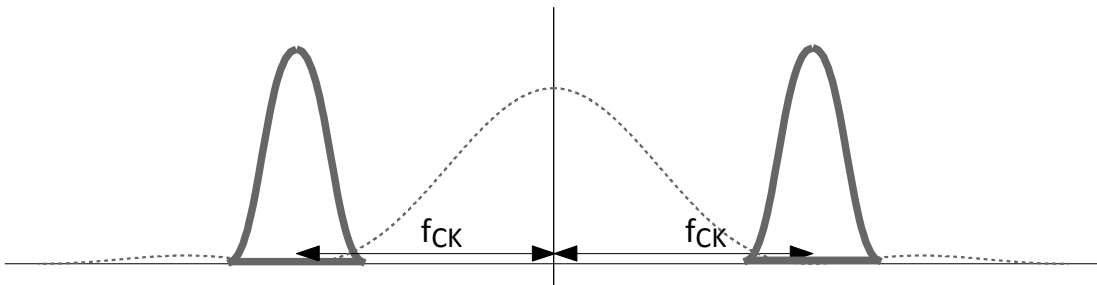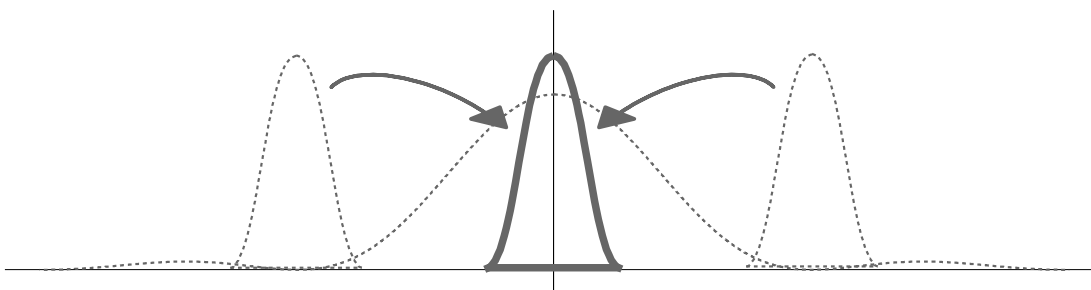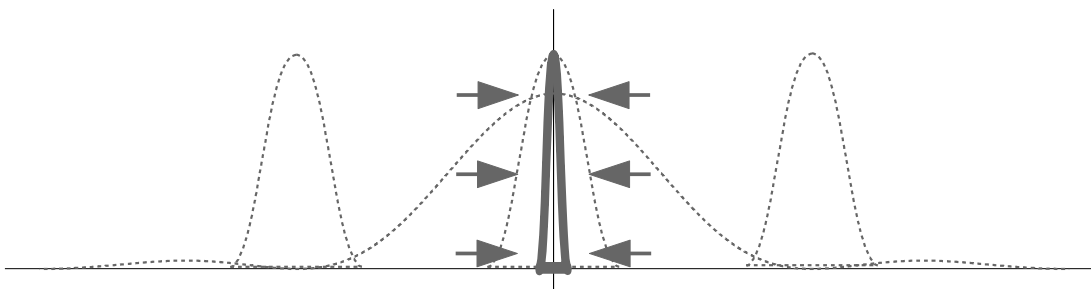**2 f$_{CK}$**   **2 f$_{CK}$**

Signal spectrum (random bits)
(there is no energy at the clock frequency, whatever the bit pattern)

f$_{CK}$ f$_{CK}$

Non-linear processing can retrieve the embedded clock
(which is not a pure line, but a spread out (=jittered) signal)

The phase comparator extracts the clock jitter and shifts it to d.c.
(Clock jitter = VCO clock - RX embedded clock)

The PLL filter block is a lag corrector and rejects most of the high frequency jitter
(its output signal is then fed as a FM modulating signal to the VCO)

f$_{CK}$ f$_{CK}$
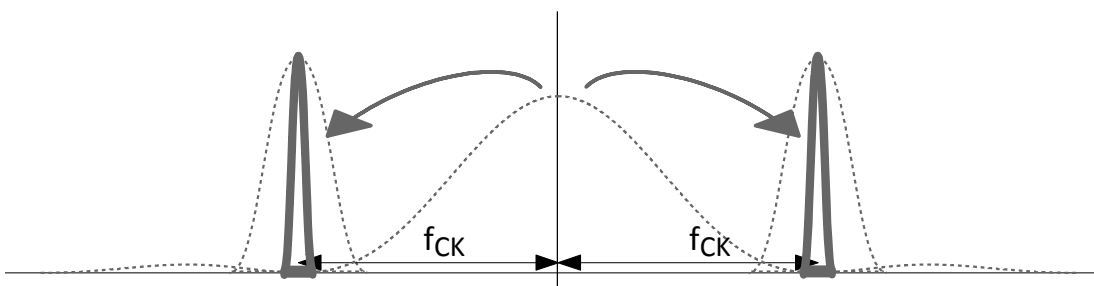
The VCO is frequency modulated by output of the loop filter
(As the modulation is a relatively low index FM, its spectrum around f$_{CK}$ is almost the same)