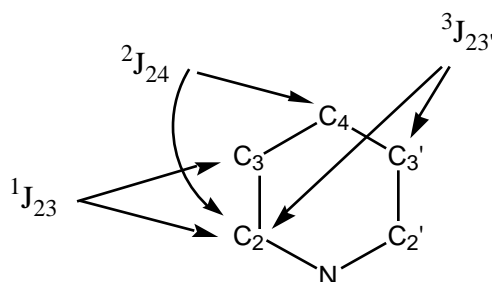**J(C,C) in Piperidine**

Any C can couple with several others but this coupling is not observed at the same time! Coupling with two different C does not give a doublet of doublets!! It shows up as two doublets, one for each coupling. The case is illustrated for C2:

* C2 couples with C3: doublet, one up one down.
* C2 also couples with C4: doublet, one up one down, with a smaller J (compare C4)
* C2 also couples with C3': doublet, one up one down, with a still smaller J.

(a) Give the coupling constants for C2.
(b) Interpret the spectra for C3 and C4. Give the coupling constants.