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Abstract

The integer sequences A190249, A190250 and A190251 of the On-Line Encyclopedia OEIS are defined by mathematical conditions related to the golden ratio Φ. The botanical study of phyllotaxis models plants such as pineapples or sunflowers and describes the angular position of the nth leaf, scale, or seed by the fractional part of $n\Phi$. Front numbers and back numbers are distinguished by turning the model such that the polar axis faces forward. This paper shows that A295085, the sequence of front numbers, is the intertwining of A190249 and A190251. Moreover, A190250 is the sequence of back numbers.

The main theorem states that any generalized Fibonacci sequence eventually is a sequence of front numbers.