

3.2 From Figure 2.5, it is straightforward to obtain the production rule for the start symbol (here: M):

$$M \longleftarrow \bar{B} \uparrow \bar{B} \rightarrow \bar{A} \downarrow \bar{A},$$

where the non-terminals \bar{A} and \bar{B} correspond to the patterns represented by A and B in the regular Hilbert-curve grammar (as in Figure 3.1). However, their orientation is exactly inverse. This also reflects in the productions for \bar{A} and \bar{B} :

$$\begin{aligned} \bar{A} &\longleftarrow \bar{C} \rightarrow \bar{A} \downarrow \bar{A} \longleftarrow \bar{H} \\ \bar{B} &\longleftarrow \bar{H} \longleftarrow \bar{B} \uparrow \bar{B} \rightarrow \bar{C} \end{aligned}$$

(and similar for \bar{H} and \bar{C}). Thus, the Hilbert-Moore grammar requires five non-terminals, but M is only used as start symbol.