A PROPOSAL FOR REUSE IN THE FIELD OF CERAMIC HERITAGE DESIGN BASED ON THE TILINGS OF THE ROYAL PALACE OF SEVILLE

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1. INTRODUCTION

The great number of historical examples confirms the importance of regular schemes in the design of all types of the surfaces. The pattern is sometimes the same, but the material that determines it is different: ceramics, cloth, gypsum, metal, wood, paper, etc. This variety of materials evidences the fact that design in regular partitions is typical of various production sectors, which is why it is necessary to take advantage of this plurality of uses to enrich different sectors by transferring information among them. These circumstances have led us to develop tools that use the resources of present technology to analyse, decompose and catalogue automatically the digital image of a regular design. The Royal Palace of Seville was chosen, as a first emblematic example in which to apply in a limited way our analysis tool, as it is one of the best places to observe the importance of geometry in architectural ornamentation. Only the images of ceramic tilings have been analysed, leaving for later analyses the designs of the plasterwork and marquetry.

2. ANALYSIS AND CATALOGUING OF THE SEVILLE PALACE TILINGS

From the images obtained in the different rooms of the Palace of King Pedro I, 21 tilings have been analysed that display repetition in two directions. Figure 1 summarises the results of the analysis. Note the dominion of the tilings that belong to type P4M and the lack of tilings with certain symmetry groups. Furthermore, there is an abundance of pieces (items) with dihedral symmetry, in which those of the D1 type (single symmetry axis) stand out. In regard to the patterns (grouping of items) the dihedral multiples of 2 predominate, corresponding to designs with the rectangular or square fundamental parallelogram. However, in spite of the proliferation of D1 items and D4 patterns the graphic results obtained are different, as shown in figure 2, in which the same D1 item, which forms the same D4 pattern, generates different designs when it is combined with other items. By way of example of the results of the analysis and cataloguing, figure 3 shows the graphic information that is obtained when applying the analysis tool to a digital image of a tiling.

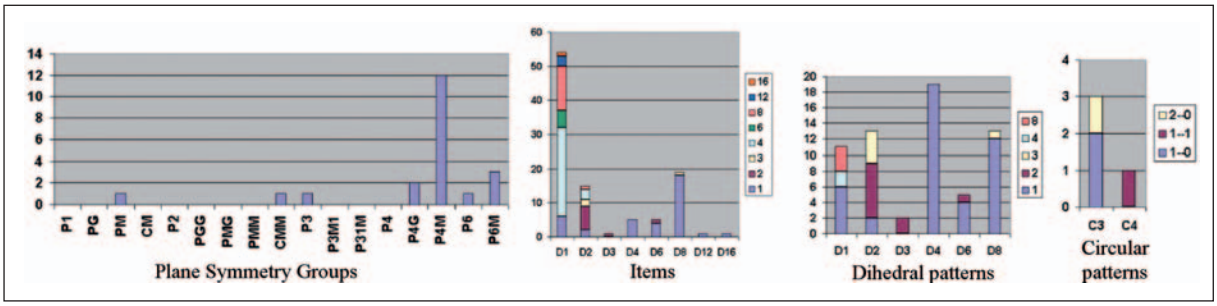

Figure 1. Review of the analysis results.

Figure 2. Use of the same type of item (D1) and pattern (D4) in different tiling.

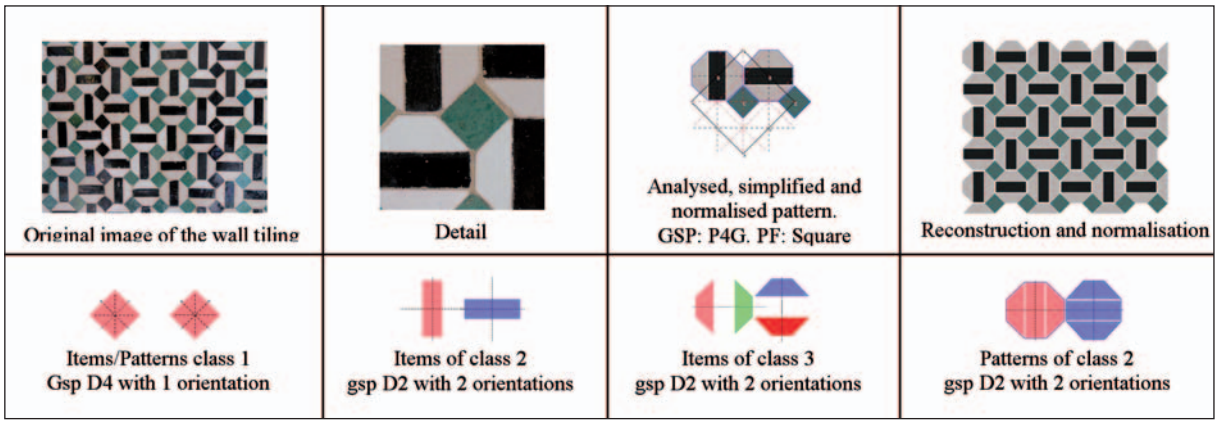

Figure 3. Analysis of a wall tiling located in the Patio of the Dolls

3. PROPOSAL FOR REUSE

The data obtained from the analysis of the tilings of the palace of King Pedro I have been used to obtain new designs using the methodology proposed in[1]. For this the computer tool implemented as a plug-in for Adobe Illustrator, developed by the authors[2] and[3], has been used.

Two approaches for reuse of the tiling analysis performed are shown:

1. By modification of visual elements which, according to[4] are: figure, size, colour and texture. Examples of this reuse are given in figure 4.
2. By application of different transformations to a minimum region of the original design. Figure 5 shows redesigns obtained by processing one of several minimum regions in the design of figure 3. The fundamental parallelogram appears in the top part of the figure, which generates the design and the minimum region that generates the designs presented.

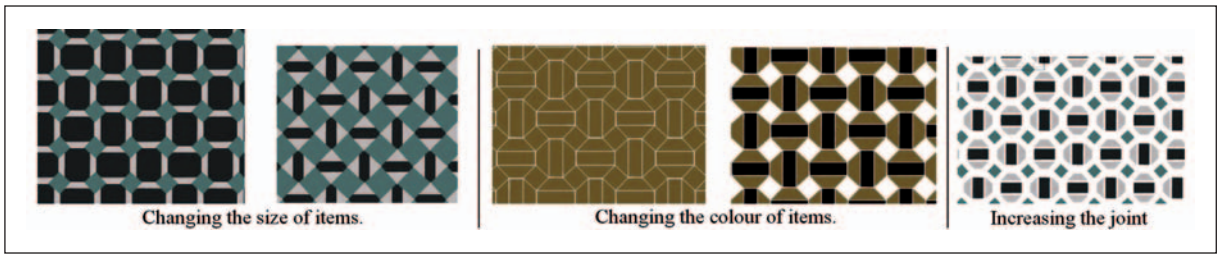

Figure 4. Redesigns modifying visual elements.

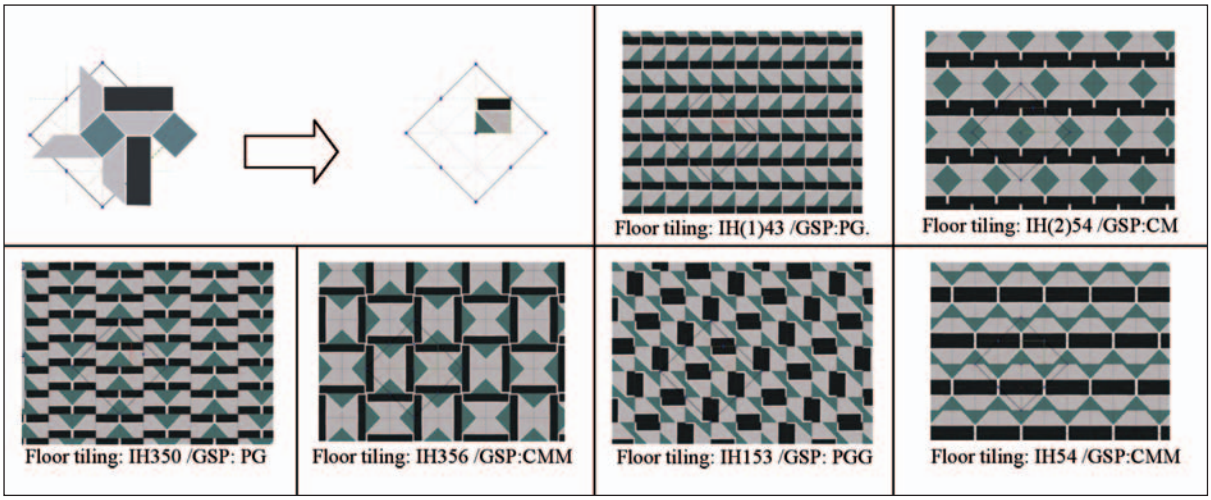

Figure 5. Redesign using minimum regions of the tiling in figure 4.

4. CONCLUSIONS

A historical building has been put forward to show that the references of the past are an inexhaustible source of ideas for the obtainment of new compositions and designs. The analysis and editing tools presented enable reintroducing noteworthy aspects of our ceramic heritage in the generation of new designs. At the same time the

computerised character of these tools makes them extremely useful tools in practice: new designs are obtained in a rapid, ordered and systematic way. Another advantage of the digital information format used is the ease of data storage and recovery as opposed to the traditional printed format. Moreover, the creative product phase is fully integrated in a continuous way in the production process.

5. ACKNOWLEDGEMENTS

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