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*A Problem on Generating Sets Containing Fibonacci Numbers*

The following problem was posed at the Sixteenth International Conference on Fibonacci Numbers and Their Applications:

Let  $S$  be the set generated by these rules: Let  $1 \in S$  and if  $x \in S$ , then  $2x \in S$  and  $1 - x \in S$ ; so that  $S$  grows in generations:

$$\text{gen}(1) = \{1\}, \text{gen}(2) = \{0, 2\}, \text{gen}(3) = \{-1, 4\} \dots$$

Prove or disprove that each generation contains at least one Fibonacci number or its negative.

In this talk we will discuss the solution using techniques involving the dragon curve, binary sequences and trees.

This is joint work with Karyn McLellan (Mt. St. Vincent University)