It's not so convenient to connect an inductor or capacitor to an arbitrary position and adjust this position along the cable.

For the stub, you can have a Tee, but it's not so convenient to continuously move the Tee along the cable.

So, we introduce yet another method, the "double stub" matching.
Today, we are gonna talk about double stub matching.

The positions of the two stubs, $d_1$ and $d_2$, are fixed. We adjust the 2 stub lengths, $l_1$ and $l_2$, to achieve matching.

The general strategy is as follows.

We first adjust $l_1$ to get

$$y(d_2) = 1 + j b(d_2)$$

Then what do we do?

As before, cancel the reactive part, using the 2nd stub.

You know how to do that.

So we are gonna concentrate on the first stub.
When we adjust the length of stub \( d_1 \), the total admittance \( Y_{\text{total}}(d_1) \) at \( d_1 \), including the stub, is

\[
Y_{\text{total}}(d_1) = Y(d_1) + Y_{\text{stub}} = g(d_1) + j \phi(d_1) + j b_{\text{stub}}
\]

because we know the admittance of stub \( d_1 \) is purely reactive.

So, the total admittance at \( d_1 \) is somewhere on this circle

\[
y = y(d_1)
\]

Then, what is the admittance at \( d_2 \) (w/o stub-2)?

Each point \( y \) on this circle is related by \((d_2 - d_1) \beta\).
So, when we slide the short on stub 1, y(d2) is moving on this circle. This circle must intersect the g = 1 circle some where. Once you hit the g = 1 circle, you have finished adjusting stub 1. You can now lock the short at this position.

Now, y(d2) = 1 + jb.

The situation is exactly the same as the single stub matching we talked about last time.

You know what to do next, right?

But, keep in mind, so far we are working with admittances.

Last time, I mentioned that, in the lab, the Network Analyzer displays impedances.

The TA's cover the screen...