehensible arrangement of separate elements (WordNet, 3.1), while ordering as a process is to decide on the relationships between groups, since this determines in which the groups will be arranged (Vanda broughton, P. 7).

C- Classification Schemes

A classification scheme is a set of mutually exclusive and nonoverlapping classes arranged within a hierarchical structure and reflecting a predetermined ordering of reality. Because a classification scheme mandates that an entity can be a member of one and only one class, it provides for communication of meaningful information through the systematic and principled ordering of classes. Furthermore, it establishes and enforces stability of reference by providing each class (a number of persons or things regarded as forming a group by reason of common attributes, characteristics, qualities, or traits; kind; sort) with a unique label that links individual members of the class to the class definition.

To organize knowledge can be interpreted in terms of the three propositionsthat constitute the classical (Proposition I) theory of categories: the assertion that a category is defined by a summary representation (Proposition I I) is a statement of the essential similarity of class members; the assertion that a category is defined by a set of essential features (Proposition I II) is a statement of the intrinsic essence of a class; and the assertion that defining features are inherited in a hierarchical structure of categories (Proposition I I II) is a statement of the unity of all knowledge. It is instructive that, although the classical theory of categories is unable to account for the variability and flexibility of cognitive categorization, it does provide an elegant accounting of the fundamental assumptions on which classification schemes have historically been constructed (Elin K. Jacob, p. 524).

Table. No. 1 Classification Scheme Structure, where the researcher colored the sqare part of the relationship by the green the color			
class I			
Categories I I or prosition II According to essential similarity of class (category or proposition) members		Categories x I I or prosition x I I According to essential similarity of class (category or proposition) members	
Relationship between the class and its subdivision which will be in the Semantic Relationships area. "thing- kind" "whole- part"		Relationship between the class and its subdivision which will be in the Semantic Relationships area. "thing- kind" "whole- part"	
Categories II I According to essential features	Categories II I According to essential features	Categories II I According to essential features	Categories II I According to essential features
Categories IIII According to the assertions that defining features			

C-1- Types of Classification Schemes

There are many types of classification schemes; Enumerative Classification Schemes (Library Classification Schemes, p 150), Analytico-Synthetic Classification Scheme (Vanda broughton, P. 36) and faceted classification scheme (Vanda broughton, P. 37).

C-1- 1- Enumerative Classification Schemes

A long list of subordinate classes of ever increasing specifity and lots of precoordinated compound classes (Vanda broughton, P. 31). The basic tenet of

this scheme is that all the possible subjects and topics are listed along with a predefined class number, and therefore the classifier does not have to create any class number such as Dewey Decimal Classification.

C-1- 2- Analytico-Synthetic Classification Scheme

A scheme which uses distinct notation for separate concepts, and linked them together when required, rather like building houses out of Lego. The subjected of a document will be divided into its constituent elements and then the classification scheme will be used to find notations for each element and the codes for these are synthesized or joined together to make the class mark(Vanda broughton, P. 31).

C-1- 3- Faceted Classification Scheme

Faceted classification scheme takes the idea of an Analytico-Synthetic Classification Scheme to its logical conclusion, and (deconstructs) the vocabulary of the classification into its simplest constituent parts (Vanda broughton, P. 34).

Faceted construction is constructed by: taking terms belonging to the subjects, and organizing them into their categories, these are then refined using other ordering techniques into the finished classification. A classification created by this method is known as a bottom-up classification (Vanda broughton, P. 35).

Faceted (analytico-synthetic) classification systems are inductive, bot-tom-up schemes generated through a process of analysis and synthesis. Construction of the faceted structure begins with analysis of a universe of knowledge to identify the individual elements—properties and features— of the universe. These elements are then organized into mutually exclusive groups on the basis of conceptual similarity, and these groups are, in turn, arranged in successively larger groupings to form facets (aspects) that can be used to represent entities in the universe. In this way, meaningful relationships are established not only between the elements in a group but between the groups themselves. The result is not a classification scheme but a controlled vocabulary of concepts and
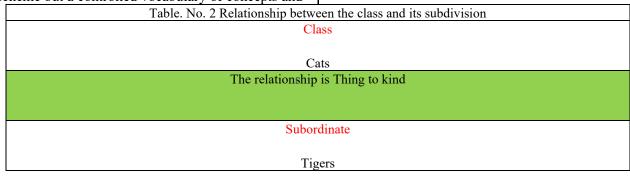
their associated labels that can be used, in association with a notation and a prescribed citation order, to synthesize the classes that will populate the classification scheme. A faceted vocabulary for classifying cars might include mutually exclusive facets for "color" (red, blue, black), "body style" (sedan, convertible, minivan), and "transmission" (manual, automatic). Following the citation order body style— transmission—color, classes would be constructed by selecting a single value, or isolate, from each facet. Examples of the classes that could be constructed in this faceted scheme would be convertible—manual—red and minivan—automatic—blue (Elin K. Jacob, p. 525).

D- Classification Scheme Processing

D-1 Listing

According to https://www.merriam-webster.com/dictionary/listing listing is; an act or instance of making or including in a list. When we classify things, we group and name them on the basis of something that they have in common. By doing this we can understand certain qualities and features which they share as a class https://www.phrasebank.manchester.ac.uk/classifying-and-listing/.

D-2 grouping

There are many ways and relationships in which classification scheme arrange subjects in order to support browsing and information retrieval; grouping, categorization, classing (Vanda broughton, P. 21). To sort out concepts into groups, we could use the properties of the concepts as the basis of an arrangement; may be the color, the shape, the context, may be the part since the different parts might require similar cultivation and harvesting methods (Vanda broughton, P. 21, 22). All these groupings are a way of creating linear ordering - we are collocating or bringing together related subjects- but essentially our "classification" is still in the form of a list. There is no indication of any relationship between the items, other than their membership of the same group (Vanda broughton, P. 23).

Table. No. 2 Relationship between the class and its subdivision
Class
Cats
The relationship is Thing to kind
Subordinate
Tigers

D-2 - 1 Relationships between terms: the idea of hierarchy

In a typical classification, we can distinguish several sorts of relationships between items; the simplest of these is the relationship between the class and its subdivision, arranged in what is known as hierarchy. A hierarchy may demonstrate the relation between subordination and super ordination. A class is said to be subordinate to its containing class: for example, "tigers" are said to be subordinate to "cats" and conversely "cats" are said to be subordinate to "tigers"(Vanda broughton, P. 23) Table No. (2).

Table. No. 3 Three sorts of the Hierarchical Relationship in the Classification System		
Semantic Relationship		Instantive Relationship
Taxonomic Relationship Thing - Kind	Parlonomic Whole- Part	

D-2 - 1 - 1 Semantic Relationship:

There are three sorts of the fixed permanent hierarchical relationship in classification- like to say (London is in England): "thing- kind" sometimes called taxonomic (is that of and entity and its kinds or types), "whole- part" sometimes called partonomic, relationships. These two kinds of relationships are called semantic relationships, because the meaning of words can be defined by them and the structure they give to a subject. The third type is the instantive relationship where the subordinate class is an instance, or specific example of the broader class (Vanda broughton, P. 25) Table No. (3).

D-2 - 1 - 2- Syntactic Relationships: non hierarchy relationship proper

Which is not part of the permanent structure of a subject field, where it describes the relationship between the parts of the compound, they sometimes happen when a sup-ordinate class arises as the result of two classes combining or overlapping EX PET PAROTS (Vanda broughton, P. 25).

E- Rug Sorts, Kinds and Previous Classifications' Review

Classifying rugs and carpets can be done according to a number of criteria; their country of origin, weaving group, design, colors, materials, price (L. Allane, P. 10).

In this research, the researcher depends mainly on the design to build his classification scheme. Rug classification according to design can be classified into two main groups; classic and modern designs (A. Abd Elghany, P. 234, 238) Table No. (4).

Table. No. 4 First Groups of the Rug Design Classification Scheme	
Rug Design	
The Relation is : Thing to kind	The Relation is : Thing to kind
Classic Designs	Contemporary Designs

E-1- Classic Rug Designs

Which are Oriental, Chinese and European Carpets (Western Carpets); Spain, France, Aubusson, Beauvais, England, Fulham, Exteter, Axminster, Moorfields, Italy, Finland (Mercedes Viale Ferrero, P. No. 11- 15). Table No. (5).

E-1-1 Oriental Carpets

Oriental rugs literally means a rug manufactured in the Orient, it is normally used only to describe hand-made rugs produced by traditional methods in the ancient weaving regions of Persia, Anotlia, Afghanistan, the Caucasus, Baluchistan, Turkestan, China, India, Pakistan, the Balkans and parts of North Africa (L. Allane, P. 7).

However, the name Oriental carpets is used to indicate design features; like special motives, special layouts. Many authors indicated that truth; for example (Fabio Formation, 1974) (Lee Allane, 1997)

The decoration of Oriental carpets consists of motifs which are much alike and which may be found with some frequency in specimens from different localities. These motifs may be divided into three groups: field motifs, border motifs, and decorative motifs. The best-known motifs of the field are: Boteh, Gul, Herati, Joshaqan, Harshang, Mina Khani, Zil-I-Soltan, and Shah Abbassi. The best-known motifs for the border are: border Herati, border Boteh, Kufic Border, and Serrated- Leaf border. The best-known decorative motifs are: the eight-pointed star, the rosette, various types of Greek key including the hooked variety known as running dog, and the swastika (F. Formation. P. 68-78, L. Allane. P. 85- 89).

There are more specifications for the regions; for example, a Heriz rug, the dominant composition is based on a huge angular central medallion, set against a field of geometrically stylized floral forms (L. Allane, P. 116). Isfahan (L. Allane, P. 117).

More over, the Turkoman designs also have its features; some motifs and compositions used in Turkoman rugs have already been dealt with in the section on Persian and universal designs. There are, however, two schemes which must be considered separately, as purely Turkoman designs; Gul, and Hatchli (Hadklu) (L. Allane, P. 89- 91).

but when the researcher names some rugs by oriental rug, but in this research classification

system, the researcher doesn't mean the place, but he means many design meaningful, like; layouts, patterns, art direction, so the reader distinguish them from other rug designs, like modern designs. European Carpets (Western Carpets); Spain, France, Aubusson, Beauvais, England, Fulham, Exteter, Axminster, Moorfields, Italy, Finland (Mercedes Viale Ferrero, p. 11, 13, 14, 15).
Where the Whole- Part is a partonomic semantic relationship.

Table. No. 5 Classic Rug Designs as a group and its supdivision		
Classic Rug Designs (Class; the Whole)		
The Relation is : Thing to kind		
Oriental Rug Designs	European Rug Designs	Chineese Rug Designs

E-1-1-1 Figurative and non-figurative
All oriental rug design can be broadly divided into those which employ naturalistic representations of living forms and those which employ either totally geometric forms, or naturalistic forms that have been so abstracted that their origins are no longer recognizable(L. Allane, P. 82) Table No. (6).

Table. No. 6 Oriental Rug Design and supdivision	
Oriental Rug Designs	
The Relation is : Thing to kind	
Geometric forms, or naturalistic forms that have been so abstracted (Geometric and Curvlinear)	Naturalistic representations of living forms

E-1-1-2- Geometric and Curvilinear Designs
Fbio Formation divided the oriental carpets according to design into two main groups; carpets with a geometric design and carpets with a curvilinear design, known as floral carpets (Fabio Formation, 1974, P. 65) Table No. (8).
In other words, oriental carpet designs can also be divided into two main types: a type that employs symbolic images of all forms of natural life, and designs that employ either geometric shapes, or aspects of nature, which have been stripped and separated from the natural origin and are therefore difficult to attribute to it. As a general rule, carpet designs Turkmen, Afghan and Anatolian are considered non-symbolic designs (L. Allane, P. 82). Table No. (7).

Table. No. 7 Oriental Rug Design and supdivision	
Oriental Rug Designs	
The Relation is : Thing to kind	
Designs that employs symbolic images of all forms of natural life	Designs that employ both geometric shapes

Geometric designs are: All carpets that are decorated with linear elements; which composed of vertical, horizontal or diagonal lines. The design is generally simple and often consists of repeating the same units. Geometric carpets are often woven by Bedouin tribes and are produced in small quantities in small quantities. Anatolian, Caucasian and Iranian villages, where these designs remained primitive (F. Formation, P. 65).

Table. No. 8 Oriental Rug Design and supdivision	
Oriental Rug Designs	
The Relation is : Thing to kind	
Geometric design	Curvilinear design (floral carpets)

Lee Allane classified Oriental rug design fields into; open field, variegated field, Paneled Design, Repeated Design, Endless Design (L. Allane, P. 83, 84, 85). After that (A. Abdelghany, 2014) set that classification and described every type. Table No. (9).

Table. No. 9 Oriental Rug Designs, Field Classification according to Layout				
The Relation is : Thing to kind				
Open field	Variegated field	Paneled Design	Repeated Design	Endless Design

Andrew Middleton added more two types; central medallion design and the directional design (Andrew Middleton, p. 24, 25) Table No. (10).

Table. No. 10 Oriental Rug Designs, Field Classification according to Lee Allane (according to layout) with the addition of two types from Andrew Middleton						
The Relation is : Thing to kind						
Central medallion design	open field	Variegated field	Paneled Design	Repeated Design	Endless Design	directiona l design

Some of these types can share a special name; Shah Abbas designs, which derive their name from Shah Abbas -consist of a series of slightly different palmettes and floral forms, and are found either in an allover format or in conjunction with a central medallion. (L. Allane, P. 85) Table No. (11).

Table. No. 11 Oriental Rug Designs						
central medallion design	open field	Variegated field	Paneled Design	Repeated Design	Endless Design	directional design
Shah Abbas						

Classification can be done according to many criteria at the same time; where rug designs could share and name by many attributes at the same time; for example it can share special names, so as to geometric and curvilinear could be; central, open field or any other layouts' names at the same time, Table No. (12).

Table. No. 12 Oriental Rug Designs				
geometric design			curvilinear design (floral carpets)	
open field	Variegated field	Paneled Design	Repeated Design	Endless Design

Since the Prayer rugs; is a special layout (L. Allane, P. 85.) so we could add it to our classification scheme. Table No. (13).

Table. No. 13 Oriental Rug Designs							
central medallion design	open field	Variegated field	Paneled Design	Repeated Design	Endless Design	directional design	Prayer rugs

Saph designs composed of a series of adjacent prayer-rug schemes and often referred to as family of multiple prayer rugs (L. Allane, P. 86). So it will be subdivision for the prayer rug designs in our classification. Table No. (14).

Table. No. 14 Oriental Rug Designs and the adding of Prayer Rug Designs							
Central medallion design	open field	Variegated field	Paneled Design	Repeated Design	Endless Design	directional design	Prayer rugs	
							Other Prayer Rugs	Saph designs

Anatolia, particularly kayseria, produces a number of such rugs, but the majority comes from Pakistan, and they are marketed as Mori Bohkara or Jaldar Saphs (L. Allane, P. 86).

Persian carpets could be classified according to their patterns; Medallion carpets, animal and hunting scenes, tree and garden carpets, vase carpets, mosaic carpets, flower and ribbon carpets and prayer carpets. Boteh, Herati, Mina-khani, joshagan, Hatchli, shou and Fu charaters fret and cloud band patterns (L. Allane, P. 88, 89, 91, 92).

Where the relationship between the class here and its subdivision is semantic (Whole- Part) Table No. (15).

Table. No. 15 classified Of Persian carpets according to their patterns							
"whole- part"							
boteh	Herati	Mina-khani	joshagan	Hatchli	Shou and Fu Chara	Fert	Cloud band

E-1-2- Chineese Rug Designs
Chinese rug designs are quite different from other oriental types. Where designs are symbols (Buddhist and Taoist) and they are freely scattered over the field, with a lively pictorial skill. (Mercedes Viale Ferrero, P. No. 11)

E-1-3- European Rug Designs
Where the ideas about what constitutes a decorative effect are basically different from the oriental rugs. (Mercedes Viale Ferrero, P. No. 11).

E-2- Contemporary Rug Designs
Modern rugs are rugs that have a clear distinction in design compared to traditional rugs. They are classified into transitional and modern rug designs. Table No. (17).

Table. No. 17 Contemporary Rug Designs	
Transitional Style Rug Designs	Modern Rug Designs

E-2-1- Transitional Style
it is a mixture of contemporary designs and original styles in carpet design. It is also liberal in its choice of colours, as it is not linked to the colors of a specific style, while traditional carpet designs are linked to specific units. Fixed and defined, but the transitional design has no limits to its units; It may also include units with traditional or oriental designs, and may contain flowers, trees, or natural scenes
http://rugexchange.hubpages.com/hub/Traditional-Versus-Transitional-Rugs-3-Differences

E-2-2- Modern Rug Designs
The reality of carpet production and consumption, forces us to bring together and use almost all of the leading and historical artistic schools to be used in

carpet design, and carpet design in our present time. Which prompts us to name it the modern style of carpet design; which is the natural extension of that art, whose basic components were inspired by the pioneering schools in this field, and although the designer dealt with transitional style designs - he maintained the general framework of the shape of the carpet.

Table No. 18 Oriental Rug Design Classification

Curvilinear						Geometric					
The Ideal Oriental Rug	Anatolian	Open Field	Variegated field	Open Field	Repeated Design	The Ideal Oriental Rug	Anatolian	Open Field	Variegated field	Open Field	Repeated Design

Table No. 19 Contemporary Rug Design Classification

Curvilinear								Geometric							Abstract
Modern			Transitional					Modern			Transitional				
Variegated field	Open Field	Repeated Design	The Ideal Oriental Rug	Anatolian	Variegated field	Open Field	Repeated Design	Variegated field	Repeated Design	Open Field	The Ideal Oriental Rug	Anatolian	Variegated field	Open Field	Repeated Design	Color Spray

Table No. 20 Rug Design Classification

Modern									Classic										
Transitional						Contemporary			Oriental Rug Designs						European Rug Designs				
The Ideal Oriental Rug	Anatolian	Open Field	Variegated field	Open Field	Repeated Design	Variegated field	Repeated Design	Open Field	The Ideal Oriental Rug	Anatolian	Open Field	Variegated field	Open Field	Repeated Design	Spanish	French	England	Italian	Finnish

Results:

1- The main result of the research is producing new rug classification schemes; Table No. (18) is the Oriental Rug Design Classification Scheme, Table No. (19) is the Contemporary Rug Design Classification Scheme, Table No. (20) is the Whole Rug Design Classification Scheme. Also Tables from (9-20) are considered to be created in this research.

2- Researcher hope these new classification schemes will facilitate the communication between those with a unified specialty, especially the scientific researchers, rug designers ,rug marketers, and rug producing factories.

3- All used relationships between the classes and their subdivisions in all the schemes are thing to kind, except for the classification according to rug designs' patterns like in table No. (15) the relationship is whole to part.

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