Retrieving Iconometric Proportions of South Indian Sculptures Based on Statistical Analysis

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Abstract : Introduction: South Indian stone sculptures are known for their elegance and history. They are available in large numbers in different monuments situated different parts of South India. These art pieces have been studied using iconography details, but this pioneering study introduces a novel method known as iconometry which is a quantitative study that deals with measurements of different parts of icons to find answers for important unanswered questions. The main aim of this paper is to compare iconometric measurements of the sculptures with canonical proportion to determine whether the sculptors of the past had followed any of the canonical proportions prescribed in the ancient text. If not, this study recovers the proportions used for carving sculptures which is not available to us now. Also, it will be interesting to see how these sculptural proportions of different monuments belonging to different dynasties differ from one another in terms these proportions. Methods and Materials: As Indian sculptures are depicted in different postures, one way of making measurements independent of size, is to decode on a suitable measurement and convert the other measurements as proportions with respect to the chosen measurement. Since in all canonical texts of Indian art, all different measurements are given in terms of face length, it is chosen as the required measurement for standardizing the measurements. In order to compare these facial measurements with measurements prescribed in Indian canons of Iconography, the ten facial measurements like face length, morphological face length, nose length, nose-to-chin length, eye length, lip length, face breadth, nose breadth, eye breadth and lip breadth were standardized using the face length and the number of measurements reduced to nine. Each measurement was divided by the corresponding face length and multiplied by twelve and given in angula unit used in the canonical texts. The reason for multiplying by twelve is that the face length is given as twelve angulas in the canonical texts for all figures. Clustering techniques were used to determine whether the sculptors of the past had followed any of the proportions prescribed in the canonical texts of the past to carve sculptures and also to compare the proportions of sculptures of different monuments. About one hundred twenty-seven stone sculptures from four monuments belonging to the Pallava, the Chola, the Pandya and the Vijayanagar dynasties were taken up for this study. These art pieces belong to a period ranging from the eighth to the sixteenth century A.D. and all of them adorning different monuments situated in different parts of Tamil Nadu State, South India. Anthropometric instruments were used for taking measurements and the author himself had measured all the sample pieces of this study. Result: Statistical analysis of sculptures of different centers of art from different dynasties shows a considerable difference in facial proportions and many of these proportions differ widely from the canonical proportions. The retrieved different facial proportions indicate that the definition of beauty has been changing from period to period and region to region.

Keywords : iconometry, proportions, sculptures, statistics

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