Properties of a tiling generated by the golden ratio

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Let β be a Pisot number, that is an algebraic integer greater than 1 whose conjugates other than itself have modulus smaller than 1. There are certain criterions of finiteness for representing real numbers , by a greedy algorithm, in a Pisot number base. In this paper we will show which is the digit expansion of number 1 in base $\beta = (1 + \sqrt{5})/2$ and define the admissibility condition for the other numbers to be represented in that base. Then we will construct a tiling of the real line by the digit expansion in base β and will show that it is selfsimilar. Also we will show that the central tile is intersected precisely with the tile $K_{.1}$ and $K_{.01}$ and will find the point of their intersection. Then our aim is to study in general the properties of tiling generated by Pisot number of second order.