Triggering of a binary:

For the operation of a binary triggering is essential.

A signal which is used to induce a transition from one stable state to other is known as Triggering signal. this may be positive or negative.

Some important points are,

1. Triggering signal is usually a pulse of short duration.(to reduce the transition time)
2. The triggering signal may be applied at the output or input of one of the stages of the binary. But preferably it should be applied at **output of one of the stages of the binary.**

   Consider Q1is OFF & Q2 is ON (both are n-p-n transistors)

   To change this stable state , there is a need of negative triggering at the input of Q2 or positive triggering at the input of Q1.

   To get negative triggering at the input of Q2 , there is a need to apply negative triggering at the base of Q2 or at the collector of Q1. but if we apply triggering at the base of Q2 ,triggering source may be **overloaded** since impedance at the base terminal of ON transistor is low.

   So to avoid this preferably we need to apply triggering at the output of one of the stages of the binary.

   So in other words , triggering signal should be applied at collector terminals of the transistors.

3. Negative triggering is preferable for n-p-n transistor binary and positive triggering is preferable for p-n-p transistor binary. Since Sensitivity of ON transistor is high compared to the OFF transistor.

   So finally for an n-p-n transistor binary , negative triggering should be applied at collector terminal of OFF transistor.

   And for an p-n-p transistor binary , negative triggering should be applied at collector terminal of OFF transistor.

We have two methods for triggering a binary. Those are

1. unsymmetrical triggering
2. symmetrical triggering

Unsymmetrical triggering of the binary:

In unsymmetrical triggering the triggering signal is effective in inducing a transition in only one direction. A second triggering source from a separate source must be introduced in a different manner to achieve the reverse transition.

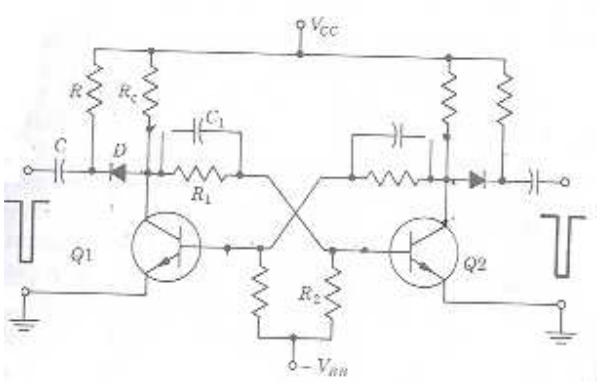
Here two triggering signal sources are essential.

A method of triggering a flip-flop which allows the binary to respond to only one polarity of pulse is obtained by adding a diode to the circuit as indicated in the figure below.

High pass RC circuit along with a diode is placed between trigger source and a collector terminal of a transistor.

High pass RC is essential to get spikes(pulses are of Short duration)from a square waveform.

Diode is essential to allow the negative spikes for The Corresponding transistor.



At the output of an high pass RC circuit we have both Positive and negative spikes.

Here irrespective of the Status of the binary diode will not transmit positive spikes.

If Q1 is in OFF state & Q2 is in ON state , then the diode which is connected to the collector terminal of Q1 is in ON state due to **one triggering source**. So that negative spike will appear at the collector terminal of (Q1) OFF transistor.

Hence Q1 ON & Q2 OFF.

(assume that spike ampitude is small compared to supply voltage)

If Q2 is in OFF state &Q1 is in ON state , then the diode which is connected to the collector terminal of Q2 is in ON state due to the **other triggering source**. So that negative spike will appear at the collector terminal of (Q2) OFF transistor.

Hence Q1 ON & Q2 OFF.