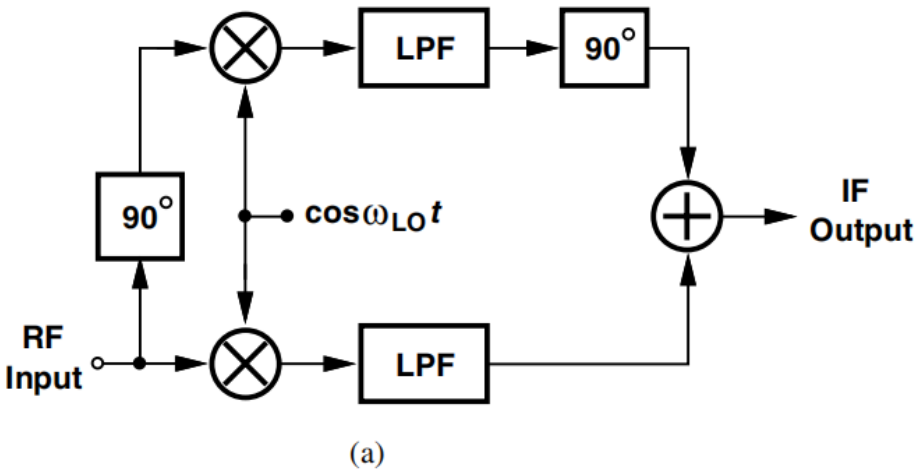
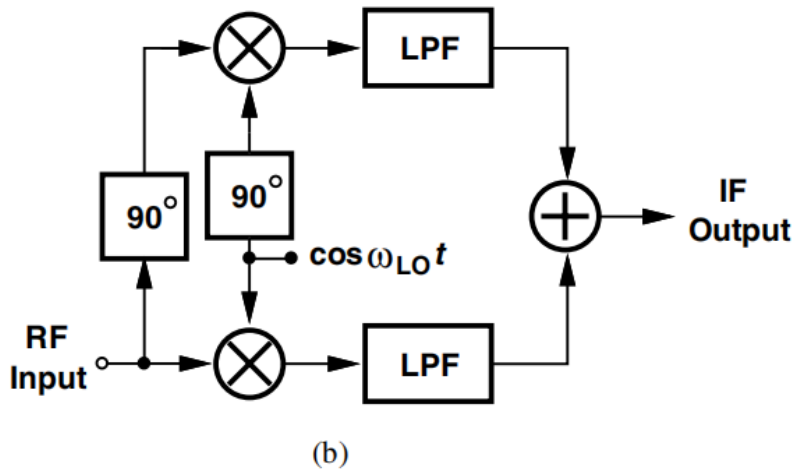
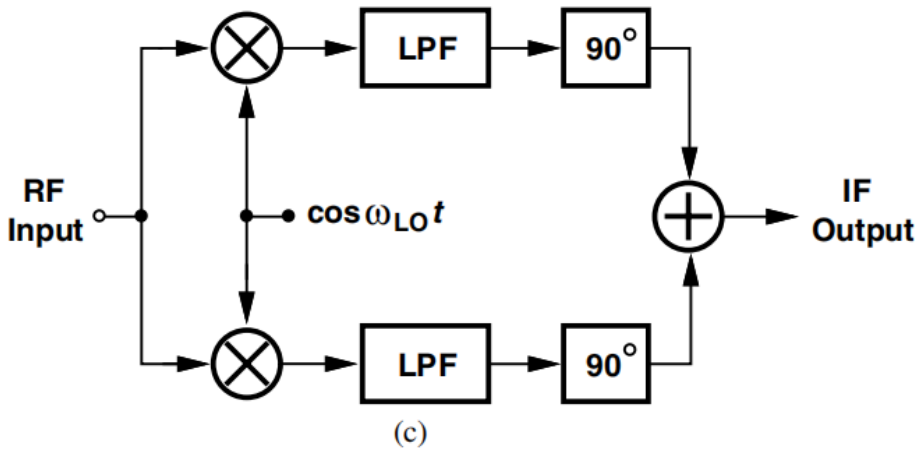
1. **The figure below shows three variants of the Hartley architecture. Explain which one(s) can reject the image.**



(a)



(b)



(c)

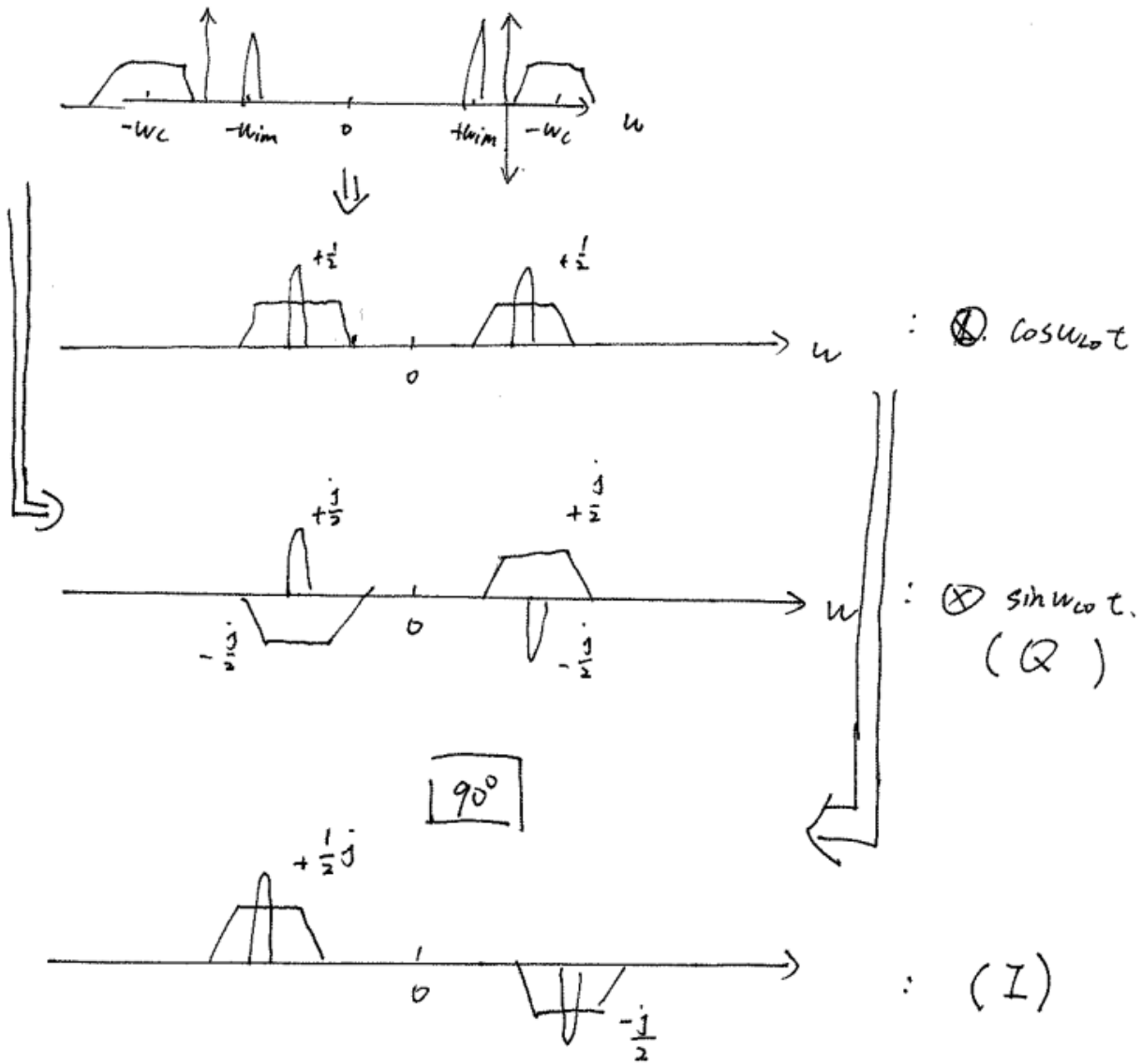
(a) Can

(b) Can not

(c) Can not

2. If $sin\omega_{LO}t$ and $cos\omega_{LO}t$ in the Hartley architecture are swapped, does the RX still reject the image?

(Perform the above analysis graphically using the spectra)



Yes, $sin\omega_{LO}t$ and $cos\omega_{LO}t$ can be swapped as long as I will be subtracted by Q.

3. In the Weaver architecture of Fig. 2.3, assume high-side injection for the first quadrature downconversion and low-side injection for the second quadrature downconversion. Figure out the results in E and F should be added or subtracted with the aid of signal spectra at nodes ABEF.

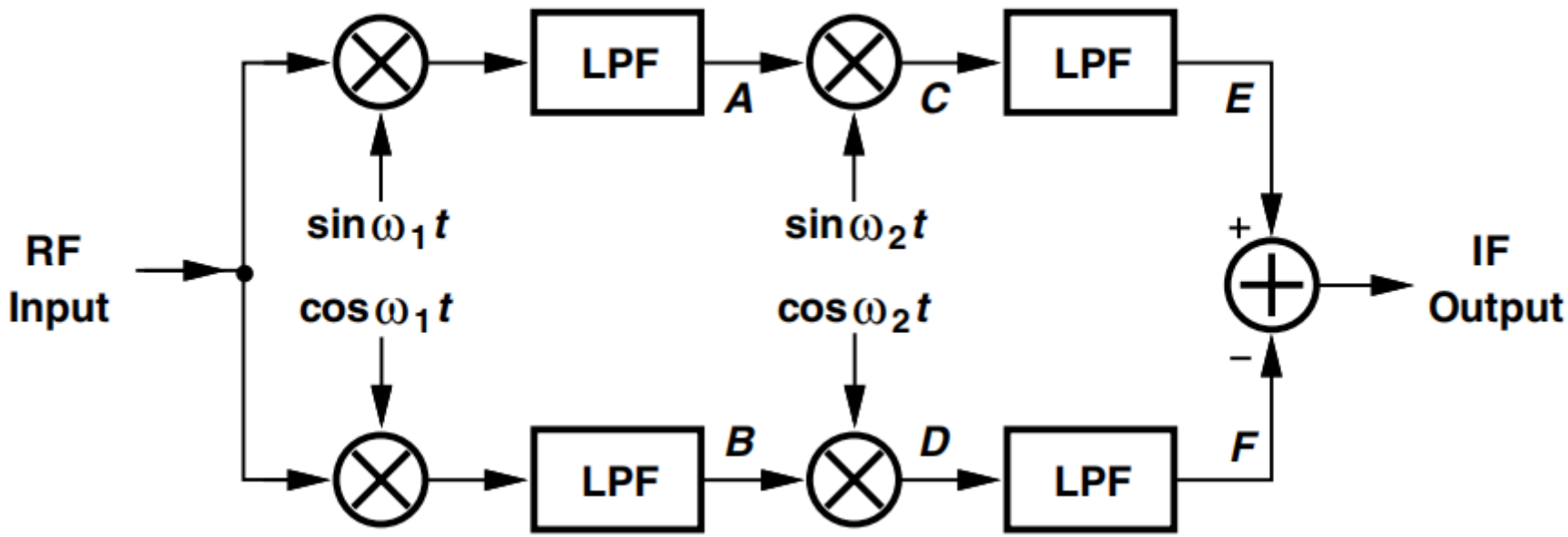


Fig.2.3

3. In the Weaver architecture of Fig. 2.3, assume high-side injection for the first quadrature downconversion and low-side injection for the second quadrature downconversion. Figure out the results in E and F should be added or subtracted with the aid of signal spectra at nodes ABEF.