So this gives me to my brief, why this matters for take.

Why would I care which one of these CO2 takes?

All right?

OK.

Well, it turns out that as long as we're not at absolute zero, this molecule is moving.

And so, obviously, that's related to this.

It's not obvious.

But cars in the US are now the number one emitter of CO2.

OK?

They're the number one cause of CO2 emissions.

And here's a nice little corner somewhere.

And so, this is coming out now from the transportation sector.

More of the CO2 comes from that than any other sector.

Why does it matter?

Well, why does this Lewis structure matter?

Well, it has to do with how it moves.

Because, you see, I showed you this before.

And I didn't complete it because we were talking about electron transitions, and then I gave you the example of ozone being really important for absorbing in the UV.

And I showed you the chemistry of ozone degradation with CFCs.

You see, look at this absorption out here.

There's CO2, right?

And so, there's the sunlight above the atmosphere.

Here it is on Earth.

And you could see CO_2 there.

But see, the reason CO_2 absorbs there has to do with how it moves.

It has to do with its vibrations.

Now, that's not something that you need to know for like a test or something, but I wanted to tell you about it because it is directly related to what we just did.

Those vibrations-- and by the way, that first mode is the one out here doing all the IR absorption.

Right?

This one.

And you can see right away, if this thing is wiggling, it's going to wiggle very differently.

Right?

It's going to wiggle very differently whether it has two double bonds on either side of the carbon, or a triple and a single.

Right?

And so that, alone, tells you something really important about how it interacts in our atmosphere with radiant heat, right?

With IR radiation.

OK.

That's my 'why this matters.'