

1. Q — Rewrite the Fibonacci equation using a polynomial of the advance operator, as in (9.3.1). What is  $p(A)$ ? What is  $g$ ? In the sentence under the expression (9.3.1), the text says "g is a fixed vector (function) from  $V$ ", but they never define  $V$ . So what is this  $V$ ?

A — The linear recurrence equation of the Fibonacci sequence is:

$$F(n+2) = F(n+1) + F(n)$$

$$\text{or } F(n+2) - F(n+1) - F(n) = 0$$

The above can be represented with the polynomial  $p(A)$  of the advancement operator:

$$(A^2 - A - 1)f(n) = 0$$

$$\text{hence } p(A) = A^2 - A - 1 \text{ and } g = 0$$

What is  $V$ ??