

CHROMATIC RATIO ON A 105 IMAGES DATABASE OF BAROQUE PAINTING

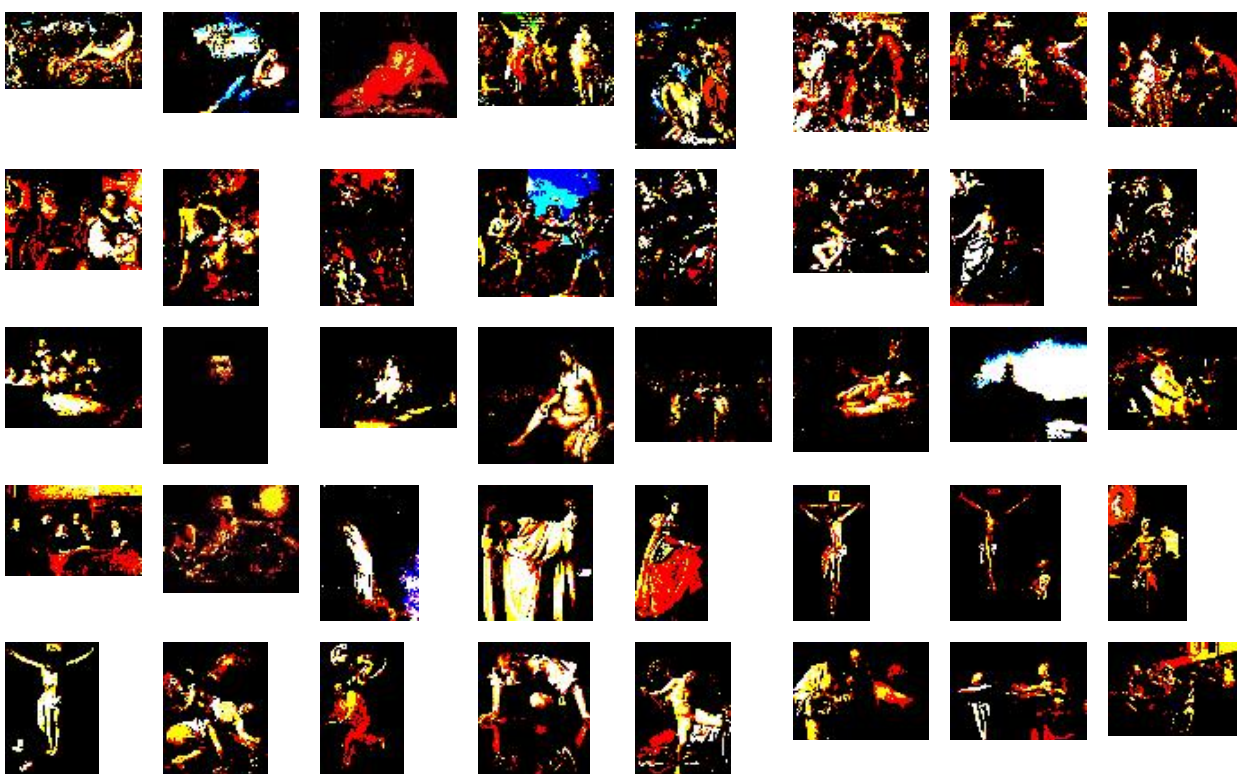
The constants of the chromatic ratio of the 105 images database with Baroque painting are noted within the parameters of subordination to the tone of colour ratio (the dark-light one), as show also the data of the table below, where are extracted the figures of 8 main ratios that target the colour. Following the column in the right side of the table, the one that contains the data of the black/all ratio (2 RGB levels), we observe finding the most significant values: at least 0.60 in the majority of the 105 images (over 60% of the image contains black pixels). We observe that the values of the green/all, blue/all, magenta/all, cyan/all ratios are, in the majority of cases, pointed with 0, or very rarely with values up to 0.1, which reflects the absence of pixels of this colour to a reduction of the image to 2 RGB levels.

The only ratios of colour with significant values are red/all and yellow/all, which is noticeable also in case of visualization of a cluster with reduced images to 2 RGB levels of the 105 images database.

	white/all 2 levels RGB	red/all 2 levels RGB	green/all 2 levels RGB	blue/all 2 levels RGB	magenta/all 2 levels RGB	cyan/all 2 levels RGB	yellow/all 2 levels RGB	black/all 2 levels RGB
caravaggio 1	0.06	0.07	0.00	0.00	0.00	0.00	0.08	0.79
caravaggio 11	0.09	0.08	0.00	0.00	0.00	0.00	0.04	0.80
caravaggio 12	0.08	0.07	0.00	0.00	0.00	0.00	0.06	0.79
caravaggio 2	0.03	0.06	0.00	0.00	0.00	0.00	0.07	0.83
caravaggio 3	0.03	0.06	0.00	0.00	0.00	0.00	0.02	0.89
caravaggio 4	0.01	0.08	0.00	0.00	0.00	0.00	0.07	0.84
caravaggio 5	0.07	0.10	0.00	0.00	0.00	0.00	0.08	0.76
caravaggio 6	0.07	0.07	0.00	0.00	0.00	0.00	0.05	0.81
caravaggio 7	0.05	0.11	0.00	0.00	0.00	0.00	0.07	0.76
caravaggio 8	0.04	0.05	0.00	0.00	0.00	0.00	0.05	0.86
caravaggio 9	0.03	0.02	0.00	0.00	0.00	0.00	0.01	0.94
carracci 1	0.09	0.08	0.00	0.00	0.00	0.00	0.10	0.73
carracci 2	0.16	0.15	0.00	0.00	0.00	0.00	0.12	0.57
carracci 3	0.11	0.02	0.00	0.02	0.00	0.03	0.02	0.80
carracci 4	0.10	0.12	0.00	0.04	0.00	0.05	0.05	0.64
carracci 5	0.00	0.23	0.00	0.00	0.00	0.00	0.03	0.74
carracci 6	0.06	0.10	0.01	0.00	0.00	0.00	0.11	0.72
carracci 7	0.10	0.09	0.00	0.02	0.00	0.01	0.07	0.71
carracci 8	0.13	0.14	0.00	0.00	0.00	0.00	0.08	0.65
carracci 9	0.03	0.09	0.00	0.00	0.00	0.00	0.06	0.82

	white/all 2 levels RGB	red/all 2 levels RGB	green/all 2 levels RGB	blue/all 2 levels RGB	magenta/all 2 levels RGB	cyan/all 2 levels RGB	yellow/all 2 levels RGB	black/all 2 levels RGB
guercino 1	0.05	0.11	0.00	0.00	0.00	0.00	0.04	0.80
guercino 2	0.09	0.17	0.00	0.00	0.00	0.00	0.08	0.66
guercino 3	0.04	0.12	0.00	0.00	0.00	0.00	0.08	0.77
guercino 4	0.03	0.11	0.00	0.00	0.00	0.00	0.03	0.83
guercino 5	0.05	0.06	0.00	0.09	0.00	0.06	0.04	0.70
guercino 6	0.07	0.04	0.00	0.00	0.00	0.00	0.02	0.87
guercino 7	0.06	0.05	0.00	0.00	0.00	0.00	0.04	0.85
guercino 8	0.09	0.03	0.00	0.00	0.00	0.00	0.02	0.86
guercino 9	0.07	0.04	0.00	0.00	0.00	0.00	0.04	0.86
hals 1	0.06	0.19	0.00	0.00	0.00	0.00	0.29	0.45
hals 10	0.14	0.13	0.00	0.00	0.00	0.00	0.28	0.46
hals 2	0.08	0.06	0.00	0.00	0.00	0.00	0.06	0.80
hals 3	0.08	0.18	0.00	0.00	0.00	0.00	0.04	0.70
hals 4	0.04	0.07	0.00	0.00	0.00	0.00	0.05	0.84
hals 5	0.03	0.32	0.00	0.00	0.00	0.00	0.03	0.62
hals 6	0.14	0.05	0.00	0.01	0.00	0.02	0.04	0.75
hals 7	0.05	0.04	0.00	0.00	0.00	0.00	0.01	0.89
hals 8	0.02	0.03	0.00	0.00	0.00	0.00	0.03	0.92
hals 9	0,01	0,27	0.00	0.00	0.00	0.00	0,29	0,41

Following the values of the black/all ratio (2 RGB levels) from the right column of the table, a verification of these numerical variables is imperative to be done by achieving a cluster of images that has as forming rule black/all ratio (2 RGB levels) $> 0,6$:



93/105 images Cluster - black / all ratio > 0.6 (2 levels RGB)



93/105 images Cluster - black / all ratio > 0.6 (2 levels RGB)

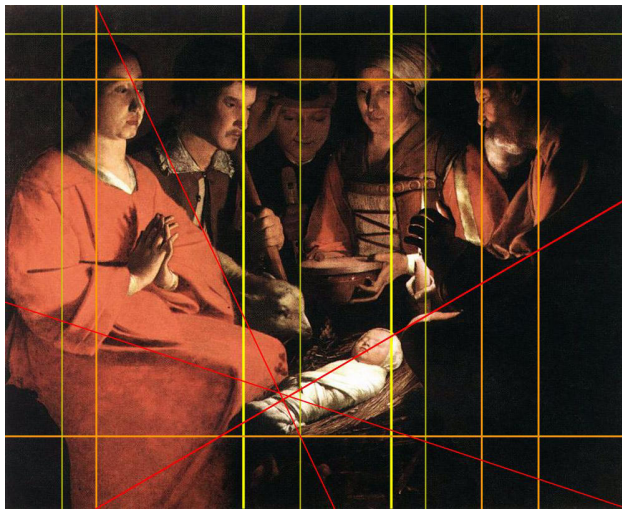
The representation cliché of the Baroque stylistics, the preference for a powerful contrast of chiaroscuro finds an obvious illustration in the configuration of this 93 images - imprint. The mechanisms of perception of the image in such clusters, specific to the research of the data bases, are no more those of the reception of each masterpiece itself (although these images are recognisable), but of assimilation of the general impression that is delivered by the structure of these groups of images.

In the cluster 93/105 we find a unit of the dominance of the dark-light ratios and a sporadic occurrence of the colour.

This observation may be reflected in the results obtained when attempting to compose clusters of images starting from the existing of the following rules of formation:

- red/all ratio > 0.1 (> 10%) the 24/105 images cluster results.
- yellow/all ratio > 0.1 (> 10%) the 13/105 images cluster results.

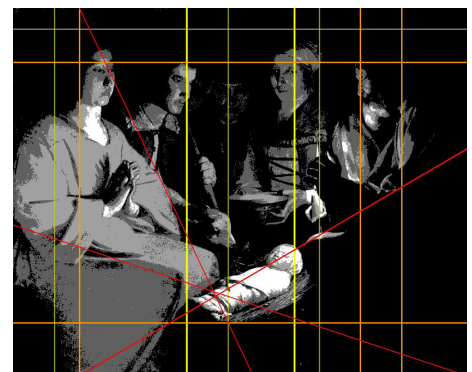
latour 1	0.03	0.18	0.00	0.00	0.00	0.00	0.01	0.77
latour 2	0.01	0.14	0.00	0.00	0.00	0.00	0.01	0.84
latour 3	0.02	0.21	0.00	0.00	0.00	0.00	0.02	0.75
latour 4	0.04	0.09	0.00	0.00	0.00	0.00	0.02	0.85
latour 5	0.01	0.06	0.00	0.00	0.00	0.00	0.01	0.93
latour 6	0.00	0.04	0.00	0.00	0.00	0.00	0.01	0.95
latour 7	0.01	0.11	0.00	0.00	0.00	0.00	0.01	0.87
latour 8	0.02	0.06	0.00	0.00	0.00	0.00	0.02	0.91
latour 9	0.04	0.10	0.00	0.00	0.00	0.00	0.02	0.84



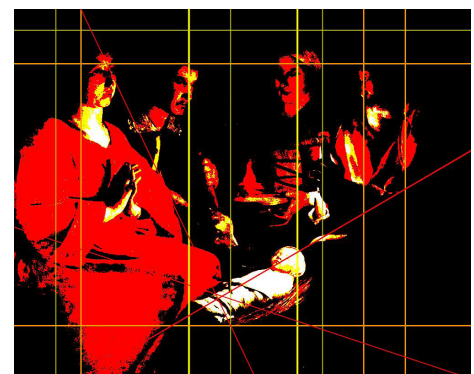
GEORGES DE LA TOUR
Adoration of the Magi
latour3

As consequence of the analysis carried out on the chromatic ratios, illustrated by the configuration of the table below, we can observe that the chromatic ratios containing red and yellow are significant, the other colours having rarely significant values and in many cases being 0.00.

In the work of Georges de La Tour I have discovered similarities between the values of red/all ratio (2 RGB levels) and those of the gray1/all ratio (resulted at a division on 4 levels), similarities that can be demonstrated by joining the images of the right side of the page.



latour 3 A/N 4 nivele



latour 3- RGB 2 nivele

The similarities discovered in the work of Georges de La Tour between the values of gray1/all (4 levels) and those of the red/all ratio (2 RGB levels), are similarities that are found in a certain extent in case of the painting of Caravaggio, but without the same constancy.

In the rest of the data base the values gray1/all ratio(4 levels) and those of the red/all ratio (2 RGB levels) does not show a similar configuration.

	gray1/all	red / all
latour 1	0.18	0.18
latour 2	0.17	0.14
latour 3	0.18	0.21
latour 4	0.11	0.09
latour 5	0.08	0.06
latour 6	0.06	0.04
latour 7	0.14	0.11
latour 8	0.08	0.06
latour 9	0.22	0.10

	gray1/all	red / all
caravaggio 1	0.12	0.07
caravaggio 11	0.20	0.08
caravaggio 12	0.09	0.07
caravaggio 2	0.07	0.06
caravaggio 3	0.07	0.06
caravaggio 4	0.13	0.08
caravaggio 5	0.12	0.10
caravaggio 6	0.11	0.07
caravaggio 7	0.16	0.11
caravaggio 8	0.12	0.05
caravaggio 9	0.06	0.02
caravaggio 10	0.15	0.10

A constant of the chromatic ratios in the image with Baroque character is the existence almost exclusively of the red and yellow colours. Analysing the ratios between them it is observed that in the large majority of cases red is the dominant colour in the red/yellow ratio.

The structure of the table targeting the chromatic ratios in the 105 images keeps the same large coordinates above- enunciated, fact that proves, referring to the tone of colour and chromatic relation constants that Baroque is a unitary style.

	white/all 2 levels RGB	red/all 2 levels RGB	green/all 2 levels RGB	blue/all 2 levels RGB	magenta/ all 2 levels RGB	cyan/all 2 levels RGB	yellow/all 2 levels RGB	black/all 2 levels RGB
rembrandt 1	0.07	0.04	0.00	0.00	0.00	0.00	0.06	0.83
rembrandt 10	0.00	0.02	0.00	0.00	0.00	0.00	0.01	0.97
rembrandt 11	0.04	0.02	0.00	0.00	0.00	0.00	0.03	0.90
rembrandt 2	0.07	0.06	0.00	0.00	0.00	0.00	0.06	0.81
rembrandt 3	0.01	0.02	0.00	0.00	0.00	0.00	0.02	0.95
rembrandt 4	0.02	0.06	0.00	0.00	0.00	0.00	0.04	0.88
rembrandt 5	0.28	0.00	0.00	0.02	0.00	0.02	0.01	0.67
rembrandt 6	0.03	0.05	0.00	0.00	0.00	0.00	0.07	0.85
rembrandt 7	0.03	0.15	0.00	0.00	0.00	0.00	0.09	0.73
rembrandt 8	0.00	0.11	0.00	0.00	0.00	0.00	0.07	0.81
rembrandt 9	0.10	0.03	0.00	0.03	0.00	0.00	0.01	0.83
ribera 1	0.10	0.05	0.00	0.00	0.00	0.00	0.07	0.78
ribera 2	0.12	0.05	0.00	0.00	0.00	0.00	0.06	0.77
ribera 3	0.04	0.01	0.00	0.00	0.00	0.00	0.02	0.93
ribera 4	0.01	0.04	0.00	0.00	0.00	0.00	0.08	0.86
ribera 5	0.06	0.03	0.00	0.00	0.00	0.00	0.05	0.86
ribera 6	0.06	0.04	0.00	0.00	0.00	0.00	0.08	0.82
ribera 7	0.02	0.03	0.00	0.00	0.00	0.00	0.04	0.91
ribera 8	0.01	0.08	0.00	0.00	0.00	0.00	0.04	0.88
ribera 9	0.01	0.03	0.00	0.00	0.00	0.00	0.07	0.89
rubens 1	0.22	0.10	0.00	0.00	0.00	0.00	0.09	0.58
rubens 10	0.00	0.09	0.00	0.00	0.00	0.00	0.04	0.87
rubens 11	0.13	0.18	0.01	0.00	0.00	0.01	0.17	0.49
rubens 12	0.16	0.05	0.00	0.01	0.00	0.01	0.05	0.73
rubens 2	0.13	0.13	0.00	0.00	0.00	0.00	0.15	0.59
rubens 3	0.02	0.13	0.00	0.00	0.00	0.00	0.15	0.70
rubens 5	0.12	0.12	0.00	0.00	0.00	0.00	0.10	0.66
rubens 6	0.38	0.10	0.00	0.01	0.00	0.01	0.06	0.45
rubens 7	0.15	0.16	0.00	0.01	0.00	0.01	0.08	0.59
rubens 8	0.05	0.07	0.00	0.00	0.00	0.00	0.09	0.79
rubens 9	0.03	0.10	0.00	0.00	0.00	0.00	0.09	0.78
velasquez 1	0.12	0.08	0.00	0.00	0.00	0.00	0.11	0.68
velasquez 10	0.07	0.04	0.06	0.00	0.00	0.01	0.06	0.76
velasquez 11	0.02	0.11	0.00	0.00	0.00	0.00	0.04	0.83
velasquez 2	0.06	0.06	0.00	0.01	0.00	0.01	0.08	0.77
velasquez 3	0.05	0.17	0.01	0.00	0.00	0.01	0.09	0.68
velasquez	0.27	0.11	0.02	0.00	0.00	0.01	0.15	0.43
velasquez 5	0.14	0.10	0.00	0.00	0.00	0.00	0.10	0.65
velasquez 6	0.03	0.10	0.00	0.00	0.00	0.00	0.08	0.79
velasquez 7	0.02	0.05	0.00	0.00	0.00	0.00	0.05	0.87
velasquez 8	0.04	0.01	0.00	0.00	0.00	0.00	0.07	0.87
velasquez 9	0.01	0.03	0.00	0.00	0.00	0.00	0.06	0.91
vermeer 1	0.11	0.05	0.00	0.00	0.00	0.00	0.11	0.73
vermeer 10	0.15	0.03	0.00	0.01	0.00	0.00	0.03	0.79
vermeer 2	0.04	0.04	0.00	0.00	0.00	0.00	0.04	0.88
vermeer 3	0.31	0.13	0.00	0.00	0.00	0.00	0.07	0.48
vermeer 4	0.05	0.08	0.00	0.00	0.00	0.00	0.03	0.84

	white/all 2 levels RGB	red/all 2 levels RGB	green/all 2 levels RGB	blue/all 2 levels RGB	magenta/ all 2 levels RGB	cyan/all 2 levels RGB	yellow/all 2 levels RGB	black/all 2 levels RGB
vermeer 6	0.31	0.03	0.00	0.00	0.00	0.00	0.05	0.60
vermeer 7	0.19	0.08	0.00	0.00	0.00	0.00	0.08	0.65
vermeer 8	0.21	0.04	0.00	0.01	0.00	0.00	0.03	0.71
vermeer 9	0.39	0.15	0.00	0.00	0.00	0.00	0.04	0.41
zurbaran 1	0.21	0.06	0.00	0.00	0.00	0.00	0.11	0.61
zurbaran 2	0.02	0.28	0.00	0.00	0.00	0.00	0.08	0.62
zurbaran 3	0.04	0.04	0.00	0.00	0.00	0.00	0.03	0.89
zurbaran 4	0.01	0.03	0.00	0.00	0.00	0.00	0.02	0.95
zurbaran 5	0.04	0.12	0.00	0.00	0.00	0.00	0.07	0.77
zurbaran 6	0.06	0.01	0.00	0.00	0.00	0.00	0.05	0.88

The conclusions of the analytic step that has as purpose finding a common expression constant in the Baroque type pictorial space, converge towards a vision enough unitary of the chromatic approach.

The rare exceptions showed within the chapter do not represent a variable enough significant at statistical level, so that to be able to undermine this homogeneity: the accent on the dark-light contrast, with alteration of colour depending on the pregnant needs of the almost exclusive technique of the chromatic pattern.