

Answers to Problem 72, Chemistry 301X - 2006

Now consider a more complex “AMX” system. How many lines for H_a ?

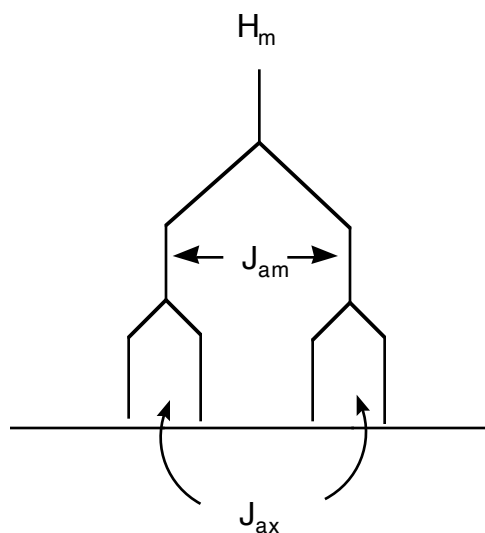
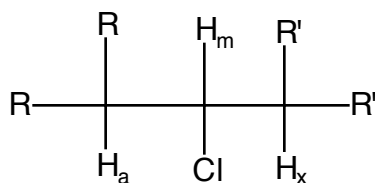
Two

How many lines for H_x ?

Two

OK that's easy. But how many lines for H_m ? That's not so easy.

H_m will be a “doublet of doublets” - four lines:



Now use the supplied graph paper to see whether it makes a difference in which order you do the “tree” diagram.

Let $J_{ma} = 2 \text{ Hz}$ and $J_{mx} = 4 \text{ Hz}$.

Does it make a difference? (it had better not!)

it doesn't.

What happens if J_{ma} and J_{mx} are very, very close?

overlap problems are likely.