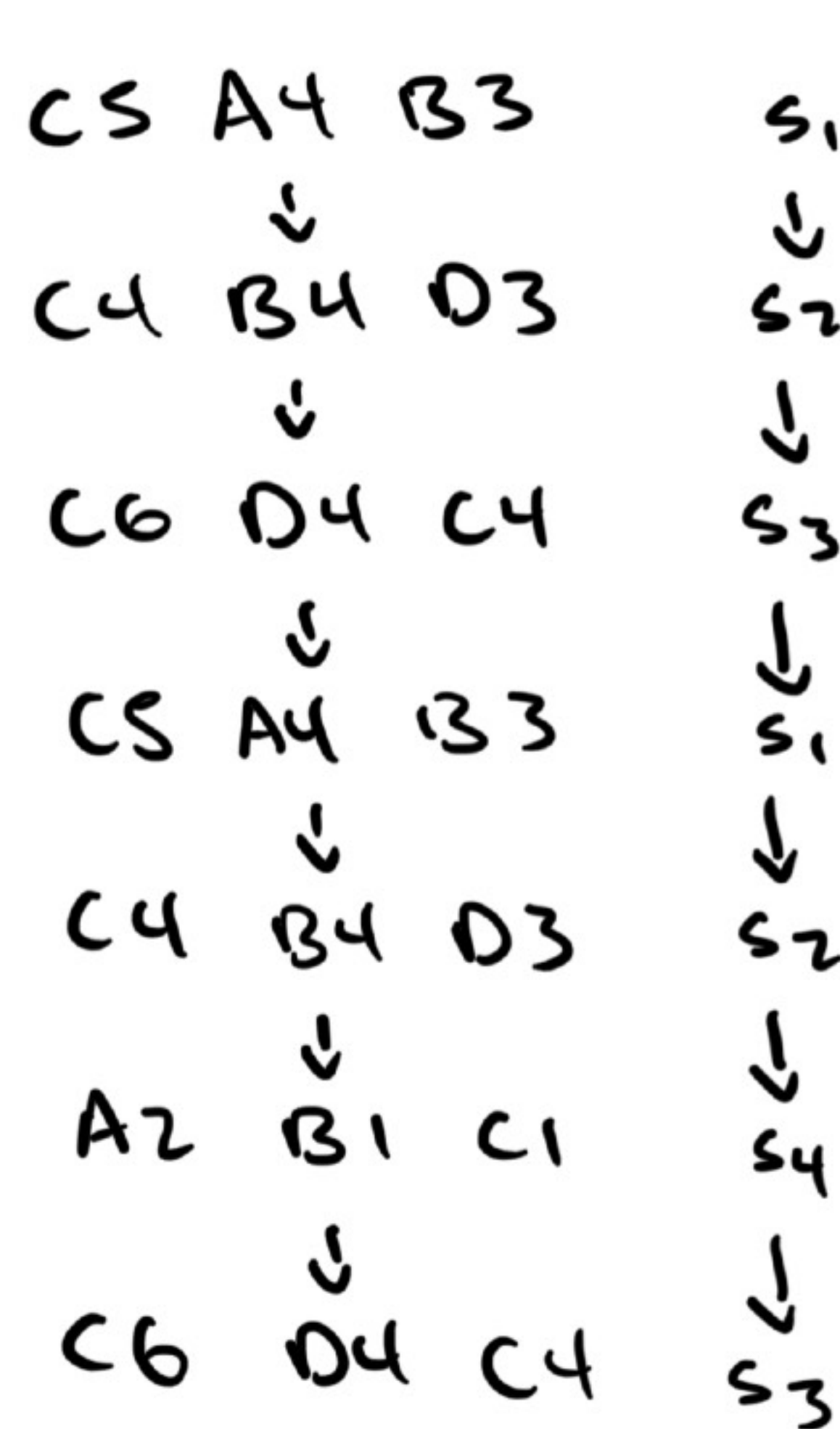


Transition States for Markov Chain



$$\begin{array}{c} s_1 \\ s_2 \\ s_3 \\ s_4 \end{array} \begin{array}{c} s_1 \ s_2 \ s_3 \ s_4 \\ \begin{bmatrix} 0 & 2 & 0 & 0 \\ 0 & 0 & 1 & 1 \\ 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix} \end{array} \rightarrow \begin{array}{c} s_1 \\ s_2 \\ s_3 \\ s_4 \end{array} \begin{array}{c} s_1 \ s_2 \ s_3 \ s_4 \\ \begin{bmatrix} 0 & 1 & 0 & 0 \\ 0 & 0 & 1/2 & 1/2 \\ 1 & 0 & 0 & 0 \\ 0 & 0 & 1 & 0 \end{bmatrix} \end{array}$$

make this matrix row-stochastic

$$\begin{array}{c} s_1 \\ s_2 \\ s_3 \\ \vdots \\ s_{n-1} \\ s_n \end{array} \begin{array}{c} s_1 \ s_2 \ s_3 \ \dots \ s_{n-1} \ s_n \\ \begin{bmatrix} \text{on a} \\ \text{large} \\ \text{scale} \end{bmatrix} \end{array}$$



Transition States for Markov Chain

**But we need
data. . .**