

Communicative Factors in Visual Abstraction of a Kithul Tree in an 18th Century Mural Painting of Sri Lanka

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Abstract – *The semi stylistic tradition came to a peak in mural paintings of Sri Lanka during the 18th century along with an enormous distribution throughout the central and suburban Kandyan domain. Scholars have explored and interpreted the story lines, its history and elements of paintings for centuries. However, knowledge on the communication factor of visual abstraction is comprehended only to a minimal extent. Understanding the communication factor of these elements contributes to the consecutive exposition of historical evidence. This research aims to concentrate on 'kithul tree' which is identified as a unique foliage element in 18th century mural paintings to investigate the communicative factor in visual abstraction by studying the perception of present-day people. A drawing was reconstructed by hand painting, and used as a source to collect data and analyse based upon modern visual design principles. Thereafter the reconstructed drawing was exposed to participants in two different age categories 15-24 and 25-60 in equal ratios of male and female who are residents in Sri Lanka. The findings through interviews and guided questionnaires revealed the effective use of communication factor in the drawing based on the manipulation of a supportive socio-economic element; a toddy pot on a kithul tree, rather than restraining it to the original components of the tree; leaves and the crown.*

Keywords: *Mural paintings, visual abstraction, Kithul tree, communication, perception*

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I. Introduction

The practice of mural paintings became highly developed during the 18th century after many years of cultural and political influences in Sri Lanka. According to Coomaraswamy (1908), a set of original paintings which are accessible today can be found in ancient shrines such as Degaldoruwa, Ridee vihara, Danagirigala, Dodanthale and Kelaniya. Knowledge incorporated in these mural paintings consist of potent explanations on the evolutionary lifestyle of that era in the country. Visual abstraction as the method of application in creation of these paintings is the significant focus of this study, because of the limited understanding about the underlying factors of its process. Scholars have contributed to the knowledge of interpretation of these murals for centuries, but this study investigates the communication factor of the elements within paintings. The subjective effects of the findings are prominent as the assessment of communication factors depended on the context that needed to be associated with people who decoded.

The ancient Sri Lankan civilization is famous for its relationship of people with plants. According to folklore, the people used to share emotions with trees whenever they had happy or sad moments in life. The clue to understand this relationship is the remaining archeological evidence. In the traditional style of Kandyan period paintings, the artists have used to depict trees or plants to manage the flow where the story line is lengthy or if the story requires intervals. In situations where forest areas needed depiction, artists used to paint trees very creatively and sophisticatedly. It is apparent that this behaviour of tree paintings is a general practice in the works of this era. There are two types of trees found in creative works of the period, they are natural and mythical. The artists may have tried to emphasise the legends through paintings, so the construction of tree paintings became vital with suitable variations (Somathilake, 2002).

Paintings in Danagirigala temple are rich with a variety of natural elements above all other shrines in the country. Large scale paintings contain detailed visuals of the natural environment revealing the socio-economic context aligned with the habitants. The element focused on this study is the *kithul* tree which is identified in the painting; 'Tapping toddy in the forest grove 2' on the inner south wall of Danagirigala cave shrine. Similar styles depicted in Degaldoruwa and Dambulla caves too are said to have deviated from legendary story lines towards routines of the habitants (Wutwongs, Premathilake, & Silva, 1990). This geo specific characteristic elevates the present-day scholars to investigate the underlying philosophy of visual abstraction to compose adaptable instructions for further studies.

Abstraction stands for the fact that the explicit object is not visualised in the work, but instead incorporates visual elements in a stylistic form. Numerous scholars have studied the distinctive visual abstraction styles of the Kandyan tradition. This investigation aims to explore the visual abstraction of paintings focusing a specific plant as the subject matter and to evaluate perception of present-day people to understand the application of communicative factors. Hence, this research is elevated to a ground that integrates communicative aids and abstraction processes which stress the two formed values of mural paintings in Danagirigala cave shrine: the conveyance of historical context and cultural valuation.

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II. Research Problem

Artists of the 18th century have associated real life scenarios to create mural paintings in order to communicate historical evidence. They may have taken references from vocal, literary and early painting traditions while connecting the ideology with pragmatic inspirations. Reader's perception of understanding and conveyance of painting determines the transmission of information. Thereby, evaluation of such interaction is established for a discovery of associated communicative techniques in the advancement of cultural discoveries. There are no sufficient observations regarding the effectiveness in the use of communicative factors in visual abstraction of the element 'Kithul Tree' in Plate 26 - Forest Grove (2) - Tapping Toddy in the inner south wall of Danagirigala cave shrine. The significance of the element is considered as iconic evidence to interpret socio-economic status of the era.

III. Literature review

Among 18th century mural paintings in Sri Lanka, the finest garden scenes are found in Danagirigala cave shrine known as 'Danagirigala rajamaha vihara' associated with a royal garden. According to Bandaranayake and Jayasinghe (1986), the paintings in the cave shrine represent post-classic style which is also called the consecutive tradition that advanced through the matured Kandyan style since mid-18th century to a more stylistic approach. The garden scene consists of variety of botanical species, such as *kithul* (*Caryota urens*), *munamal* (*Mimusops elengi*), *tala* (*Corypha umbraculifera*), arecanut, king coconut, mango, banana, pineapple, jack, *sapu* (*Michelia champaca*), etc. The artists' representation of the trees, however, seem more imaginative than botanically true (Wutwongs, Premathilake, & Silva, 1990). The garden is depicted in a busy state with activities such as the keeper watching the area and people on branches plucking fruits carrying baskets.

The selected painting *Kithul tree* which has been recognized as Plate 26 - Forest Grove (2) - Tapping Toddy is in the inner south wall of Danagirigala cave shrine. The man is climbing the tree bearing his tapping equipment on his back. Two pots are fixed to the beaten flowers. The surrounding is rich with several other plants, trees and flowers providing a confident image regarding the natural system which was there during the period. Danagirigala Vihara is known as one of the most significant temples that have a greater variety of trees and natural elements than anywhere in the island. A man is seen climbing the *kithul* tree for tapping toddy. Some toddy pots are seen fixed to the tail pot flowers. The trees and specific characteristics are highlighted by the red background and enlivened by the figures moving on them (Wutwongs, Premathilake, & Silva, 1990). The background space of the entire painting of the garden is filled with flower elements.

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Figure 1

Focused painting of Danagirigala Cave shrine



Note. Left-Plate 26 - Forest Grove (2) and right - an enlarged image of the scenario - Tapping Toddy
From *Sri Lanka Bithu Sithuwam - Danagirigala*, by Wutwongs, N., Premathilake, L., & Silva, R. (1990). Colombo: Department of Archeology, Sri Lanka.

The structure of trees painted has shown a greater difference in the late 18th century with foreign influences. The approach has been deviating from natural to stylistic, constructing details and forms in a more manipulated manner. The Danagirigala *kithul* tree and the trees in that style are examples for Semi stylistic tradition which succeeded natural tradition in the evolution from Polonnaruwa era being a combination of the other characteristics of traditions (Maddumage, 1994).

The colour scheme of *kithul* tree signifies the style of Degaldoruwa and Dambulla by soft shades of pigments and the attempt to a tonal effect to the foliage of the tree. It is believed that the paintings in the site followed Sittara art tradition in the Kandyan period and the format is following the style of Dambulla with original features creating a context with flowers and fruits. It is believed that this work was done by Hittara Naide of the Nilagama school, whose group was responsible for the execution of the bulk of paintings at Dambulla (Wutwongs, Premathilake, & Silva, 1990).

According to the department of Archaeology the historians believe that the themes of paintings in Danagirigala vihara are focused on natural scenarios in the lifestyle as the Kegalle district is full of landscape variation. A member of local non-profit project to empower rural communities, a veteran development professional and field director of Sewalanka Foundation has revealed that main livelihood of people who lived in this region were *kithul* tapping and collecting non-timber forest products (Balachander, 2017). The style and finish of the paintings are well appreciated by A. Coomaraswamy and Siri Gunasinghe because of their unique specifications which are probably inspired by subjective construction to deliver the information. The *kithul* tree has been constructed the same as the other trees towards a slightly stylish form instead of being explicitly natural. The reason behind might be the tradition of style they have practised in temple paintings. That style is the key to understanding the abstraction approach. The effort seems successful when compared to other trees in the painting, the *kithul* tree is distinctive with its features (Somathilake, 2002).

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According to analytical records of Maddumage (1994) the paintings should be abstract and that's what Kandyan artists achieved; forming real objects through a conceptual style without imitating the realistic details which was different from the early artists of Polonnaruwa era. He further defines 'abstraction of art' as a demonstration of what is conceptualised by the artist. His reference to Danagirigala artist is elaborated regarding leaves of the trees, as shown in Fig 2, they are the most in quantity and as a set of wholes which is drawn as a single entity instead of drawing separate individual leaves.

Figure 2

Smaller individual structure of leaves



Note. Left-Plate 26 - Forest Grove (2) and right - an enlarged image of the scenario - Tapping Toddy
From Book *Sri Lanka Bithu Sithuwam - Danagirigala*, by Wutwongs, N., Premathilake, L., & Silva, R. (1990). Colombo: Department of Archeology, Sri Lanka.

The Visual Abstraction comes as the process in between imagination and formation of the artwork. It determines how the subject matter transforms to an ideal visual output on the mural surface. In visual representations, several layers of abstraction could be subsisted still maintaining the ultimate manipulation of information from source object to the sign (Viola et al., 2020). Their standpoint has been further justified by the characteristics of less concrete features identified in mural visualisations discussed in this matter. Certain recent studies have pointed out that the communicative delivery of murals such as eco murals are drawn a broad range of factors into consideration in its all stages within the community; eco murals tend to discuss economical, social and political issues of not only the time the art was created but also of the time that it is viewed (Kang Song & Gammel, 2011). Thoughtful benefits of such studies encourage the need to expand the reading of communicative factors in a substantial era of stylistic murals due to the depiction of *kithul* as a socio-economic subject.

The technique used in painting certain trees such as palmyra, coconut and *kithul* (Fig 3) indicates a certain diversion from the seven types of representation methods applied in the prior ages of Kandyan artists. Any effort to imitate real world object qualities cannot be seen but an effort to develop geometric patterns is evident. The set of leaves behind the rest is hidden partially but all the smaller segments follow the same shape of lines and curves. The leaves of the *kithul* tree are rich with a long series of curves containing smaller leaf segments inside. The total space of leaves coloured in the same colour except for fresh leaves and fruits. Even the most famous method of 'five branching' concept in this period also not followed in the later years. The trunks of the tree have been painted in grey colour which was a popular practice in

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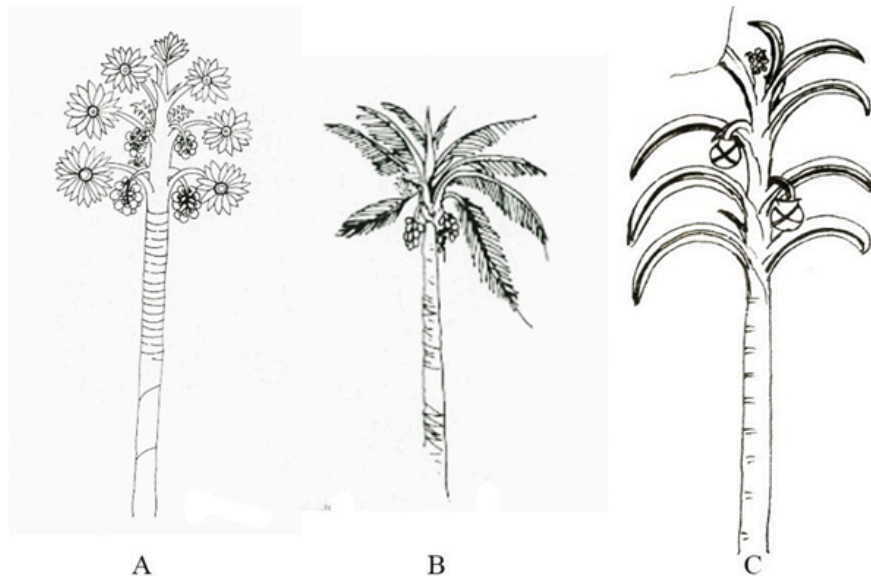
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the tradition and not detailed to a broader extent but depicting most significant signatures of the real plant. It is evident that the artists used to paint more plants, trees, leaves, flowers, and fruits in detail in the middle than the beginning of the 18th century. Sometimes the scales of men and flowers seem to be a critical comparison. The paintings of palm trees have a general style that can be understood throughout the Kandyan era. The branches of the tree are aligned beside the trunk symmetrically to a certain scale. The total figure of the *kithul* tree is outlined precisely and it is the way of making decorative arts as the mural paintings rather than just copying certain images. The artist's insight regarding the painting approach hereby conveys some rich impression upon sophisticated workmanship. Experts have identified that the Bodhi painting and a lot more other trees were painted based on the Five Branching structure. But there are a set of other trees that have deviated from that to depict a different form of style which is also rich in its creative approach. The palm group trees are the best instances therefore specifically the *kithul* tree is inspected here. It is important to explore the caste system of that era for further discussion (Maddumage, 1994).

Figure 3

Paintings of certain trees and their techniques



Note. A - Palmyra tree, B-Coconut tree, C - *Kithul* tree from Kandyan tradition paintings
From *Sinhala Chithraya saha Mosthara Sampradaya*, by De Silva, N. (2009). Colombo: Padmapaani creations & publications.

IV. Methodology

The major data collection was carried out with a selected set of participants out of public. The interviews were conducted initially with 10 elderly people over 60 years old as they have more tendency to discuss verbally than writing or participating in such an act. Thereafter, 40 participants of the questionnaires are 83% 15-24 years old, 17% 25-60 years old and covered equal ratios of male and female in each category. They are students and employees from different districts in the country; Colombo, Gampaha, Kalutara, Rathnapura, Kandy, Galle, Badulla, Monaragala who are mainly who have experienced mural paintings in temples during their visit, minimum once a month. The responses were collected in accordance with the participatory questionnaire which contain 20 questions that represent the effectiveness of communicative factors in visual abstraction of the painting, structured as follows.

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1. The demographics, habits, and frequency of visiting temples and experiencing.
2. Recognition of elements and the components.
3. Evaluating difficulties of communication.
4. Emotions evoked and elicited memories.
5. Attraction points and perspectives of comparison to real world objects.
6. Sense of layers in the elementary composition.
7. The reading of colour composition, clarity, and reliability.

The comparative analysis was carried out referring to the collected data and literature evidence to be directed to the understanding and generate enough room for relations and connections reasonably. The data gathered were expected to be crucial with the mindset of current human lifestyle and evaluating focus on a subject that was created more than two centuries back. As a more practical way of gaining feedback on concentrated subjects the data would reflect real life thinking practice in Sri Lanka people over certain parameters. The responses have been represented in graphs, diagrams and suitable formats for reference and the analysis will be there for each question and answer as a response of evaluation on a certain parameter or factor. The key idea is to extract the above-mentioned parameters and factors regarding recent human perception on mural paintings and their interpretation to outline the visual abstraction behind stories including strategic success of composing elements.

Figure 4

Original and the reconstructed element



Note. Left - A - Original Element, Right - B - Reconstructed drawing by author
Original visual of the element is from *Sri Lanka Bithu Sithuwam - Danagirigala*, by Wutwongs, N., Premathilake, L., & Silva, R. (1990). Colombo: Department of Archeology, Sri Lanka.

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V. Results and Discussion

The transcribed responses are demonstrated as follows after the initial analysis.

Table 1.

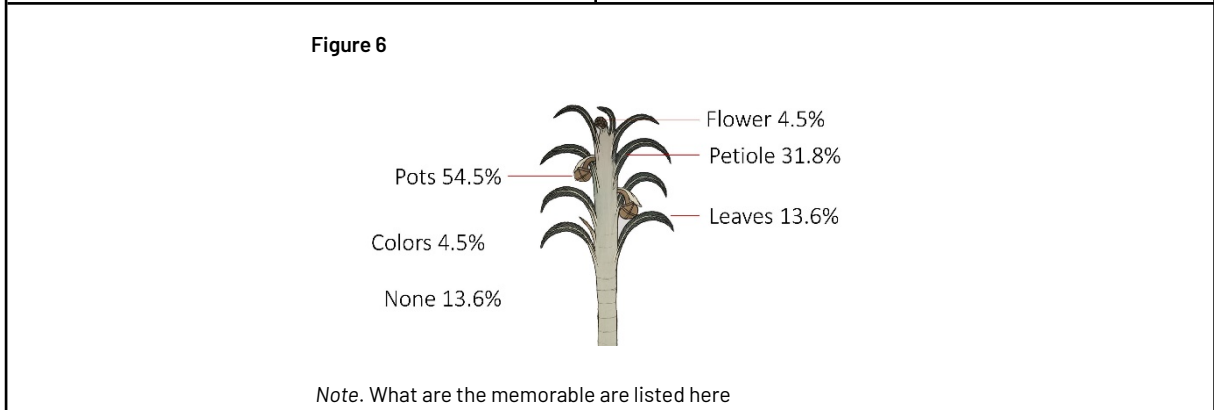
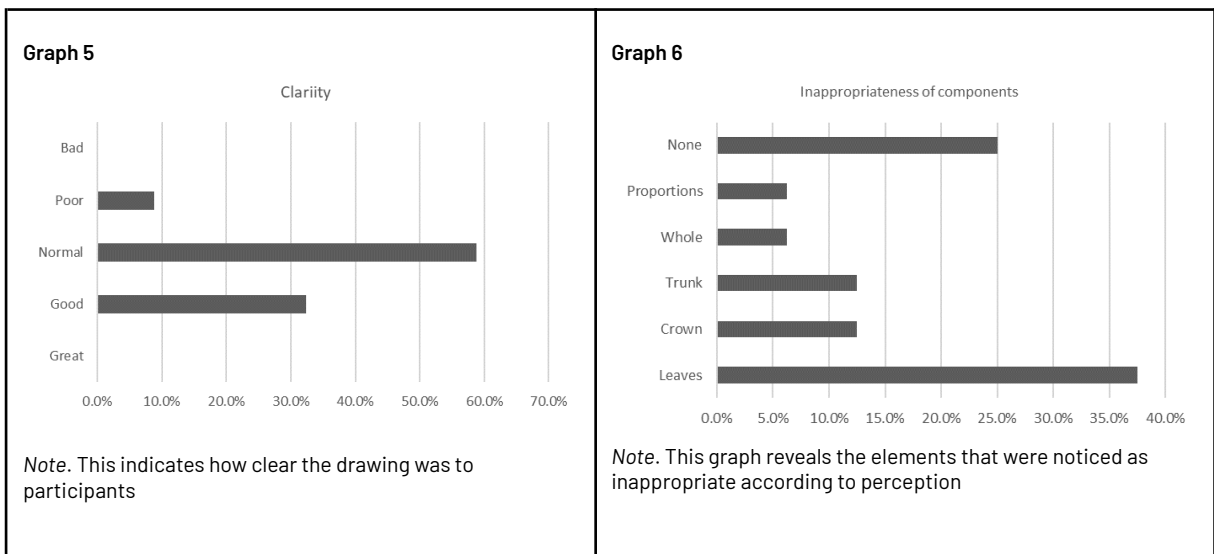
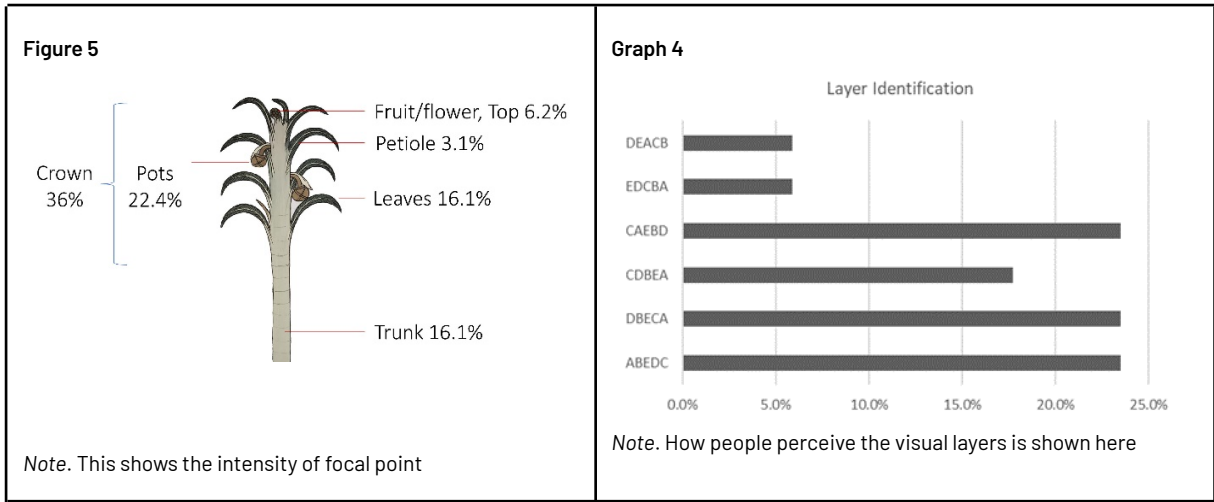
Transcribed data after the initial analysis

<p>Chart 1</p> <p>Identification</p> <table border="1"> <thead> <tr> <th>Tree Type</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Kithul tree</td> <td>43%</td> </tr> <tr> <td>Palmyra tree</td> <td>33%</td> </tr> <tr> <td>Coconut tree</td> <td>5%</td> </tr> <tr> <td>Tree</td> <td>19%</td> </tr> </tbody> </table> <p>Note. This chart shows how participants identified the type of tree by seeing the reconstructed drawing.</p>	Tree Type	Percentage	Kithul tree	43%	Palmyra tree	33%	Coconut tree	5%	Tree	19%	<p>Graph 1</p> <p>Supportive Elements</p> <table border="1"> <thead> <tr> <th>Element</th> <th>Percentage</th> </tr> </thead> <tbody> <tr> <td>Pots</td> <td>10%</td> </tr> <tr> <td>Leaves</td> <td>8%</td> </tr> <tr> <td>Fruits</td> <td>3%</td> </tr> <tr> <td>Flower</td> <td>2%</td> </tr> <tr> <td>Petiole</td> <td>1%</td> </tr> <tr> <td>Trunk</td> <td>1%</td> </tr> <tr> <td>Shape of tree</td> <td>1%</td> </tr> <tr> <td>Shapes</td> <td>1%</td> </tr> <tr> <td>Colors</td> <td>1%</td> </tr> </tbody> </table> <p>Note. Elements that supported for identification</p>	Element	Percentage	Pots	10%	Leaves	8%	Fruits	3%	Flower	2%	Petiole	1%	Trunk	1%	Shape of tree	1%	Shapes	1%	Colors	1%		
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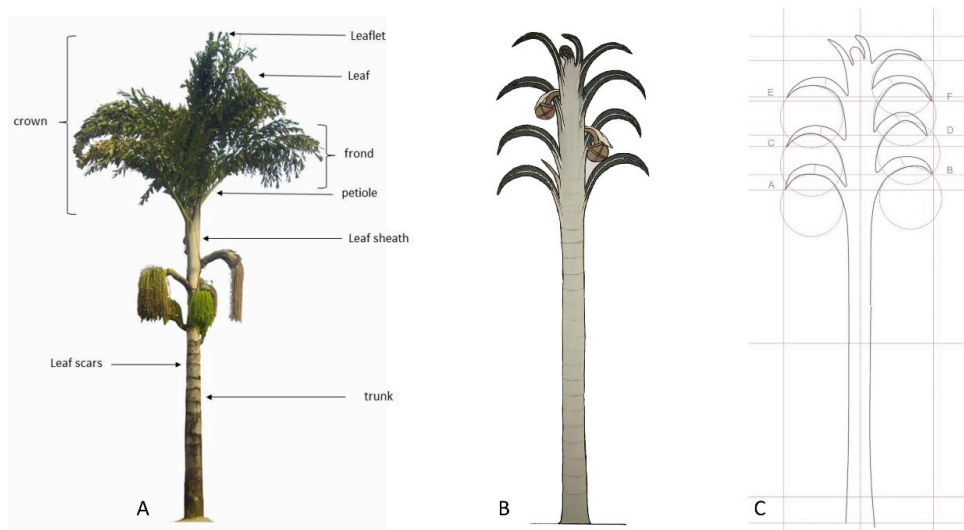
The grove is significant in the painting history because of the abstraction approach in visual environmental descriptions when compared to real *kithul* trees. The proportional study of the graphical construction was done initially as shown in fig 6 which did not convey a distinctive deviation in the holistic form. The master silhouette of all the palm trees as it is with the hope of ensuring the natural proportions of the trees can be noticed. The natural proportions are effective with the first impression of the reader that has become the foremost vehicle of the

visual transition of data. Fundamentally, the line work does an important function here even while enhancing the texture effects of the trunk. Even in the sizes of the elements, the artist had to be careful to keep the relative proportions of the human figure and the trunk. The proportions of the tree evoke several distinctive ratios; the total height is approximately divided to three segments and the crown is in the top segment. The crown is the total space of a bunch of leaves of the tree. Vertically the overall structure is symmetrical. The lower curve of the fronds has approximately the same radius. The set of fronds are not symmetrical because of the semi stylized practice in the tradition.

Entire crown has been separated into seven major fronds (collections of leaflets generated from the petiole) which follows the general shape of the set of leaves per frond. Precision of detail is adequate with the correlation of the total height, thereby misrepresentation was avoided to direct the complementary of a banana tree. The repetitive pattern of a leaf has been transformed into smaller segments of arcs along the midrib arc in the frond. The curve shape for the dangling aspect of the frond turned arcs unify from petiole. The arc shapes have been consistently applied to express the bend of the frond. In the other paintings of palm trees, the same procedure has been followed to show the similar type of thin and long leaves. In the palmyra tree the fanned-out leaves have been demonstrated in a different manner that is distinctive as its real structure. Once we see the real palm trees the crown is mostly in a set of compact fronds and branches. The artist might have tried to avoid that confusion or the mess of leaves only by extracting the master silhouette of the tree by reducing the number of fronds and leaf segments. The artist has detailed the biological facts of the tree by depicting the origin of petiole which grew slightly from the trunk of the tree.

Figure 7

Analysis of the visual graphic proportions



Note. A - Parts named of a *kithul* tree (Source: Google Images), B - Reconstructed drawing of *kithul* tree based on the painting in Danagirigala cave shrine (Source: Author), C - The structural analysis of the graphical proportions developed by Author

The drawing has been identified as *kithul* by 43% of the critical majority considering the pots on the beaten flowers and the leaves as shown in chart 1. At the same time graph 6 points out that 33% of participants believe that the nature of leaves is inappropriate, resulting in a confusion of who answered 'palmyra' in its initial identification as in graph 2. The *Kithul* tree is the third highest palm tree in the grove (Fig 1) next to *Palmyra* tree and the *Dotalu* the highest.

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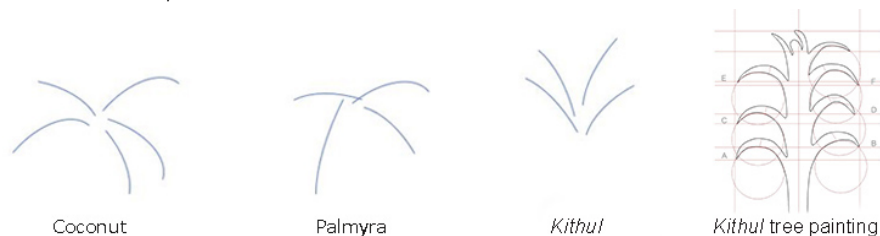
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The visual structure of a palm tree might be the influence at the first impression but therefore the participant struggled to clarify which is the perfect type out of all palm species. Exploring this case, the graph 1 reveals the key elements of the image that helped participants to understand the type of tree. The most supportive element is 'pots' and the 'combination of leaves', while the shape of tree and the trunk have become the next powerful characters. In Asian context the toddy is named based on the plant that used to produce toddy; *Thal raa*, *Kithul raa* and *Pol raa*. It is produced in Asian and African countries, an alcoholic drink made by fermenting the sap of the flower of above-mentioned palm trees. It is evident that participants had the first impression with the idea of tapping toddy because of the pots hanging on the tree with an uncertainty among coconut, palmyra and *kithul*. The heights and the placement of the crown are similar in all the palm trees, even the density of leaves. Unlike the coconut tree the rest of the two trunks have a characteristic difference in the cross-sectional diameter. The bottom origin has a wide diameter, and it regularly gets thin to the upward direction towards the peak. It seems like the people who experienced the painting had that factor considered.

Chart 2 argues that the shapes of the painting were prodigious issues to recognize the tree. The shape of leaves, trunk and crown are revealed by graph 6 to reinforce that. The painting doesn't give distinctive appropriateness when considering the shape of the trunk which people had struggled with. Chart 3 indicates that only 9% have characteristic reliability on the painting to determine it as a *kithul* tree. The struggles they had are conveyed in chart 2, graph 2 and graph 6. The shape of frond was the difficulty to recognize the element as further analysed in fig 7. The most familiar memory reference evoked as a palmyra tree and of a foreign species. After they got to know the real subject matter is a *kithul* tree, they stated that the characteristic identities of the real tree have been composed to a certain extent into the painting. Majority of them recognized the scale exactly as the tallest option given is the most suitable. Therefore, considering the highlighted shape of leaves, trunk, and crown, it is clear that the insufficient radius of the arc in the dangling aspect of each frond has placed the formation of crown in the painting eventually in between the original formation of crown of palmyra/coconut tree and *kithul* tree.

Figure 8

Formation pattern of crowns of palm trees



Note. Formation pattern of crowns of palm trees. Analysis by Author

According to the focus point ratings demonstrated in fig 4 and the memorable area ratings in fig 5, the pots have done a key role in visual delivery of this painting. They are not an anatomical entity of the tree yet secured the most empowered human experience associated with the context. It is reflecting a scenario of lifestyle of the past during the artist's time of living. That is the same module of life pattern in the community which has very much the same values and aspects. Perhaps that's why people undertake the challenge of reading this visual art by their own practice of starting from the pots and criticising the shape of leaves. According to graph 4, the layer identification has an aspect that doesn't contrast the 3-dimensional effect of the crown. That possibly because of the dual directed frond formation structure. If the artist used a natural style method, then the overlapping traits would be the reason for 3-dimensional layer effects and the depth. However, the layout of the dual direction leaves pattern doesn't give deeper clues except the inspection to origins of petioles and hanging style of pots.

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Conclusion

The element 'kithul tree' of mural paintings in Danagirigala cave shrine was investigated to uncover the integration of communicative aids and the abstraction process following the perception of present-day people. The primary manifestation was to undergo literature analysis and visual analysis by graphical construction, rudimentary elements, structure, and composition. The abstraction of the *kithul tree* has not taken complex visual approaches in the semi stylistic arena as discussed. Including the less deviated master silhouette, sophisticated use of key elements such as pots, fanned-out frond representation, formation of frond by leaves and trunk detail has contributed positively in effective communication. The overall visual structure (shapes, proportion, and scale), is the key influence at the first impression which provides clarity out of similar palm species. The pots on the tree are dominant in human perception measures: supportive factor, focal point, and memorable area even though being a non-anatomical component of the tree. This dominancy constructs the modular space to invent the icon style representation in expressive forms of graphics. The insufficient radius of the arc in the dangling aspect of each frond keeps the negative delivery of communication which commands expansive comparison of characteristics within the species. Qualitative brace by associating socio-economic elements in foliage painting is accepted as a positive potential in the visual abstraction of *Kithul tree* painting. The play of dominance in foliage types of subjects are critical, in the existence of its communicative factor ignoring the matter of fact that the elements visualised are anatomical. However, the play of graphical elements is still considered as influential where the relative types of a species possess modular characteristics like subject matter.

Contribution

This research primarily contributes to the subject of visual abstraction and its pragmatic approach of understanding mural paintings based on modern human perception. Secondly the primary data have been analysed to contribute to the communication studies of mural paintings. The ultimate focus of the study is towards vernacular knowledge and practice because of the specific umbrella of mural paintings in the 18th century and its discovery to the practice of communication practice of related disciplines.

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