Our Notation for Turing-Machine Tapes

\[ e \]
the empty tape
(i.e., the tape with no squares on it)

\[ 0110 \]
a 4-square tape with:
‘0’ on square 1,
‘1’ on square 2,
‘1’ on square 3,
‘0’ on square 4

\[ 0110 \]
that same 4-square tape,
scanning \( s_3 \)

\[ s_1 \]
the first square

\[ s_{17} \]
the 17th square

\[ s_k \]
the \( k \)th square

\[ s_{k-1} \]
the square just before \( s_k \)
(i.e., the square to the left of \( s_k \))

\[ s_{k+1} \]
the square just after \( s_k \)
(i.e., the square to the right of \( s_k \))

\[ s_1, s_2, s_3, s_4 \]
a tape with 4 squares

\[ s_1, s_2, \ldots, s_{17} \]
a tape with 17 squares

\[ s_1, s_2, \ldots, s_k \]
a tape with \( k \) squares

\[ s_1, s_2, \underline{s_3}, s_4 \]
a tape with 4 squares,
scanning the 3rd square

\[ s_1, s_2, \ldots, \underline{s_i}, \ldots, s_k \]
a tape with \( k \) squares,
scanning the \( i \)th square

\[ s_1, s_2, \ldots, s_{i-1}, \underline{s_i}, s_{i+1}, \ldots, s_k \]
that same \( k \)-square tape,
showing the two squares before
and after the scanned square