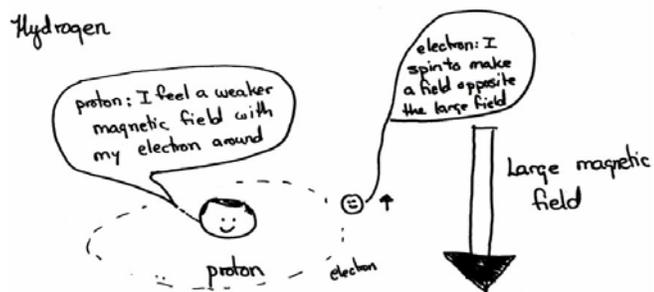
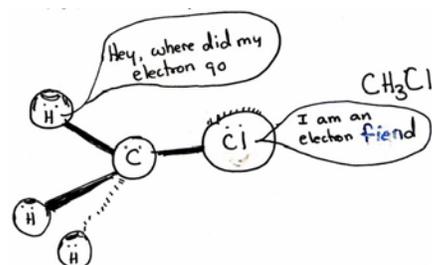


NMR of Aromatic Compounds

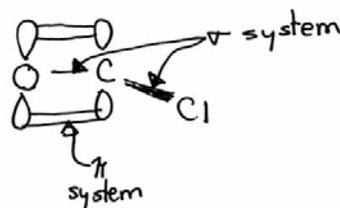
Electrons Shield



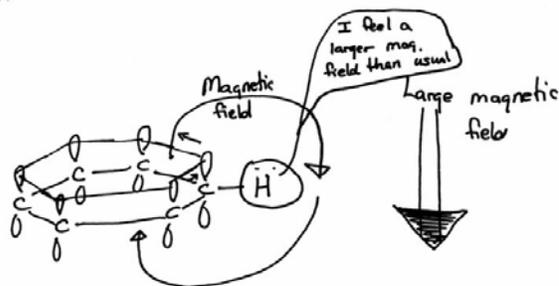
Electron Withdrawing groups de-shield by removing electron density



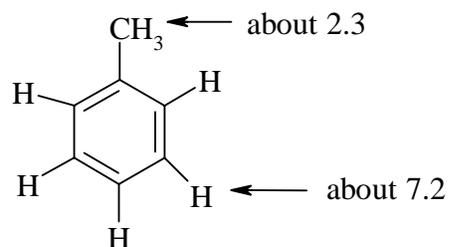
Electron density can be added or removed through the p or s systems



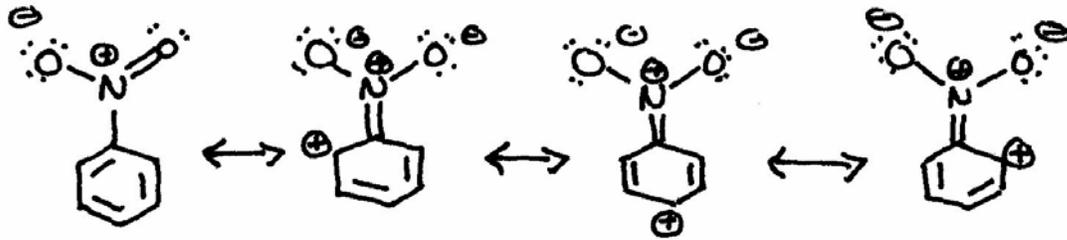
Ring currents usually deshield



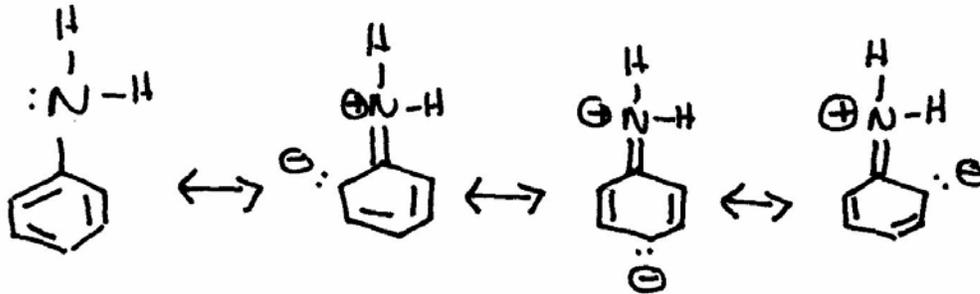
Toluene: An alkyl group does not shift the signal very much. It is neither electron donating nor electron withdrawing.



Effects through the p system can be explained through resonance structures.
 Electron withdrawing group: A lack of electrons will de-shield.

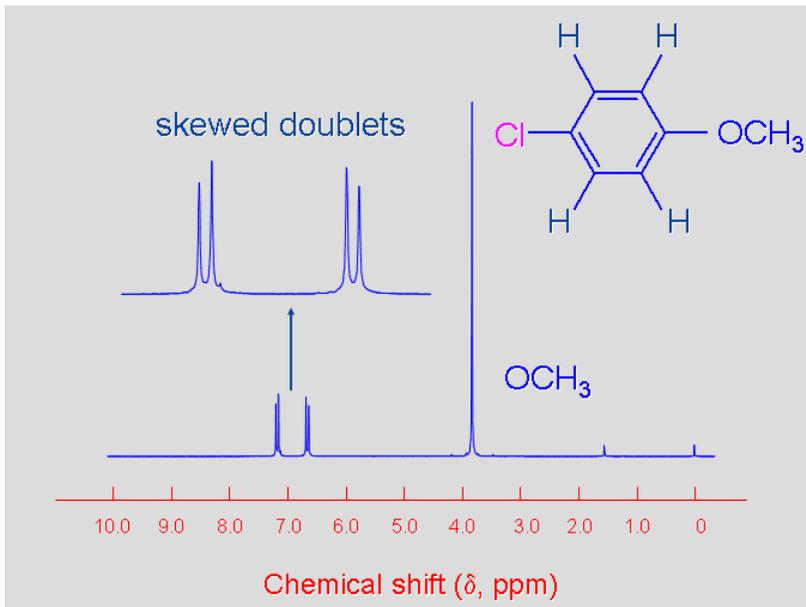


Electron donating group: Electrons will shield.



Di-substituted Aromatics

Para substitution gives a distinct splitting pattern.



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