

Exercise 3.53.

Without running the program, describe the elements of the stream defined by


```
(define s (cons-stream 1 (add-stream s s)))
```

Answer.

This defines **s** to be the stream of powers of 2, such that the rest of the stream can be generated by adding **s** to itself, as figure 1 shows:

$$\begin{array}{cccccccccccc}
 1 & 2 & 4 & 8 & 16 & 32 & 64 & \dots & = s \\
 1 & 2 & 4 & 8 & 16 & 32 & 64 & \dots & = s \\
 \hline
 1 & 2 & 4 & 8 & 16 & 32 & 64 & 128 & \dots & = s
 \end{array}$$

Figure 1. Process of generating elements of the stream **s**.

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