

A Study On Kattam Vedic Art As An Example Of InfographicsBIJU KUNNUMPURATH¹*Department of Media Studies, Christ (Deemed to be University)*SRUTHI R²*Department of Media Studies, Christ (Deemed to be University)*

Abstract: Infographics is the sort of communication which is gaining popularity day-by-day. Using elements of design in an efficient and organised manner, infographics provides its users the desired information in a very subtle and crisp manner. Information conveyed through an infographic is not only visually appealing but also very easy to grasp. Kattam is a technique which has been used by vedic astrologers in South India for thousands of years. This research tries to examine kattam, its features and analyse if it can be considered as an example of infographics.

Keywords: *Kattam, Vedic Astrology, Infographics, Design*

1. Introduction

The term Infographics is getting immense amount of limelight. It is a term used literally in every domain. It is a well known fact that William Playfair, an eighteenth- century Scottish engineer and economist invented the line chart, bar graph and pie chart. [1] But is that the definition of an infographic; line chart, graphs and pie charts? Were infographics used only after the eighteenth century?

Infographics is not a new concept. Since the beginning of recorded time, humans have been communicating visually. Sumerians used pictographs for record-keeping purposes, and Egyptians used hieroglyphics to capture their history. [2]

Kattam shows the exact position of grahas and their occupying rasi or zodiac house. The kattam is made of one square divided into thirteen small squares. Careful analysis and interpretation of planetary positions of jathagam from date of birth and time, is known as jathaka palan and rasi palan.

1.1. What is Infographics?

Infographics are visual representations of information, data or knowledge. [3] Infographics as defined by Eric K Meyer, are newspaper graphics that convey information by telling a whole story. [4] A clear purpose of information graphics (info-graphics) is to communicate key messages in an engaging fashion. [5]

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According to Gamonal [6], “The infographic goes beyond the mere creation of graphics. Its main goal is to turn the complex into simple and explain how difficult the clearest possible way using the graphical language.” [7] Infographics have become a popular data visualization tool. Information graphics visually represent complex data in an easy interactive way with the help of pictures, titles, charts, and other graphics. [2]

The concept of an infographic stems from information literacy, which is the “set of skills needed to find, retrieve, analyze, and use information” [8]

1.2. Infographics vs Data Visualisation

Data visualizations are powerful tools such as pie charts, bar graphs, line graphs, and steam graphs that help readers understand complex sets of values. Infographics, by contrast, are more than data points put into pictures. An infographic is a “larger graphic design that combines data, visualizations, illustrations, text, and images together into a format that tells a complete story”. [9]

Anselm Spoerri, in an interview says the following when Jocelyn McNamara asks him, “The terms graphics, infographics, and visualization are used frequently and often interchangeably in regard to data presentation. Can you define these words and explain their differences and similarities?” [10]

“The way I like to think about it is, infographics usually are static. They give you a high-level view of the key salient patterns in the data that have been identified by an analyst, who then either by using some tools or hiring a graphic designer comes up with a visual representation of those key results. So, from the perspective of data visualization as a whole, infographics are what you use when you are communicating with a very general audience or you just want to communicate highlights in a quick way. But the moment you want to understand more about the data, then you come into the realm of what’s considered interactive data visualization, meaning you can actually drill into the data and filter it and look at the subsets and understand the data yourself. The questions to ask about interactive data visualization are, one, who is doing it, and two, for whom is it being done? An infographic is designed for end users who don’t need to have a lot of content understanding or domain understanding, so they can very quickly grasp key things that are going on with the data. But you can’t communicate more complex or subtle relationships with data using infographics.”

1.3. Astrology and vedic astrology

Besides the physical aspect, the heavenly bodies also possess another interesting characteristic feature. And it is they that exert an influence on not only the Earth but even on the life of man which is infinitesimal as compared to the vast expanse of the Universe. This aspect of the planets forms the subject matter of yet another science which goes by the name astrology. Even the astrological studies can be traced back to a very hoary antiquity and hence presuppose a very long history. Practically all the religions of ancient times are based in their major part on the astronomical and astrological basis. The clans of ancient kings and seers of India and Egypt claim their ancestry to different planets, especially the Sun and the Moon in the sky.

It is astrology for the first time which aims at studying Time which can be measured only with the help of the stars. It is only by the study of the heavenly bodies that Time can be comprehended as one-surfaced entity. In other words, Time exists because the heavenly bodies exist. This type of study of Time gave rise to the concept of the World Ages or Cycles of Time. [11]

The word “Vedic” means “pertaining to Vedas”. Vedas are the sacred scriptures of, what is known today as, Hinduism and they are supposed to contain knowledge of all subjects. Moreover, astrology in particular is supposed to be a “Vedaanga” (which means a limb of Vedas). In particular, it is said to be the eye of the Vedas. [12]

1.4. What is a Kattam?

One of the prime concepts contributed by astrology for the benefit of day-to-day life, which is universally used and perfectly laid on mathematical soundness is the Rasi Chakra (kattam). It is simple, beautiful, ancient and practical for effectively depicting the infinite flow of time for the use of common man. It is a powerful tool for conveniency presenting a wide range of information and attributes of a given time moment. Rasi Chakra (kattam) is well established with strong logics and mathematical computations. Many of the well-known time attributes and structures still in use are either formed out of the Rasi Chakra (kattam) or can be effectively handled by the concept.

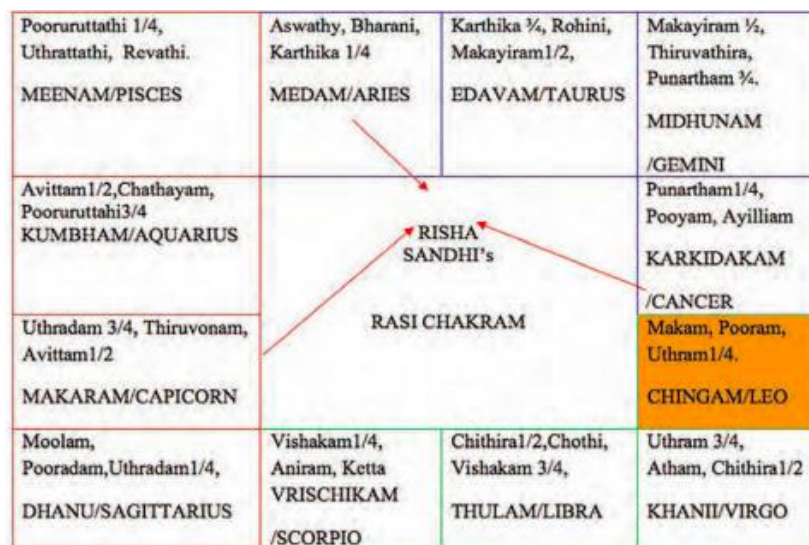


Fig 1. Rasi Kattam

Rasi Chakra (kattam) is a useful and meaningful mapping of the planetary positions and movements constituting the structure of the visible sky at a given point of time. Rasi Chakra (kattam) is a well-conceived measuring tool as well as articulating format of time with its nitty-gritty. It is the visualisation of time according to the apparent sky of a given moment. [13]

2. Review of Literature

Joanne Troutner in *Infographics Defined* [14], [15] gives a step by step procedure to understand the term infographics. She does not define infographics but gives the sources: links to articles, blogs, websites, talk shows; in an order which made the researcher understand the term infographics clearly.

Eric Phetteplace in *Effectively Visualizing Library Data* [16] urges the importance of visualisation. He simply puts the purpose of data visualisation as “to aid in our understanding of data.”

Similarly Rachel Evans says, “On a daily basis, an individual is bombarded with five times more information than he or she was 30 years ago—be it from social media, work and personal emails, television and radio, or advertisements streaming in from all platforms.” That is a lot of information. With our brains processing visuals 60,000 times faster than text, it is no surprise that text doesn’t capture our attention the way that images do. Here are some factors that contribute to how fast we process visuals versus text: 90% of the information transmitted to our brains is visual; 70% of our visual receptors are located in our eyes; and 50% of the brain is active in visual processing. [14]

This makes this research paper relevant and important because zillions of data is produced every day, it is essential to understand at least some of it and visuals make it easier.

The article “How to make an engaging infographic?” [17] talks about two principles to be considered while making an infographic, GRAPHIC guidelines and Gestalt law. These two principles can be used as parameters to be considered while drafting a kattam or similar parameters could be found out.

The *History and Practice of Information Visualization* [18] gives a number of examples of infographics created before William Playfair (eighteenth century) which supports the basis of this research paper; infographics is not a new concept. Humans have been using it without labeling it.

3. Methodology

Surveying a diverse list of topics for the research study, and advantages and disadvantages for each, this topic was chosen for its scope, necessity and feasibility. A wide variety of literature on the chosen topic was available both in books and online and reviews were done for a set of chosen literature. This helped gain knowledge about the theme in terms of scope, potential and---- areas that could be given more focus. Following this, a semi structured interview was conducted to understand the basic concepts even better. Basic parameters which represent any infographic were identified and these parameters were used to analyse the elements and design of kattam.

3.1. Rationale of the study

In a world where infographics seems as a very new trendy term, it is easy to forget that it has its roots deep into the history of human civilization. This research study tries to examine

kattam, a design which has been used by vedic astrologers for ages, its features and try to analyse and see if it can be an example of infographics.

3.2. Research question

Can kattam be considered as an example of infographics?

3.3. Objectives

- (a) To understand the basics of infographics and kattam.
- (b) To identify the elements of infographics and see if kattam can be considered as an infographic.
- (c) To analyse the elements of kattam through the identified elements of infographics.

3.4. Source of data

The research aims at understanding title of the research in a holistic manner. In order to be able to do this efficiently, it is required to collect and process both primary and secondary data.

3.5. Time period

The research was spread over a period of sixteen weeks. The topic was chosen and necessary data pertaining to the topic was collected.

3.6. Technique of data collection

The data collection is primarily collected through different sources like library and online materials and with the help of semi structured interviews . Interviews were used to understand the basic concepts and other sources to collect designs of kattam which can be analysed.

3.7. Data analysis

The data collected is analyzed, tabulated and interpreted; and the results are presented in the form of tables.

4. Findings

After going through a number of sources, certain parameters were narrowed down for both infographics and kattam as follows:

Infographics	
Parameter	Sources
Story/ Purpose	Jason Lankow, Josh Ritchie, Ross Crooks (2012); Krum (2013); Mark Davis (2014); Ken Lindblom, Nicole alante, Sara rabow, and Brittany

	Wilson (2016)
Knowledge/Data	Hilary Scott, Samantha Fawkner, Christopher W Oliver, Andrew Murray (2016)
Visual	Ken Lindblom, Nicole alante, Sara rabow, and Brittany Wilson (2016)
Text	Krum (2013); Hilary Scott, Samantha Fawkner, Christopher W Oliver, Andrew Murray (2016)
Principles of Design	Phetteplace (2012); Justin Beegel (2014); Agarwal (2015); Carter (2015); Rachel Evans (2016); Ken Lindblom, Nicole alante, Sara rabow, and Brittany Wilson (2016)
Universal	Spoerri 2017

4.1. Infographics

4.1.1. Story

Good infographics, according to [19], are designed with attention to “storytelling by combining data visualization design and graphic design. In fact, “If you’re not ‘telling a story’ with your infographics . . . then you’re doing it wrong,” according to Jason Lankow, Josh Ritchie, and Ross Crooks. [20] “People are going to want to engage an infographic that tells a story that they care to know.” [9]

4.1.2. Purpose

Deliver a single message or explain a problem and solution cleverly. Visual narratives are an exciting way to tell a story [14]. The audience should be able to infer the author’s purpose, draw conclusions based on the evidence, and summarize the gist of the infographics [2], [14].

4.1.3. Data collection

Be conscious of your stakeholders and keep them in mind when planning: What unique data would you want to see? Be persistent and find it. [21] Visualize interesting data that is both reliable and timely. [14] The first step of effectively presenting data has nothing to do with presentation, it is collecting the right data. [16]

4.1.4. Knowledge

Sufficient knowledge of the topic area is as important as artistic skill. Thus, we can be encouraged to be hands-on in the infographic design process and should seek to custom-design infographics that are attractive and suitable for our target audiences. [17]

4.1.5. Less text, more visual

In addition to telling stories, infographics use images. It’s a truism that a picture tells a thousand words, and data visualizations certainly lend their evidence. But there’s an even

more compelling reason why people use infographics: the “picture superiority effect.” [9] “People remember pictures better than words, especially over longer periods of time.” [19]

Text should be used sparingly in an infographic and should provide clarity and understanding of the concepts that are presented visually. [17], [19] Apply the ‘no text test’. Ask yourself is the infographic comprehensible when the text is removed. They need to catch the eye, and then draw the reader into the narrative. [17], [21]

4.1.6. Principles of design

Principles of design include unity, variety, hierarchy, harmony, balance etc. Some of these have been selected after going through some literature.

Simple/ Minimalism

If anything, the first step in data visualization is not adding extra dimensions with color or providing for interactivity with a set of data filters for viewers to choose from. Instead, it is avoiding all the mistakes that make for misleading infographics. [16], [22]

The underlying characteristic of an infographic is that it simplifies convoluted or complicated data. [16], [21], [22] Keep it simple. Be concise. [14], [16], [21], [22]

Hierarchy

Infographics tend to be persuasive documents; thus, they always have an angle (whether it be explicit or not). And, by selecting particular images—and even specific colors and artwork—infographic composers highlight a particular perspective (dominance). [9], [14], [16], [21], [22]

Composition, text font, size and placement also draw the viewer’s attention to focal points. These components allow the audience to gain greater meaning. [3] Organise ideas - Some infographics are used to arrange many ideas in a useful way. [23] A tree chart can show hierarchical organizations, often allowing users to explore the hierarchy but drilling down specific paths. [16]

Be aware of white space, and use it to your advantage. Think about the direction a person’s eye will take as he or she reads the infographic, and be strategic about what direction that is. Give the most important content on the page a visual cue, so the reader’s eye is drawn to it more than content of a lesser value. [14]

Balance

Strike a balance between visualisations, images and text. [22] Adequate balance gives your infographic visual stability, preventing one element from dominating the visual and inappropriately pulling readers’ focus. It keeps the design from being top- or bottom-heavy or skewing to one side or the other. A terrific rule of thumb for creating a balanced infographic is to divide your page into thirds, using a grid. [24]

Colour

Color is an important feature of infographics. Colour has tremendous expressive qualities. Saturation, tone, opacity and transparency can create different moods and emotions, and can indicate the quality or make-up of what is being depicted. [3], [9], [14]

Color is a perfect example of a useful but dangerous enhancement. On the one hand, it illuminates a third data dimension without requiring too much cognitive effort on the viewer's part. On the other hand, it has more than its share of caveats: color-blindnesses render certain contrasts moot and viewers can be unintentionally deceived. As Edward Tufte states, "The first principle in bringing color to information: Above all, do no harm." [3], [9], [14], [16]

4.1.7. Universal

Anselm Spoerri, in an interview says the following when Jocelyn McNamara asks her, "So the idea is that you don't need to be a subject matter expert to be able to drill down and understand what's going on, correct?" [10]

"It depends. For example, you can view an infographic as an access ramp into data to get the key ideas. The reader gets an understanding, then moves on. He doesn't linger with the data, maybe doesn't even have a desire to, because often data is messy. Think of it almost like being in a big city and wanting to show someone the major sights. You position your camera and take a snapshot, and you say, here is an interesting sight. Infographics is like that—you take a snapshot of an interesting pattern, and then you move on and explore the data and find another interesting connection or relationship, and you take another snapshot. And those snapshots are what you put into your presentation. Using infographics is really a question of who your audience is and how much they care to know. Infographics are great for giving you the highlights, and depending on the sophistication of the designer, sometimes it can be done in a very memorable way so that even a lay person can understand quickly that the data are about cars or animals or the climate. There are pictorial representations that immediately tell people the context the data are in. The challenge with what I would call "cold" or "sober" data visualization is that you have a series of displays that you look at and you don't even know what they're about. You have to go look at the axes and read the labels, and it's all very abstract. The other question in my mind is one of motivation—how much do I care about the data, and how much value is in the data? For example, if you look at The New York Times, they did quite a lot of visualizations around the 2016 elections. Why? Because they believe their readers care about that kind of data—they want to know more about it, and they may even want to drill into it. So it really comes down to the value of the data set and what people are hoping to do with the information they gain from the data set. What's also happening with info- graphics is what I call "animated presentations." These are like mini-videos that tell you, in an animated way, a story. They're highly scripted, like a movie. And somebody has to figure out the highlights to present."

4.2 Kattam

Kattam is a grid with thirteen squares. It represents the universe divided into twelve sectors (thirteenth square is used just to represent the type of kattam). It includes seven planets (Sun,

Moon, Mars, Mercury, Jupiter, Venus and Saturn), two shadow planets (ragu, kedu), lagna (ascendant), eleven upagrahas (sub-planets and satellites) and various other celestial bodies seen in the zodiac belt (Fig 2).

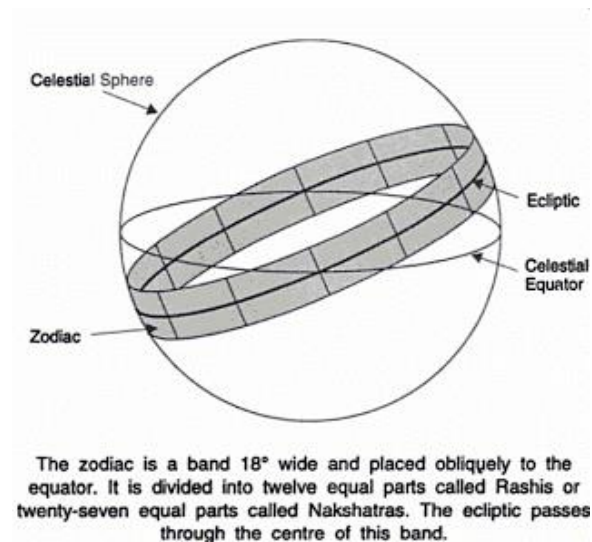


Fig 2 Zodiac Belt

The earth takes one year to complete its rotation around the Sun. From the earth, it appears that the Sun moves around the earth. This apparent path of the Sun is known as ecliptic. An imaginary belt of 18 degrees width with ecliptic in its centre is known as the zodiac. Many groups of stars appear to have been studied on this imaginary belt. Vedic astrology recognizes 27 such groups of stars called nakshatras.

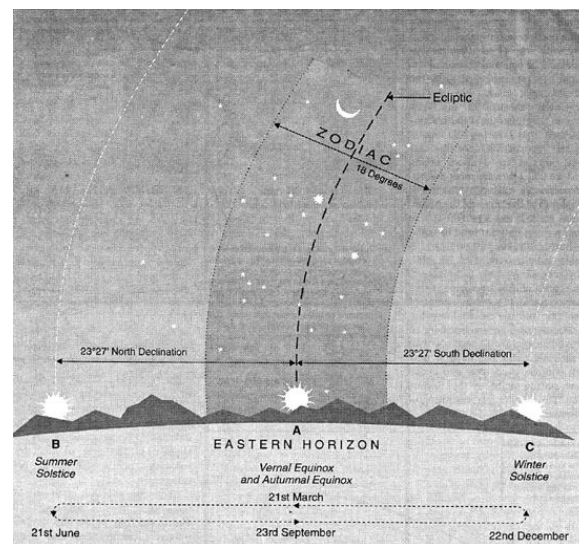


Fig 3 Zodiac belt, Ecliptic and Horizon

The zodiac encircles the earth like a circle consisting of 360 degrees. If this circle is divided into 27 equal parts, each part will be of 13 degrees and 20 minutes arc, known as a nakshatra. Each nakshatra is further divided into 4 quarters (padas or charanas), of 3 degrees and 20

minutes arc each. Twelve divisions of the zodiac will have an arc of 30 degrees each, known as rasis (or signs). [12]

The zodiac (sky) lasts 360° and it is divided into 12 equal parts. They are called “rasis” (signs). English names, Sanskrit names, two-letter symbols and values of the start longitude and the end longitude (in degrees, minutes and seconds).

Rasi name	Sanskrit Name	Symbol	Start	End
Aries	Mesha	Ar	0°0'0"	29°59'59"
Taurus	Vrishabha/	Ta	30°0'0"	59°59'59"
Gemini	Mithuna	Ge	60°0'0"	89°59'59"
Cancer	Karkataka/	Cn	90°0'0"	119°59'59"
Leo	Simha	Le	120°0'0"	149°59'59"
Virgo	Kanya	Vi	150°0'0"	179°59'59"
Libra	Thula	Li	180°0'0"	209°59'59"
Scorpio	Vrischika	Sc	210°0'0"	239°59'59"
Sagittarius	Dhanus	Sg	240°0'0"	269°59'59"
Capricorn	Makara	Cp	270°0'0"	299°59'59"
Aquarius	Kumbha	Aq	300°0'0"	329°59'59"
Pisces	Meena	Pi	330°0'0"	359°59'59"

Table 1

4.2.1. Interview

A semi-structured interview was conducted among five astrologers based in Salem, Tamil Nadu to understand the basics of kattam.

Astrologer	Age
Jalagandeeshwaran	47
Narasimhachari	50
Venkataraman	53
Varadarajan	62
Gopalachariya	70

Table 2 Astrologers and age

Apart from the above mentioned information about kattam, the following findings was noted:

- Lagnam, ascendant (which is the point that rises on the eastern horizon as the earth rotates around itself) is marked with diagonal lines running across a square and that indicates the start of the cycle. [25]

Lagnam is like a train engine, it steers all the other elements in the kattam. [26]

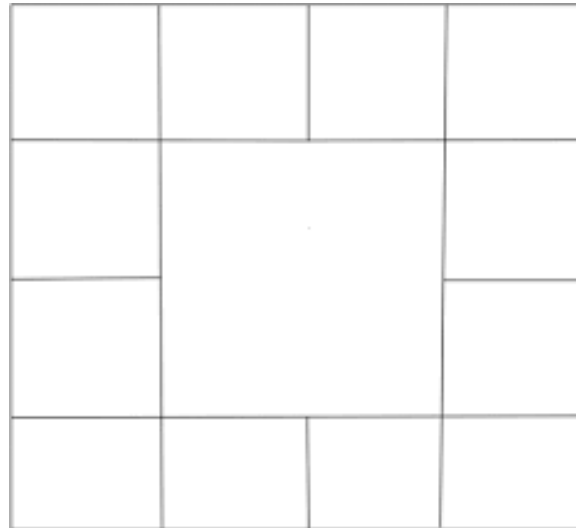


Fig 4 Lagna

- The inputs required to make a kattam are date and place.
- There are various shapes in which the kattam is depicted, circle, square, triangle etc. but the basic structure and elements have always been the same.
- Using softwares to generate a kattam for anyone is precise but not accurate. Softwares are not flexible and are not subjective. [25]–[27]; [28], [29]

5. Analysis

Each parameter of an infographic was individually analysed keeping kattam and its elements in mind

5.1 Story

A story has three main parts, a beginning, a middle and an end. Kattam does not have any narrative. It has a flow, a start (lagnam) but it does not end anywhere. The interpretation of any kattam depends on the astrologer.

5.2. Purpose

Every kattam has a specific purpose; to clearly depict the exact location of celestial objects at a particular point of time and it is clearly accomplished.

5.3. Data collection

Data or information has to be collected to draft any infographic and it is done for kattam too. Panchangam (Fig 5) is a Hindu calendar which follows traditional units of Hindu timekeeping, and presents important dates and their calculations in a tabulated form. Panchangam is used to derive data to be used to draft any kattam.

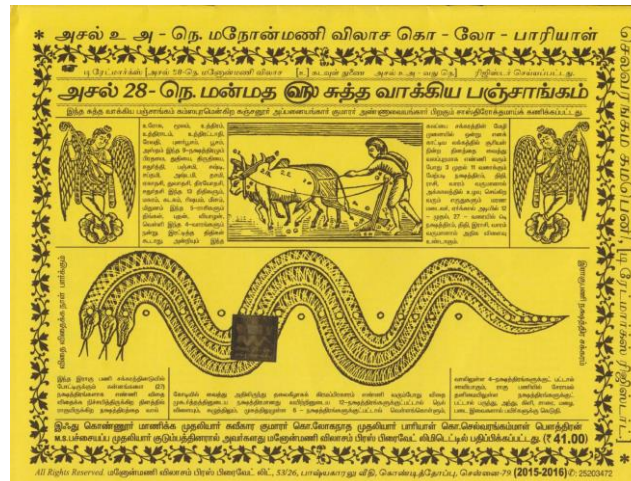


Fig 5 Panchangam

5.4. Knowledge

Abundant knowledge is needed to make sure that the data in any infographic is factual. The data in any kattam can not be wrong because it is the exact location of celestial bodies measured in minutes and seconds and hence no knowledge is required in the area of astrology. Anyone with basic common sense or a computer can draft a kattam.

5.5. Less text, more visual

Kattam has more text than visual elements. And it is required because without text, no sense can be made of the kattam. The text's script matters. It's usually written in Tamil and can be a language barrier.

5.6. Principles of design

Simple/ Minimalism

Anything is minimalistic when it does not any unrequired element. Kattam may have a number of elements but all of them are necessary. All these elements are arranged and organised in a systematic manner which makes creates a very simple and neat visual.

Hierarchy

The cycle starts with the lagnam and that has the highest importance. The box opposite to the box with the lagnam again is of equal importance. Then comes the box with the sani. Similarly each box has its own level of importance which differs from person to person. In

this way a hierarchy is created which is again an important part of josiya and is subjective.

Balance

The kattam has a perfect symmetrical balance visually and has an asymmetrical balance when other elements are taken into consideration, in terms of their functions and powers. There is a balance not only in terms of the placement of the elements but each individual element's function has a hierarchy which if cancelled out by placing equally important elements, opposite to each other.

Colour

Kattam consists of the most basic colour combination, black and white. One can clearly see all the elements of a kattam and is easy to reproduce.

Kattam can also be customised. Rarely, but surely it can be seen in vibrant colours depending upon the astrologers' choice. But the basic elements are mostly in black and white.

5.7. Universal

Kattam is universal not only in terms of its usage but it can be reproduced anywhere for anyone. Any infographic should be clear enough so its audience can understand it. Its audience, not public. Meaning, all infographics can not be understood by everyone. Certain infographics are made only for a niche audience. Kattam is one such example. Any astrologer can read a kattam and while its interpretations might change, its content remains the same.

Language can act as a barrier as the texts in a kattam is written in Tamil. It can be universal only if the astrologer has the required knowledge to interpret it.

6. Conclusion

The following table summarises the analysis.

Parameters in an Infographics		Is kattam an example?
Story		No
Purpose		Yes
Data collection		Yes
Knowledge		No
Less text, more visual		No
Principles of Design	Simple/ Minimalism	Yes

	Hierarchy	Yes
	Balance	Yes
	Colour	Yes
Universal		Maybe

Table 2 Is kattam an infographic?

Out of the seven main parameters, kattam has three, does not have three and can not be decided for the last parameter. But it can not be narrowed down to this. All seven parameters do not have equal level of importance. This can not be considered a tie just because of the numbers.

But it can be concluded that kattam definitely can be used as an example of infographics, at least while talking about certain parameters.

Scope

- This paper concentrates on just one type of kattam, the rasi kattam. Further research can be done on other types.
- A comparison can be done on the infographic styles of western and vedic astrology.
- More parameters can be found out and can be assigned different levels of importance to understand kattam as an infographic more clearly.

Limitation

- The researcher was neither an expert of infographics nor in astrology.
- Self-reported data (interview) can not be independently verified and might have some bias such as selective memory, attribution or exaggeration.
- As the researcher is not fluent in Tamil, it was difficult to conduct the interview and read more literature.
- The researcher did not use any softwares to analyse the content due to lack of resources.

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- [27] Narasimhachari, Dec-2017.
- [28] Jalagandeeshwara, Dec-2017.
- [29] Varadarajan, Dec-2017.