$$F(z) = 1 + z^2 F(z) + z^2 F(z+1)$$

$$F(z) = \sum_{n=0}^{\infty} f_n z^n = 1 + z + \sum_{n=2}^{\infty} (f_{n-1} + f_{n-2}) z^n =$$

$$= 1 + z + z^2 \sum_{n=2}^{\infty} f_{n-1} z^{n-1} + z^2 \sum_{n=2}^{\infty} f_{n-2} z^{n-2} =$$

$$f_n = f_{n-1} + f_{n-2} \quad n \geq 2$$