Let's look at a concrete example.

This graph shows the voltage transfer characteristic for a particular device and we're wondering if we can use this device as a combinational inverter.

In other words, can we pick values for the voltage thresholds V_{OL}, V_{IL}, V_{IH} and V_{OH} so that the shown VTC meets the constraints imposed on a combinational device?

An inverter outputs a digital 1 when its input is a digital 0 and vice versa.

In fact this device does produce a high output voltage when its input voltage is low, so there's a chance that this will work out.

The lowest output voltage produced by the device is 0.5V, so if the device is to produce a legal digital output of 0, we have to choose V_{OL} to be at least 0.5V.

We want the inverter to produce a valid digital 0 whenever its input is valid digital 1.

Looking at the VTC, we see that if the input is higher than 3V, the output will be less than or equal to V_{OL}, so let's set V_{IH} to 3V.

We could set it to a higher value than 3V, but we'll make it as low as possible to leave room for a generous high noise margin.

That takes care of two of the four signal thresholds, V_{OL} and V_{IH}.

The other two thresholds are related to these two by the noise margin N as shown by these two equations.

Can we find a value for N such that $V_{OUT} >= V_{OH}$ when $V_{IN} <= V_{IL}$?

If we chose N = 0.5V, then the formulas tell us that V_{IL} = 1V and V_{OH} = 3.5V.

Plotting these thresholds on the graph and adding the forbidden regions, we see that happily the VTC is, in fact, legal!

So we can use this device as a combinational inverter if we use the signaling specification with V_{OL} = 0.5V, V_{IL} = 1V, V_{IH} = 3V and V_{OH} = 3.5V.

We're good to go!