

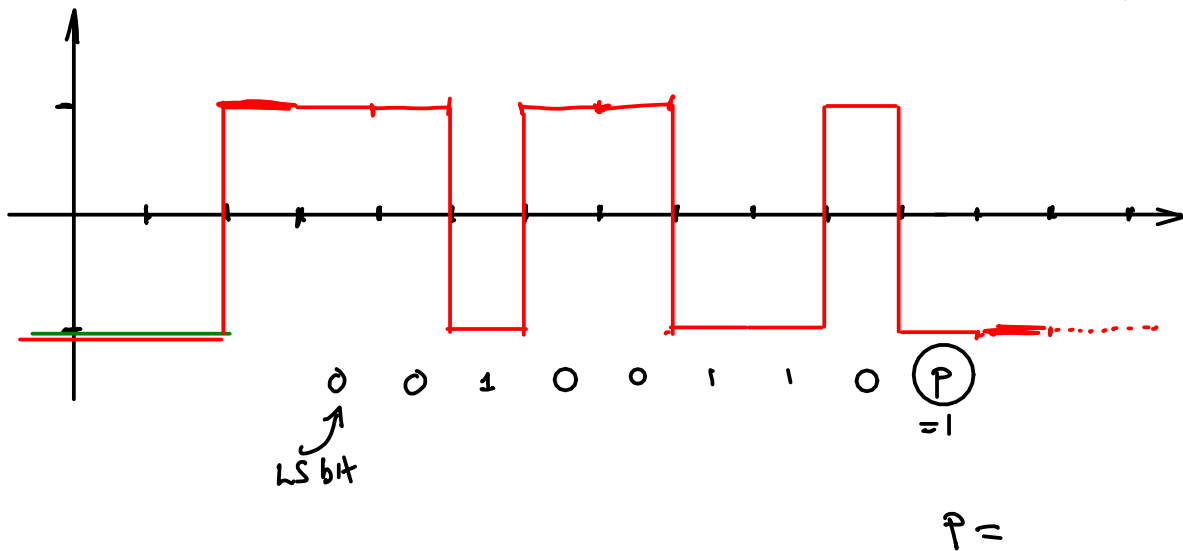
# Lecture 2 - Asynchronous Serial Interfaces

**Exercise 1:** Is the "Transmit Data" (TxD) signal an input or an output? How about "Receive Data" (RxD)? Is a computer a 'modem' (DCE) or a 'terminal' (DTE)?

TxD & RxD can be either  
computer: DTE usually

**Exercise 2:** Draw the waveform used to send the ASCII character 'd' (hex 64) at 4800 bps with eight data bits and even parity.

0x64 = 0110 0100  
          ↑          ↑  
          MS bit   LS bit



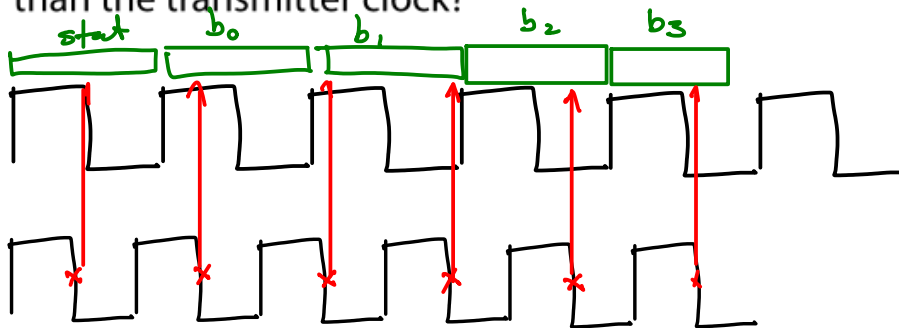
**Exercise 3:** Will the parity bit allow the receiver to detect all single-bit errors? All double-bit errors?

yes. changes from even to odd (or vice-versa).

no. changes even  $\rightarrow$  odd  $\rightarrow$  even (or v.v.)

midterm

**Exercise 4:** What happens if the receiver's clock is running faster than the transmitter clock?



receiver samples earlier & earlier in each bit. May sample wrong bit if the difference is large enough.

**Exercise 5:** What would happen if the receiver was expecting 8-bit characters and the transmitter was sending 7-bit characters? What about the reverse case?

- would see the stop bit as the MS data bit ( $L=1$ )
- would see the MS data bit as the stop bit.