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## Golden Ratio as a Symbolic Interpretation of Truck Iconography

### Abstract

Pakistani Truck art has its unique individuality, a locally developed style because of its decorative style and colorful imagery. Painted trucks can be seen in all parts of the country but the trucks painted in Punjab are demonstrative of its popular culture and local myth. Punjab is known for its contribution in all kind of arts and crafts especially Lahore as it has been a historic cultural center of this region more than a thousand years. The land and colors of Punjab influenced the local truck iconography. At the same time, the unconscious appearance of golden spirals and rectangles in Truck art especially, bird imagery demonstrates that mathematics is the basic element of every art, applied intentionally or unintentionally. The images are free hand drawings but unintentional presence of golden ratio points towards the natural and spontaneous talent of the local artisans. For the purpose, a comparative analysis of the painted birds on trucks is developed with the artworks of Ustād Mansūr from the Mughal dynasty, highly distinguished for well-proportioned drawings of flora and fauna. The appearance of golden ratio in Truck art also validates that our country has a lot of natural aptitude for art on its roads. Thus, it becomes our national obligation to use and polish this treasured natural human talent.

*Keywords:* truck art, golden ratio, symbolic significance, bird imagery, identity, decorative quality, popular culture.

### Introduction

A Fundamental standard that can be used to define art is “to measure.” It can be determined through information of proportion and mean as explained by Plato (Kuhns and Hofstadter). Global ideas are based on truth; ideas of number are formulated by Plato for better understanding of nature. In line with the conception, arithmetic plays a pivotal role of absolute truth to form stunning forms (Papadopoulo). Truck art is a native and admired art form and these heavy vehicles running on highways and roads are the canvas for the local artists, conveying local belief and wisdom from one individual to the other. The land of Punjabi plains is known for its bright sunlight, so flat pure colors were applied in

images than use of tonal values and use of lines and outline is prominent. For this reason, truck art portrays the combination of pure colors and simplified forms and artisan is fascinated by the depiction of inner necessity of the independent arrangements of the work. Therefore, he feels free to paint nature in unrealistic colors and forms lacking imitation. As truck artisan is not recreating the exact nature but using the natural imagery for symbolic reasons, he can forego rules of perspective and objects need not to reduce with distance. Amazingly, even with this bent treatment of reality, the free hand drawings display signs of golden ratio. This portrays a profound higher quality of locally produced art and instinctive aptitude of the local craftsman.

The excellence of these trucks is that they are highly decorated along with a display of diverse images on each part of the truck. Its iconography can be divided into bird imagery, animal forms, flowers, landscapes and human portraits. Bird imagery is usually portrayed on sides of the truck, enclosed in different sections and sometimes a large bird appears on the back plank of the truck. Portraits of the birds are painted, usually in enclosed circles and rarely in other shapes like square or diamond. Full length birds are also painted and are composed in colorful imaginary gardens. Most commonly painted species are sparrows, pigeons, peacocks, eagles, parrots and ducks. Birds are painted flatly without rendering of shades in a decorative style with emphasis on their individual characteristics. Though these paintings are recognized for their bright colors and emblematic imageries, but proportionate drawings are another source of attraction. Well-known Cubist painter Pablo Picasso said, “Drawing is the honesty of the art, there is no possibility of cheating. It is either good or bad” (Mark). Elementary part of any painting is its drawing and well-sketched forms can be painted well. The initial rule of measurements is to observe shapes and sizes of different forms as a human eye is considered to be the greatest source of taking dimensions. This has been proven right, as the selection of birds on local trucks display unconscious presence of some golden spirals, sections, divisions and sub divisions. Golden ratio is traced in the bird imagery painted on the trucks by varied artists, who are completely ignorant of the mathematical use of phi in art. Though the art has transferred hands from generations to generations, drawings have been memorized and transferred on the trucks with flowing, regular and skilled line.

This research paper focuses on the bird imagery in order to search golden ratio and numerous images of the regional birds appeared on trucks are

examined by using the software “Phi Matrix Golden Ratio Design. The results indicate that imageries of the birds are skillful and proportionate drawings, pointing towards a high standard and talent of the craftsmen. A comparative analysis of birds painted on the trucks is also carried out with the bird imagery painted by Ustād Mansūr of Mughal era who was considered the master of perfect and measured drawings of flora and fauna. Methodology engaged here is based on the quantitative analysis of forms to interpret the golden ratio in truck art. Truck imagery used for this purpose is originally photographed by the author from different trucks on the roads of Lahore along with various surveys and interviews of the truck owners and painters to decipher the symbolism behind the bird imagery. In order to record the history, various books on Mughal Art and miniatures of Ustād Mansūr are consulted.

### **Origin**

Decoration of the trucks can be inspired from the old custom of decorating animal carts and camel litters (Nam). Truck art is a popular and one of the older crafts of this region and its origin could be traced back to the Mughal era, where it was very common to decorate the palaces and carriages with ornamental and colorful motifs (Wala).

Trucks, were firstly introduced in Karachi before partition and were plainly colored without any decoration and only name and information of the truck company was written on them. Later after partition, Karachi became the hub of trade and activities on the port were largely intensified, therefore trucks became great in demand for transference of goods in other parts of the country. With this exponential surge in demand, indigenous production of the trucks geared up in large quantities and the decoration was also started. Later, embellishment on trucks became more and more elaborate, thus creating a popular art form known as Truck art. The earliest credited painter who showed his skills in Truck art is Hāji Hussain who formerly made bow and arrows, turned court painter in Kutch, Gujrāt. Then after the partition, when the situation became different, these painters associated with minor courts were without patronage. Hence, they came to the market to earn their living. Hāji Hussain flourished his skills in giving Truck art a new dimension. Afterwards, this tradition was also joined by his sons and grandsons (Zaidi and Fund).

As Punjab has an ancient history regarding conquered and ruled by diverse empires and have a great contribution in art and crafts like painting, textile, brass work, wood work, glazed tiles, mosaic work and

many more (Punjab Portal). Likewise, Truck art also developed in Punjab, inspired from the local culture and previous arts. It is basically famous for its cheerful and intense coloring like flaming orange, shimmery red and yellow, severe green, mystical blue and shocking pink combined with a vast range of luminous colors (von Oppen).

### **The Painting of Trucks**

It is difficult to understand why truck owners invest a considerable amount of money in decorating their vehicles! They seem to be influenced by mixed feelings like aesthetic, social and business competition. A New truck has wheels, engine, steering wheel and the driver’s seat only. Everything else is added and assembled by technicians in local workshops. Various workers assemble the trucks including a specialist usually called *Ustād* and his task is to paint the images and other ornaments on the truck body. This work is mostly done in *kārkhānahs*<sup>i</sup> or factories and expertise has been passed from generation to generation (Sökefeld).

Truck painting is done in team work. Painters have no formal training but they learn the craft from “*ustāds*”<sup>ii</sup> in the workshops. Firstly, the raw surface of the truck body is smoothed with sand paper. This also helps removing rust from the metal body. Thereafter, an enamel paint coating is applied thrice with a big flat brush. First coat is known as under coat, second one is finishing coat and third one is final coat. When all finished and dried up, stripes and other divisions are done in another color with the help of inches tape.<sup>iii</sup> From thereon, the truck is handed over to the specialist whose job is to paint images on it. Different images are drawn on the trucks with the help of lead pencil relying on memory and imagination. *Ustāds* of *phool patti*<sup>iv</sup> know many natural motifs and ornamental designs which they spread over the trucks mostly in primary and secondary colors.<sup>v</sup> Brushes of different sizes known as “*Parghazā Qalm*”<sup>vi</sup> in local terminology, are used for painting imagery on trucks and for outline, *qalam* with delicate tip is used. All these brushes are prepared locally.<sup>vii</sup>

### **Iconography of Truck Art**

Iconography frequently used on trucks by different artisans has unquestionably originated from their own visual knowledge. The imagery with its simplicity in depiction, naivety and a childlike countenance, appeal a larger range of audience. Juxtaposition of imageries is often influenced by prevailing popular trends in style and aesthetics (Zaidi and Fund). Designs that have been mostly painted on

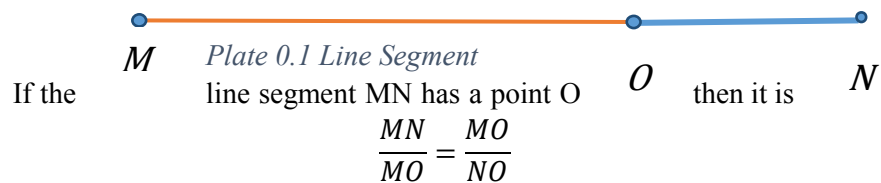
local trucks are geometrical and floral patterns, imaginary landscapes, *Burāq*, different animals, flowers, a variety of birds and contemporary transportation.

Birds are the most favorite subject of truck painters and are regularly depicted in close-ups with detailed brush strokes in decorative manner along with the sharp countenance of their eyes and beautiful particulars of their plumages. Another style of depiction suggests the appearance of different birds in dreamy landscapes singly or in pair. The birds selected for depiction on trucks is a reflection of distinct taste of truck owners and their superstitious psyche.<sup>viii</sup> Though having childlike simplicity in form, these birds are symbols of purity and virtue. Their representation on local trucks is not only meant for visual pleasure but also have symbolic connotation because of their special characteristics. Numerous birds are portrayed in a typical style with certain potentials and virtues. An eagle with its deep penetrating eyes is always shown in anger as an image of a restless flight, far sightedness, power and inner strength. Whereas, the cuckoo signifies long-lasting love. On the other hand, Peacocks with crown on their head and beautiful feathers are shown as personification of joy, supremacy, beauty, poise and royalty. It is also considered as an omen of rain and embodiment of ecstasy (Gosler). Parrots with their bright colored appearance on the trucks are symbolic of physical needs and is symbol of beauty, love and affection. Whereas pigeons as deities of love and peace, symbolize faithfulness, tranquility. Their calm nature is admirable for their dedication to their offspring (Gheerbrant). Similarly, ducks are also a symbol of companionship and faithfulness as ducks and drakes, both swims together. Ducks also have the ability to skim across water and air which signify both physical and mystical worlds (Gheerbrant). Truck owners pursue the same qualities of birds in their trucks, such as power and tireless flight and foresight of a falcon, aristocracy and gorgeousness of peacocks, companionship of ducks, sincerity of pigeons and love of parrots. As they travel long distances on their trucks, these vehicles become their companions and helpmates. That is why they embellish them, paint them in bright colors with symbolic imagery as if they these imageries radiate these qualities and the truck owner absorbs them. The association of the drivers and owners with their trucks is clearly visible in the selected images.

Although these flatly painted images are crude in appearance as iconography is painted on truck's metal surface. But these free hands

drawings of birds demonstrate the appearance of golden ratio in spite of the fact that local artisan is unaware of mathematical divisions. To measure is the introductory phase of every art and without “proportions” there can be no art. Mathematics and arts go parallel hand in hand since ancient times. The Greeks were the first to describe “extreme and mean ratio.” Plato considered “measure” to encircle the values of good and beautiful (Kuhns and Hofstadter). According to Pythagoras,<sup>ix</sup> the structure of nature was mathematical. His area of interest was to interpret nature in golden sections and evidenced that human body is entirely shaped on golden proportion (Papadopoulo). Euclid was an ancient Greek mathematician who mentioned the golden mean in his book “Elements.”<sup>x</sup> He defined a proportion that shows a division of line into “extreme and mean ratio” (Livio).

Universal standards for beauty are obtained by the use of golden ratio both in nature and art (Livio). It is a mathematical ratio, normally can be seen in natural elements like human face, flower petals, pinecones, plants, tree branches, seashells, fingers and animal bodies etc. It occurs by dividing a line into two unequal parts. The longer line divided by the smaller line is equal to the sum of both lines, divided by the longer line, which both equal to 1.618. It is known as “extreme and mean ratio” and often represents by using phi and known as the symbol of golden section and divine proportion (Britton).



Subsequently, ratio  $\frac{MN}{MO}$  is called the golden ratio or golden proportion.  $O$  will be considered the golden cut of the line segment  $MN$ . Golden ratio is always equal to the equation below:

$$\frac{MN}{NO} = \frac{1 + \sqrt{5}}{2}$$

This calculation is approximately equal to **1.61803**. This value is independent of the length of the line segment. It is traditionally signified by Greek symbol  $\phi$  (Kalajdzievski).

During the Middle Ages, Mathematician Leonardo Fibonacci discovered the properties of sequel by testing on a pair of rabbits and observing their reproduction and fabrication of their off springs while placing them in

enclosed walls. These numbers in this sequence are known as the Fibonacci numbers (Kalajdziewski). This sequence has relationship with golden ratio as the ratio of two successive Fibonacci numbers are close to golden ratio.

0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144..... And so on.

These numbers can be applied to the proportions of a rectangle called the golden rectangle and it demonstrate the presence of golden ratio in art. The golden rectangle is also related to the golden spiral, which is created by making adjacent squares of Fibonacci (Hom).

Geometrical concept of the golden rectangle already exists in nature and applies in art to make visually pleasing proportions. When a square is divided into two parts, it forms two equal rectangles. Draw a diagonal line from the middle of the square touching the upper right corner to the extended baseline. By joining the extended bases, a new rectangle is formed which is the Golden Rectangle (University).



Plate 0.2 Golden Rectangle

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If a spiral cross the golden rectangle, which has been divided up into squares and smaller golden rectangles and touches their corners inside, it resulted in golden spiral that can be seen in nature and art (University).

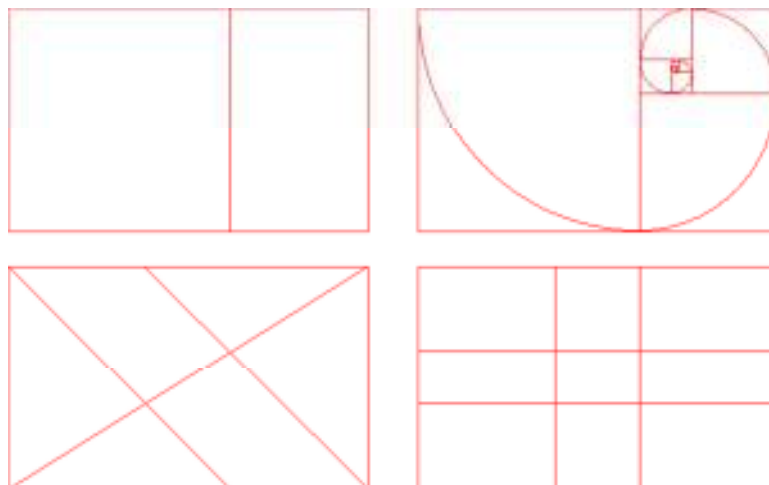


Plate 0.3 Templates for Golden Ratio in Art

Different templates exist to compute gold ratio in art i.e. basic golden ratio rectangle, golden spiral, golden diagonals and Phi matrix (GoldenNumber.net).

The function of golden ratio is to create harmonious and balanced forms. It can be applied to composition, forms, layout, spacing, image and contents. Space is the most important element and golden ratio balances the positive and negative spaces and defines the placement of content. It directs our eye naturally to the focal point of the picture or significant elements (Gross). Its application in art is noteworthy to increase beauty and perfection as seen in ancient examples of architectural buildings like Egyptian Pyramids and Roman Parthenon. Golden ratio was used by many Renaissance painters like Leonardo da Vinci, Micheal Angelo and Rapheal to achieve balance and exquisiteness in their artworks. Similarly, Modern art painters like Seurat and Salvador Dali used golden sections and sub divisions in their artworks to gain excellence (Britton).

While discussing Pakistani Truck art, it becomes clear that “*ustāds* of *phool patti*” are unaware of golden ratio and its rules. They are not transferring the imagery from any source of selected images but draw directly on the trucks recalling the image in their mind. They depend on live impacts for drawing and are completely ignorant to the golden divisions in art. They all learnt this traditional Truck art from their *ustāds* or elderly members of the family, thus this tradition is transferring from one generation to another. The artisans used to learn these motifs, then transfer them with lead pencils by doing free hand sketches but every artisan adds his uniqueness of style and color choice to some extent.<sup>xi</sup>

Birds are usually painted with side view face and focus is on their eyes and wings. Portraits of birds are also painted along with depiction of full-length figures. When these birds are studied, they represent signs of golden ratio. Firstly, golden spirals were examined and perceived in many bird imageries painted singly or in a combination of two. A sparrow (Figure 1) painted in full-length against an imaginary landscape is examined to check the formation of golden spiral. While discussing the painterly qualities, stress is on the specifics of hair with small brush strokes and feathers with linear pattern. Sharp beak and anger in eye are other prominent features. Although, their focus is not on creating the feeling of distance and depth, but flying birds are shown high in the sky in horizon. A Bird is painted in simplified manner with decorative quality. The bird was examined to check golden proportions, a spiral was

formed, starting from the neck, touching the headline, crossing the paws and ending in the trees.

Likewise, golden spirals are also formed in the painting of two partridges with halos behind their heads. (Figure 2) They are composed in close-up against imaginary landscape. To study the perfect proportions, birds are enclosed in two squares, spirals are formed in the drawings of birds, while landscape in the background does not demonstrate the ratio. These painted birds are representative of holy significance of partridges in Punjabi popular culture and considered as a caution against an evil act. Their presence on trucks reflect their role as a protector against evil eye and are always painted with halo as a symbol of their sacredness (Elias).

A noteworthy point that, the software directs is, that the smallest point (preliminary point of spiral) is generally starting from necks of the most of the birds. The artisans have a typical style of drawing and painting; their way of transferring image reflects the existence of golden spirals, enhancing the quality of their work. Presence of spiral is also significant symbolically as it indicates the mystical movement coming from God towards man and returning to God variably. Spiral is symbolic of hidden knowledge and is representative of spiritual significance (Papadopoulo). In Truck Art, these spirals are used for both purposes.

Equally, bird images are also evaluated using the golden rectangles. The first glance of these forms gives the impression of child-like and immature drawings without based on geometrical structure, but when examined closely, the diagrams suggest the refined quality of these paintings. Truck painters transfer these images on the truck body with great focus on the shape and size of the form. An eagle (Figure 3) with its extended wings and sharp eye in an open-air is also representative of division of golden rectangles. The bird portrays the two-dimensional effect, ornamental quality and simplification of form. Proportionate drawing is another quality added to the drawing of bird with the creation of golden rectangles. The proportionate drawing further upgrades the significance of this bird in Truck imagery as it signifies speed and sharp sightedness of the truck driver. Symbolically, eagle is considered king and lion of the sky and representative of sovereignty, authority, poise and veracity. It is also an icon of sharp sight as it flies high in the sky (Nozedar). As eagles are a natural enemy of the snake, so in East, they are also a symbol of protection against evil (Yousaf). The main reason for the depiction of eagle on the trucks is the superstitious nature of the

drivers and owners as their aim is to protect themselves and their vehicles from misfortune during their long journeys. Now the proportionate drawings of these birds convert them into the extremely elegant and flawless forms, an image in quest of mystical heights.

American painter Arshile Gorky said, “Drawing is the basis of art. A bad painter cannot draw. But one who draws well can always paint” (Mark). Significance of proportionate drawing in art is evident. Without skillful drawing, it is impossible to create eye-pleasing images. A complete morphometry of truck imagery is done and for the reason; bird portraits are carefully chosen. These portrait paintings of birds are suggestive of profile faces with focus on their sharp eyes and beaks and are composed till neck; depicted within the circular space encircled by decorative flowers. Firstly, the portrait of a parrot (Figure 4) is studied, painted within a circle and enclosed by stylized floral motifs. To begin, a square is drawn around the circle to acquire the golden ratio according to the rule. The vertical line, if we suppose  $M+N$  is divided into two unequal parts, the ratio of the largest segment to the smaller is equal to the ratio of  $M+N$  to  $N$ , thus obtaining  $\phi$ . The obtained result is 1.6133, closer to  $\phi$ , demonstrating that bird imagery on trucks have skillful drawings. Parrots are emblematic creatures on trucks because of their colorful character, friendship with human and also arouse feelings of love towards each other. These birds are a symbol of blooming spring, desire and empathetic love and because of their ability of repeating what they hear; they are considered as the reflection of self (Achari). They appeared on the trucks as a symbol of self-representation because truck drivers have flamboyant personality and worldly yearnings.

Likewise, the golden division in the picture of a pigeon (Figure 5) is 1.61363. Again, pointing to the worth of a painted bird in lives of the truck proprietors and drivers. Pigeons are associated with affection, peace and are known as the trusted messengers of their masters in the East; can be regarded as envoy of God. They are attached to their partners and worthy caretakers of children (Nozedar). This commonly found bird on mosque domes and shrines of Sufis, as Punjabi culture is deeply rooted in Sufism, appeared on the trucks denoting serenity, respect for Sufis as well as close bonding towards their partner of roads and devotion towards one’s family. Placement of birds in truck imagery is important because of its symbolic significance and all of the above-mentioned attained ratios are tremendously closer to 1.618, thus providing an evidence about the emblematic value of bird imagery in

Truck iconography. At the same time this shows the high quality in terms of drawing standard.

Although, birds appearing on the trucks are painted in a typical style that enhanced decorative and flatly tinted imagery in pure and bright colors encircled with dark outline. The purpose of these images is not only to decorate the trucks but also to have emblematic meaning that is more essential for the owners and drivers. But at the same time, the bird imagery is also a record of various species commonly found in the region and their significance in visual arts. Birds are depicted with focus on their character, especially their deep penetrating eyes, detail of wings and tails. Area of concentration is expression and gestures of the birds with focus on the eyes as sometimes they are shown in anger and sometimes in calm mood along with their beautification. This style of painting although appeared on trucks for decoration and symbolic purposes, is not new in this region but has also been done previously under Mughal patronage.

Sub-continent is rich in variety of flora and fauna because of its atmosphere and is also a center of art from the very beginning. The style of painting different birds for their special qualities in close-ups and full length can also be traced back in Mughal miniature art<sup>xii</sup>. The purpose of painting these birds was to record the appearance, colors and qualities of the birds for their individuality. Ustād Mansūr is a well-known artist of Mughal era known for his miniatures of flora and fauna on *wasli*.<sup>xiii</sup> Mughals are famous for their curiosity and interest in art. Under their patronage, art and architecture reached its climax in their specific style that is exclusive globally. One important center of the miniature painting was Lahore during the reign of Akbar and Jahangir. Art flourished under their benefaction and reached its climax. But after the Mughal decline, the scenario of art and artists had been changed. It was impossible for artists to produce high quality work without patronage, so some went to Pahāri areas and became painters in the courts of Hindu Maharajas and others reached the *bāzārs*<sup>xiv</sup> to earn their livelihood (Sirhandi). These artists reproduced the subject matters of the courts but that was of inferior quality. This resulted in the decline of standard and elegance of the miniature painting. However, at the same time, the dominant subject matters also became famous and celebrated amongst the common men.

Ustād Mansūr of Mughal period is known as one of the greatest natural history painters of all times. He worked under Akbar as a *naqqāsh*<sup>xv</sup> or

illustrator and painted numerous miniatures for the illustrated books (Verma). During Jehangir’s period, painted numerous inimitable types of birds for the royal *Muraqqā*<sup>xvi</sup> (album) and was privileged by the designation of Nādir- al’Aṣr or Wonder of the Age (Ahmed). The accuracy of drawing of birds is shaped on acute observation and he perceived his subject from the eye of a naturalist while focusing on drawing the likenesses. These naturalistically painted birds are always shown in harmony with their respective backgrounds while focusing on recording their special qualities and details (Welch). Peacock, falcon and turkey were his favorite subjects and were arranged singularly on a picture plane and occasionally composed in pair or in assemblage (Srivastava). Mansūr is also known for his concentrated and extremely skilled paintings as painted with keen observation and followed the directions and principles of drawing and dimension. Because of this reason, his paintings of flora and fauna are accurate in measurements, following the rules of measurements and division. The use of golden ratio can be seen in Islamic aesthetics especially practiced by the Mughals in their architecture, arabesque and geometrical patterns and edifice of the miniature paintings was also created on it, particularly the spiral (Papadopoulo).

Although Truck art is acknowledged as a popular art of the region but because of the appearance of golden ratio in the imagery and a similarity in the style of portrayal of birds make bird imagery comparable with the miniatures of Ustād Mansūr. The selection of topic, keen observation and measured drawings are points of similarity in both arts. Although, purpose of both the arts is altogether different, as Mughal art has been done to make a record of diverse species of birds and focus is on their actual size, shape, color; the motive of the artist is to draw actual likeness to the bird. Whereas, truck artisans are interested in simplification of form, pure colors, decorative quality and they painted birds for their symbolic connotations. Artisans are not interested in the actual resemblance to the real birds but in the qualities associated with them. Mughal miniaturists were fully conscious of the golden spirals, divisions, its purpose and usage in art. Because of this reason the birds, animals and flowers that they drew entirely meet the standards of measurements. While the local artisans are not aware of the rules of measurements and occurrence of golden ratio in their work is purely coincidental.

*The Pea fowls in a Landscape* (Figure 6) by Mansūr is an actual record of a peacock and peahen in natural landscape and its comparison is

carried out with a painting of two peacocks in a heavenly garden done by unknown truck artisan. Although Mansūr painted peacocks with very delicate brush strokes in a highly realistic manner, focus is on apprehending the real character of the birds. Peahen is shown in the foreground with twisted neck gazing the peacock holding a snake in his beak. Special attention has been given to the anatomy, delicate necks of the birds with crown on heads, details of feathers and natural beautification of birds. Details of landscape with flowers and leaves have also been given in subdued colors. The drawings of peacock and peahen are created with the help of golden measurements and divisions as when divided, both the birds are following the rules of golden ratio. The concluded ratio of the peahen is 1.61538 and of peacock is 1.61864 end-to-end from beak till the quill. However, on local truck, two peacocks in heavenly garden (Figure 7) are painted in opposite direction, facing each other with twisted necks. Peacocks are painted in the foreground at the flat roof top of building and in the background are the trees, mountains and sky with flying birds along with a depiction of large flower in the center. Here, along with the focus on the depiction of the imagery of popular craft of the regional culture in a typical style, the artisan is also intended to depict the perfect shape and form of peacocks, thus pointing towards their drawing skills. One noteworthy point is that, not the complete picture plane is dividing into the golden measurements, but bodies of the peacocks and central flower are emblem of golden ratio. The calculated ratios of both the peacocks are 1.6216 and 1.61403 respectively. Although the complete picture plane does not demonstrate the appearance of golden ratio but at the same time, it also reveals the margin of choice in portrayal of stylized forms.

Likewise, falcon was Ustād Mansūr’s most preferred subject to paint as numerous flawless sketches of this bird are painted (Verma). The selected example, *Falcon* (Figure 8) is posed in a static posture to capture the perfect structure and details of textural skin of the bird. Falcon is painted as an independent study against flat background while using subdued colors. Emphasis is on the profile view of the face as crude nature of the bird is revealed with focus on its beak and penetrating eyes. The effect of the painted bird is three-dimensional on the flat paper. The artist achieved the desired effect with delicate brush strokes. Full length bird is painted in perfect ratios in order to record the natural history. The body of the bird when studied is dividing into two unequal parts. Again, the larger and smaller parts are divided, that is equal to the

sum of both parts, divided by the larger part, which both are equal to 1.6211. Mansūr created divine magnitudes in his drawings with the knowledge of golden ratio in order to achieve desired results. However, in Truck art, birds are painted from reminiscence and focus is on their symbolic attributes rather on resemblance. Eagle (Figure 9) is frequently painted on trucks with their side view face, sharp beak and piercing eyes. Focus is on the nature of eagle but usually painted in typical style with the use of unnatural colors. The bird's portrait is painted flatly with the use of thick and bold outline and decorative details of its feathers and creates a two-dimensional effect. Eagle painted on truck was evaluated and it represents that the upper larger portion of the bird and the lower smaller part is equal to the sum of both, when divided again by the greater part, both parts are equal to 1.61304. Consequently, the use of golden ratio and mathematical divisions exists in both the paintings of the birds. However, in Truck iconography, this presence is inadvertent as artisan is unfamiliar with the golden rules of measurement. It points towards the high standard of the truck imagery with its exceptional and naive style of painting and the aptitude of artisans for creating an art known in the world for unusual qualities.

Similarly, two ducks on a truck (Figure 10) are composed enormously zoomed against natural background. Feet are not adjusted in the picture plane and are missing in the composition. Again, birds are painted in profile with sharp eyes and beaks, long necks, oval shaped bodies and detail of skins with loose brush strokes. The background shows the usual dreamy and idealistic natural arrangement. The preceding bird and the upper half of the frontal bird endorses the division of golden rectangles as the calculated ratio is 1.61904 thus converting them into sanctified beings and justifying their presence on trucks for symbolic significance. Ducks on trucks can be compared with *A Pair of Tibetan Cranes* (Figure 11) by Mansūr regarding proportionate drawing. Though birds are painted with their unique character and sophistication. Delicate drawing is done with every minute detail as he is known as master of draftsmanship rather than painterly qualities (Welch). The figures of the birds display the perfect ratio of 1.61818 but the elongated neck of one crane does not follow the rule. So, the noticeable point is that the body of one bird in Mansūr's drawing is not completely showing signs of ratio like the above-mentioned duck on the truck.

Though, a stark diversity is present in the style, treatment and purpose of these drawings. Mansūr treated them to create a three-dimensional effect

on flat surface along with the stress on every minute detail and original colors to capture resemblance with the use of technical divisions. Whereas, the truck artisan is intentionally creating flat two-dimensional effect on the crude metal body of the truck along with the use of pure colors in high intensity to create eye-pleasing images. Birds are fashioned in imaginary colors enclosed within outline enhancing embellishment and patterned qualities. Emphasis is not on exact likeness to the bird but symbolic connotation attached with them is the center of interest. Similarity lies in the selection of subject matter, style of illustrating individual birds in close-up singularly or in pair of two and the occurrence of golden ratios in both artworks. Its use in miniature painting is intentional to create perfect composition, but in Truck art unintentional as unqualified artisan is unaware of golden ratios and divisions.

### **Conclusion**

Italian mathematician Luca Pacioli said, “Without mathematics there is no art.” Mathematics plays a vital role in the development of every art whether applied deliberately or inadvertently. Truck art is its perfect example as the existence of the golden ratio in the local craft points towards the high-ranking of art and creative perception of the artisan without any knowledge of the mathematical formulas. A new dimension is added with this finding to look at the imagery and to comprehend the talent of local craftsmen. The manifestation of golden ratio in Truck art is an evident example of individual’s natural aptitude to draw by instinct, a drawing in the most perfect form. Local artists are using these ratios by instinct as they do not have any formal knowledge or technical training regarding mathematical divisions. This is a proof that the human brain is creation of God and is in perfect ratio and whatever it creates is a replication of that excellence. Whatever a man creates is the reflection of God’s images, the sky, mountains, birds, animals, flowing water, flowers and trees etc. God created every form in its perfect ratio, so when human brain duplicates this imagery, he tries his level best to portray it perfectly, providing the significance of imagery in his life. Truck art with its strong connotation of superstitious beliefs, admiration and desire to create fantasy world leads its owners and in reciprocation by their artisans to draw and paint these natural creatures extremely beautiful, ornate and significantly in their precise features and shape, thus inadvertently resulting in the appearance of golden ratio. The presence of

golden ratio not only increases the visual quality of the images but also enhances the visual prominence of the subjects painted on trucks. The craftsmanship of artisans involved in Truck art displays unparalleled skill whom have been engaged in producing attention grabbing images and motifs. Golden ratio adds balance, harmony, unity and symmetry to the images. Hence, it can be said that Truck art is an amalgamation of overlapping mathematical knowledge and creative expression which results in the alluring and adept visuals. Thus, promoting our regional popular culture globally and enhancing the notion that art cannot be learnt but ascends through intuition.



*Figure 1 A Sparrow. Source: Photograph taken by the author. Golden Spiral courtesy by Dr. Muhammad Usman Akram, Associate Professor College of Eme, NUST.*



*Figure 2 Two Partridges with Halos. Source: Photograph taken by the author. Golden Spirals courtesy by Dr. Muhammad Usman Akram, Associate Professor College of Eme, NUST.*



Figure 3 Eagle with Stretched Feathers. Source: Photograph taken by the author. Golden Division courtesy by Dr. Muhammad Usman Akram, Associate Professor College of Eme, NUST.



Figure 4 A Parrot. Source: Photograph taken by the author. Golden Ratio courtesy by Dr. Muhammad Usman Akram, Associate Professor College of Eme, NUST.



*Figure 5 A Pigeon. Source: Photograph taken by the author. Golden Ratio courtesy by Dr. Muhammad Usman Akram, Associate Professor College of Eme, NUST.*



*Figure 6 Pea Fowl in a Landscape Attributed to Mansūr ca. 1620. Source: The Magnificent Mughals. p 164. Golden Ratio courtesy by Dr. Muhammad Usman Akram, Associate Professor College of Eme, NUST.*



Figure 7 Two Peacocks in Heaven. Source: Photograph taken by the author. Golden Ratio courtesy by Dr. Muhammad Usman Akram, Associate Professor College of Eme, NUST.



Figure 8 Falcon, c. 1619. Source: Mughal Painter of Flora and Fauna Ustād Mansūr, Pl. VIII. Golden Ratio courtesy by Dr. Muhammad Usman Akram, Associate Professor College of Eme, NUST.



Figure 9 An Eagle. Source: Photograph taken by the author. Golden Ratio courtesy by Dr. Muhammad Usman Akram, Associate Professor College of Eme, NUST.

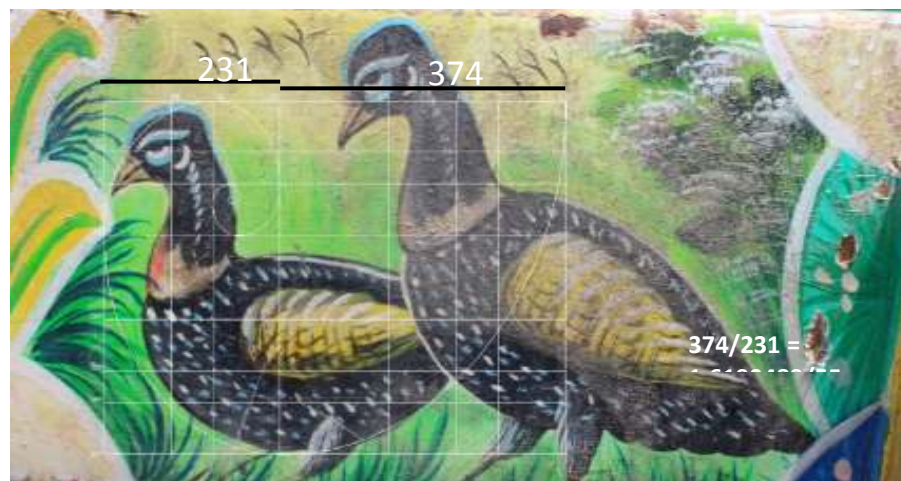
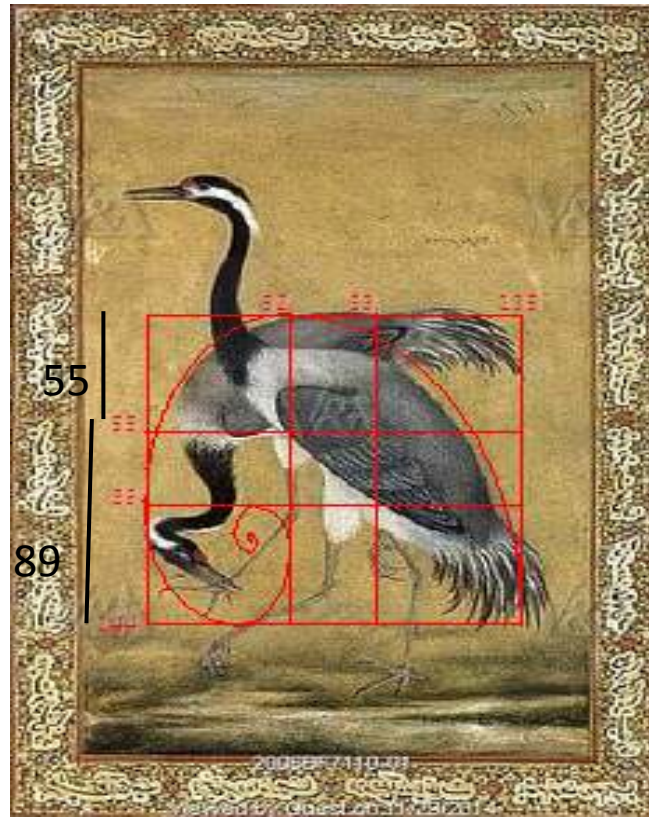


Figure 10 Two Ducks in Open Air. Source: Photograph taken by the author. Golden Ratio courtesy by Dr. Muhammad Usman Akram, Associate Professor College of Eme, NUST.



*Figure 11 A Pair of Tibetan Cranes c. 1621-25. Source: Mughal Painter of Flora and Fauna Ustād Mansūr, Pl. XVII. Golden Ratio courtesy by Dr. Muhammad Usman Akram, Associate Professor College of Eme, NUST.*

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<sup>i</sup> The term *kārkhānahs* is used in local terminology for the smaller factories.

<sup>ii</sup> In local terminology the teacher of local craft is called *Ustād* and ‘s’ is used to show the plural.

<sup>iii</sup> An interview with the painters working at Gilāni Cārgo Addā, Bund Road, Lahore. Interviewed on 05. 06 2017.

<sup>iv</sup> The imagery painted on the truck body is known as *phool patti* in local terminology.

<sup>v</sup> Painter Kāshif Arzār, interview by Nomana Zaryab, Bund Road Lahore, Pakistan, 5 June 2017.

<sup>vi</sup> In local language, brushes used for truck art are called *parghazā qalm*.

<sup>vii</sup> Painter Ali Hussain, interview by Nomana Zaryab, Bund Road Lahore, Pakistan, 5 June 2017.

<sup>viii</sup> Kāshif Arzār, interview by Nomana Zaryab, Bund Road Lahore, Pakistan, 5 June 2017.

<sup>ix</sup> Pythagoras was an ancient Greek philosopher and mathematician.

<sup>x</sup> “Elements” is the book of mathematics written by ancient Greek mathematician Euclid of Alexandria.

<sup>xi</sup> Hāji Rangsz, Babur Hussain and Bādshāh painter, interview by Nomana Zaryab, Bund Road Lahore, Pakistan, 1st May 2017.

<sup>xii</sup> Miniature painting is small in size, done on special paper with focus on intricate brush strokes.

<sup>xiii</sup> *Wasli* is a type of handmade paper used for miniature painting especially during the Mughal period.

<sup>xiv</sup> *Bāzār* is an Urdu word used for local market and the addition of the ‘s’ is used to show the plural means many local markets.

<sup>xv</sup> A person who draws miniatures especially for illustrated books during the Mughal era.

<sup>xvi</sup> A *Muraqqā* is an album in the form of book containing Islamic miniature paintings.