

THE DENSITY OF LOCAL SYMMETRIES IN A LOTTO CARPET

The center in a carpet is a microcosm of the wholeness which can occur in space. In addition, the presence of a center in the visual field depends to a great degree on the presence of various interlocking and overlapping local symmetries. Evidently there must be some deep connection between the presence of local symmetries in the visual field and the phenomenon of wholeness which occurs there.

As an example, let's look at this Lotto carpet with the well-known yellow lattice on its scarlet field. The lattice has four different "types" of major centers. This is the skeleton on which the design is erected. But then the intricacy of the lattice work is constructed in such a way that there are a truly dazzling number of different local symmetries which show up in the design.

Thus, for example, we see large octagons around one center. We see a kind of large cross shape around a second type. We see the remnant of a lobed figure, more distinct. Within one of these large centers we see a diamond with infurled hooks; then, a little larger, a square in the red; then still larger, a hourglass figure, still in the red; and larger still, the yellow and red diamond which it forms by including the four yellow flower heads.

Thus, at the very largest level, there are four main types of center — and each of these has four or five major local centers — or wholes — visible surrounding it, each one creating a distinct local symmetry. Thus at the largest level *alone*, there are as many as 16 or 18 different types of local symmetries, each one repeated over and over again as we traverse the lattice, each one interlocked and overlapping all the others.

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