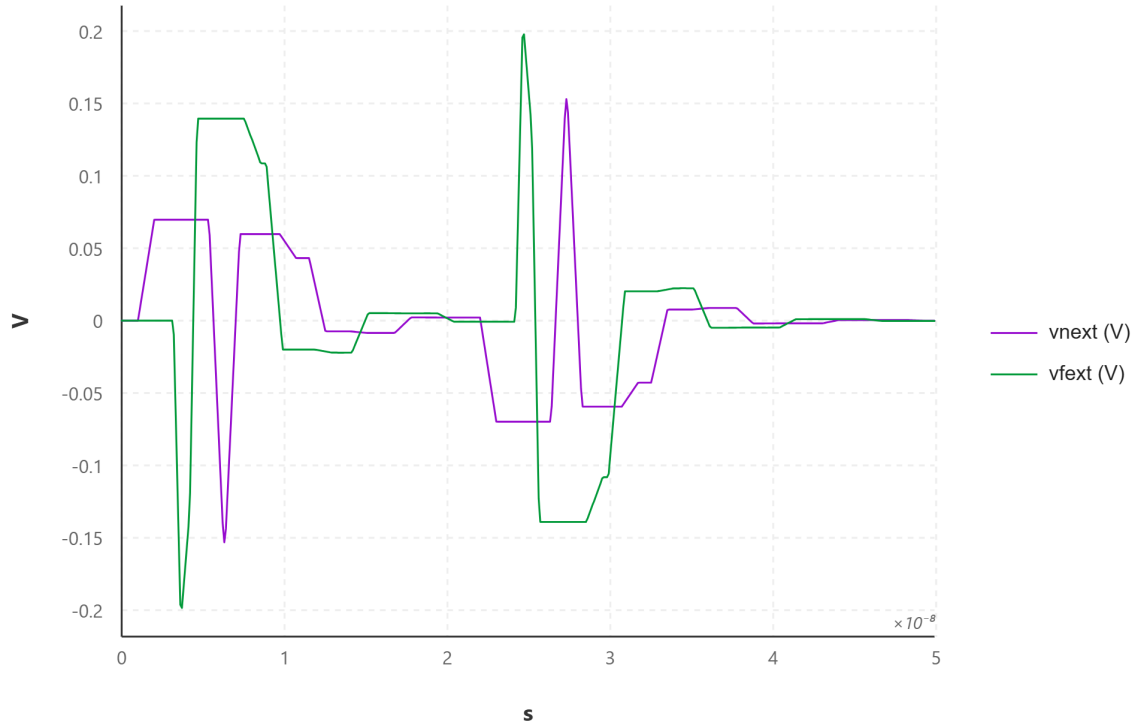
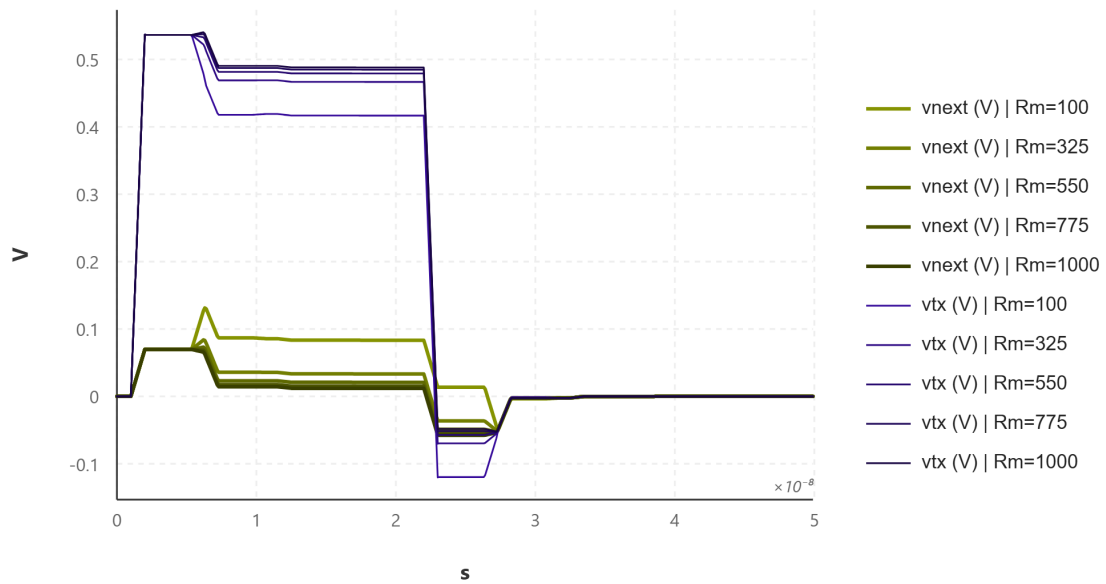


**ECE 546 HOMEWORK No 11 Solution Due Friday, May 8, 2026**

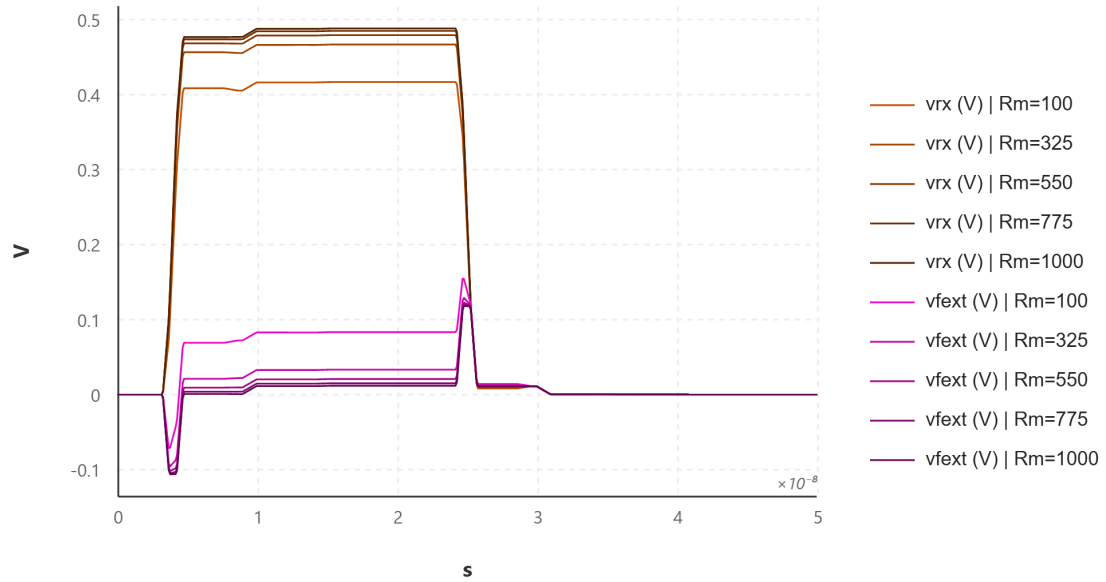
When line ends are open



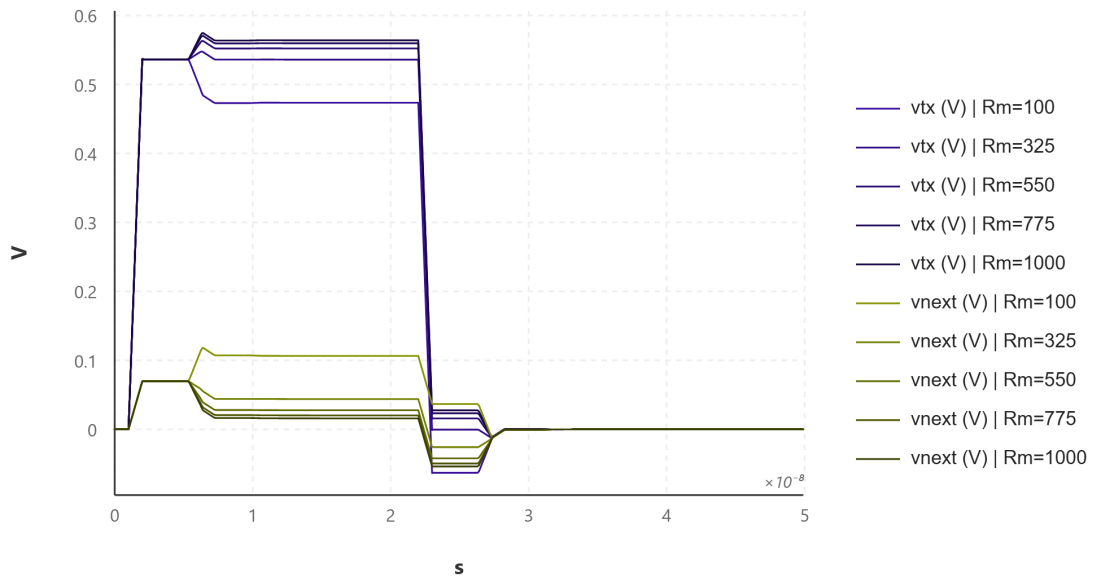
When terminating the far-ends of the lines with a  $\pi$ -network.  $R_g$  is the value of the shunt resistors (to ground),  $R_m$  is the value of the mutual resistor (connecting the two lines).



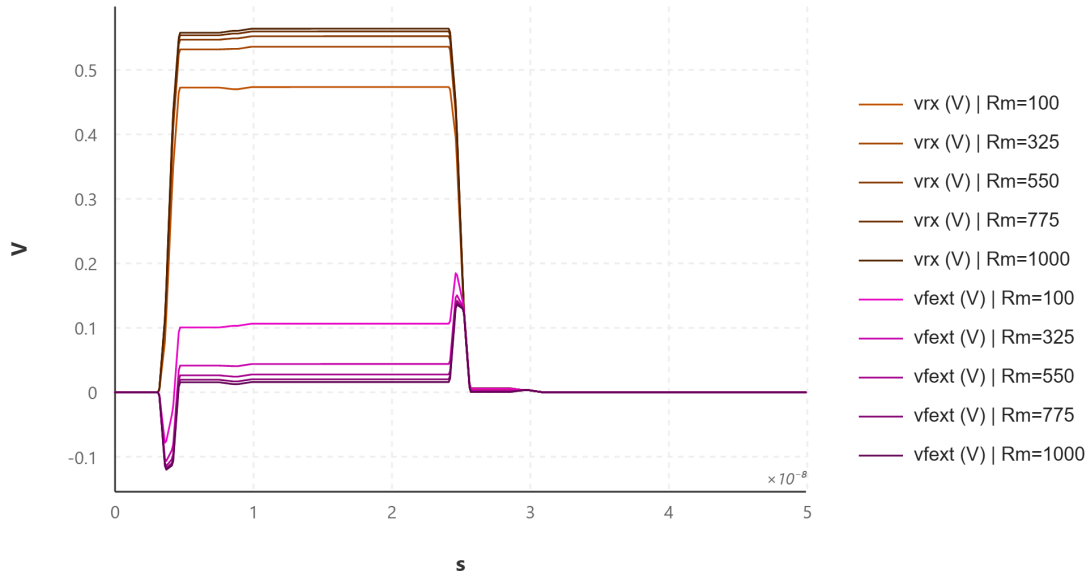
TX and NEXT ( $R_g = 50\Omega - R_m = 100\Omega \rightarrow 1k\Omega$ )



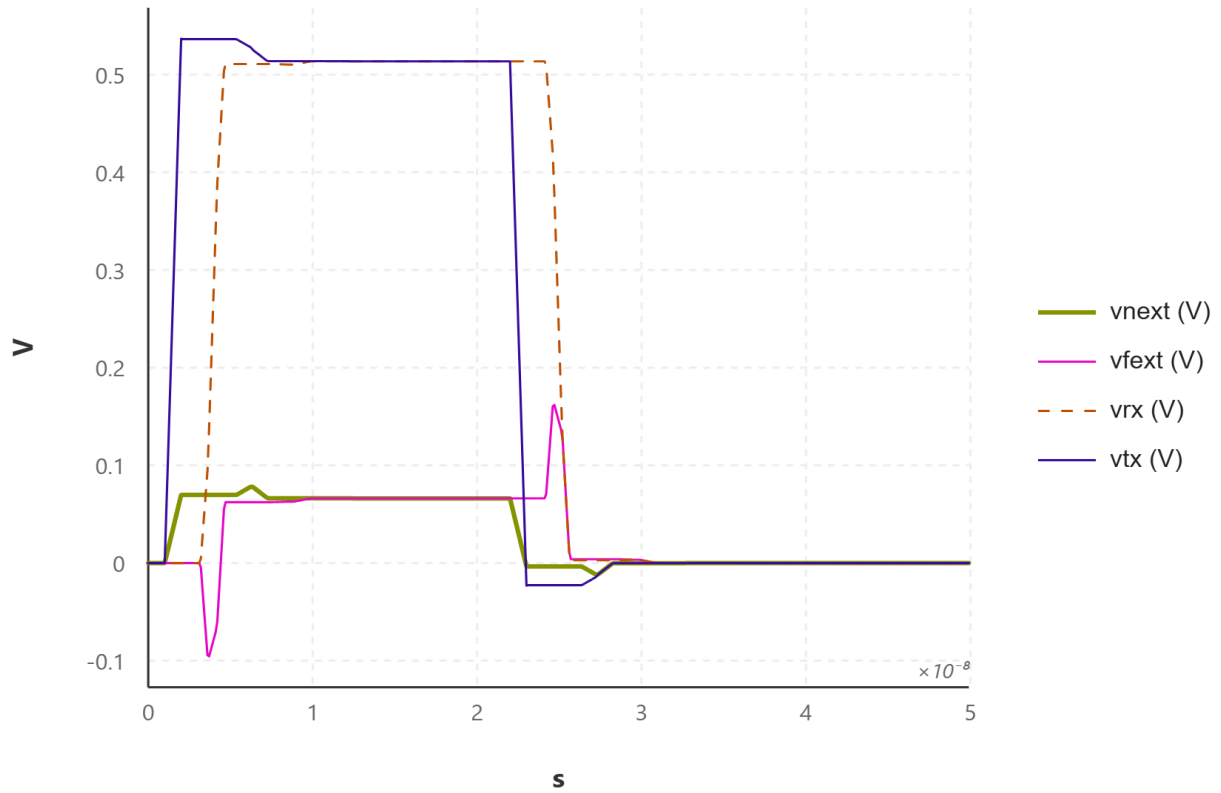
RX and FEXT ( $R_g = 50\Omega - R_m = 100\Omega \rightarrow 1k\Omega$ )



TX and NEXT ( $R_g = 69\Omega - R_m = 100\Omega \rightarrow 1k\Omega$ )



RX and FEXT ( $R_g = 69\Omega$  -  $R_m = 100\Omega \rightarrow 1k\Omega$ )



$R_g = 69\Omega$  -  $R_m = 196\Omega$  (matched)