Solution to Problem 7

**Task.** Show, step by step, how the following grammar describing binary integers will generate the integer $+110$. In this grammar, $I$ stands for integer, $U$ for unsigned integer, and $D$ for digit. The rules are: $I \rightarrow +U$, $I \rightarrow -U$, $I \rightarrow U$, $U \rightarrow DU$, $U \rightarrow D$, $D \rightarrow 0$, and $D \rightarrow 1$.

**Solution.** The derivation of this string takes the following form: