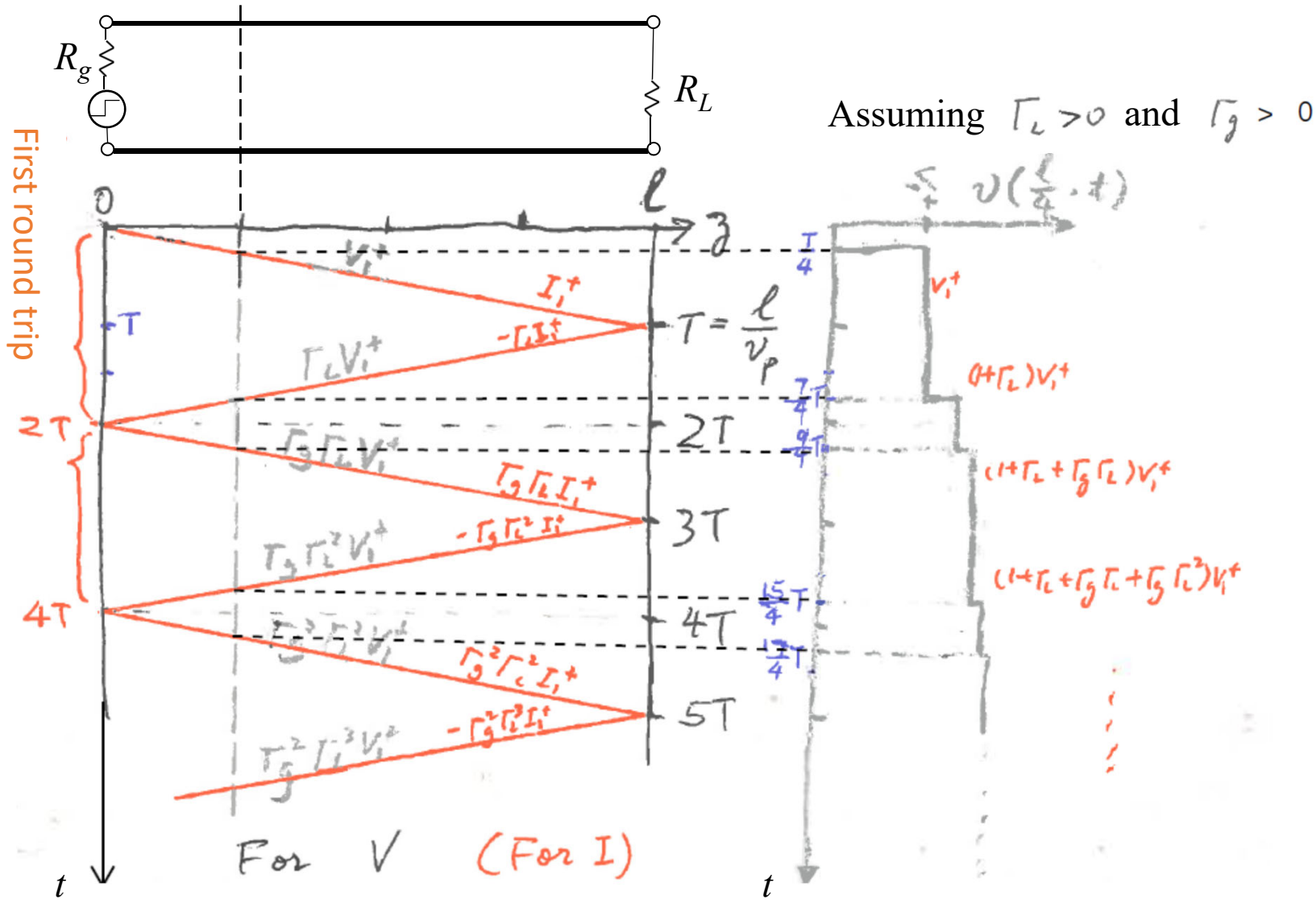
Bounce Diagram



Similarly, you can construct a plot for $i(z,t)$. That will look a bit different.
It is not monotonic, due to the – signs.

The v and i each converge to their respective steady-state values.

A step delivers only 1 bit of information.

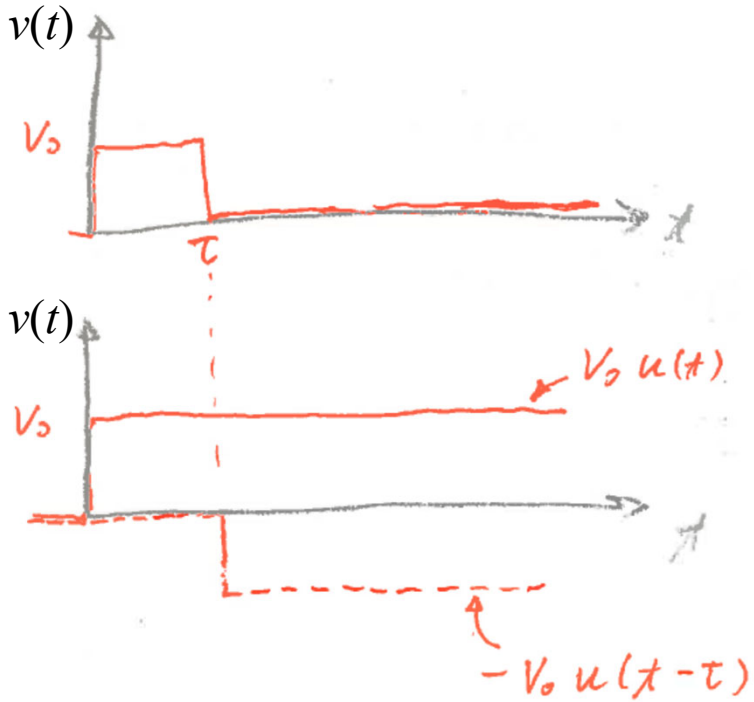
We send pulses to deliver lots of bits.

What we really care is how a pulse, not a step, will bounce back and forth.

A pulse is the superposition of two steps:

$$\text{Pulse}(t) = V_0 \left[u(t) - u(t-\tau) \right]$$

Step function



The transmission line system is linear.

The response to the superposition of two steps is the superposition of the two responses.

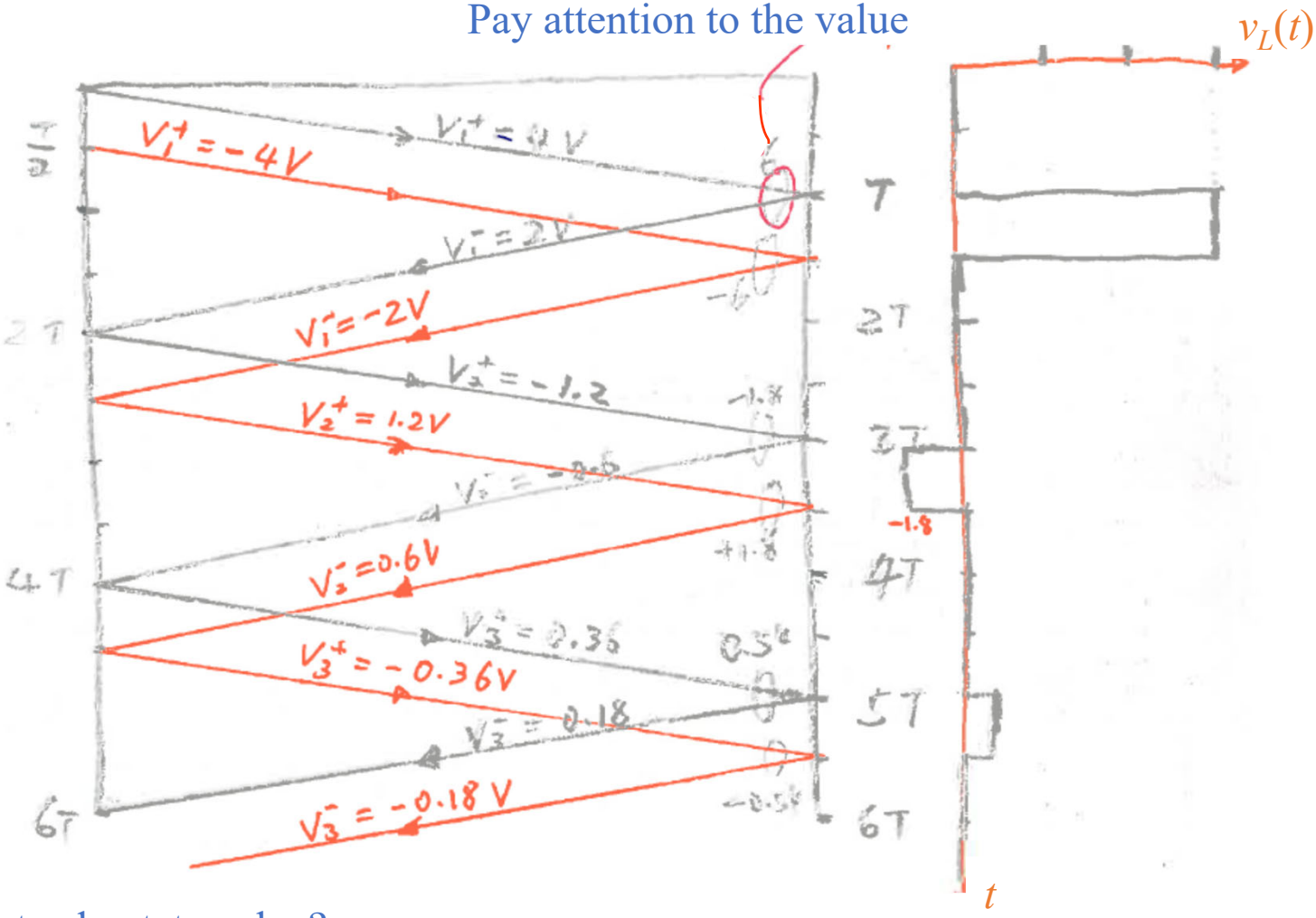
This justifies what we will do next.

A specific example (with numeric values) to show how we trace the echoes of a pulse using the bounce diagram:

$\Gamma_1 = 0.5$, $\Gamma_2 = -0.6$, $\tau = \frac{T}{2}$ $V_1^+ = 4V$

Plot $v_L(t)$

Pay attention to the value



What is the steady-state value?

Review textbook Section 2-12.2. Finish Homework 6.

A slide from the previous class note

Several Things to Talk about

Homework

Previous student comments:

> I prefer HW assignments to be mandatory. That way I'm forced to do it and learn. I was good about doing the optional HW at the beginning of the semester, but lost steam towards the end.
>
> I realize that he uses the homework as a self study and trusts the student to do it on their own time, but as a Junior semester class, having no graded assignments between exams makes it very easy to prioritize other classes. If it is important that the students really learn your material, you need to provide incentive to do the homework. Simply giving a grade for it would suffice.

At the junior year, you need to make the transition.

Test 1: Thu 3/7, covers Chapters 1 & 2.

Reading to prepare for the Field Theory

Chapter 3: vector analysis.

Sections 4-1, 4-2, 4-3, & 4-4