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Robert M Spann*, 3001 Veazey Terr., NW, Apt 802, Washington, DC 20008. *Creating Rhythm and Repetition In Algorithmic Images Using Non-Dihedral Elements of S_4* .

Rotations and reflections of a square are often used to create highly structured algorithmic images. These group operations generate the Dihedral group, D_8 . This group is a subgroup of the much larger group, S_4 , the group of all permutations of four items. I use the elements of S_4 that are not members of D_8 along with reflections to generate images. The starting point is an element; a square divided into four squares each a different color. I fill the image plane by translating this element horizontally and vertically plus apply a non-dihedral element of S_4 to permute the four squares of the element. This process produces a grid in which each square is one of four colors. I then develop an analogy between group operations and the conventions of meter and rhyming pattern found in poetry. Two lines of elements have the same 'meter' if the horizontal movement from one element to the next involves the applying the same element of S_4 . Two lines of elements 'rhyme' if one is a vertical reflection of the other. The result of this process is images that initially appear random, but on further study, have a rich underlying structure. (Received September 14, 2014)