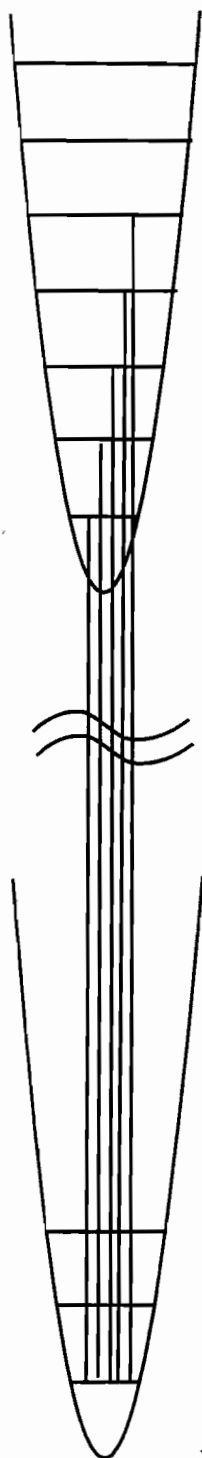
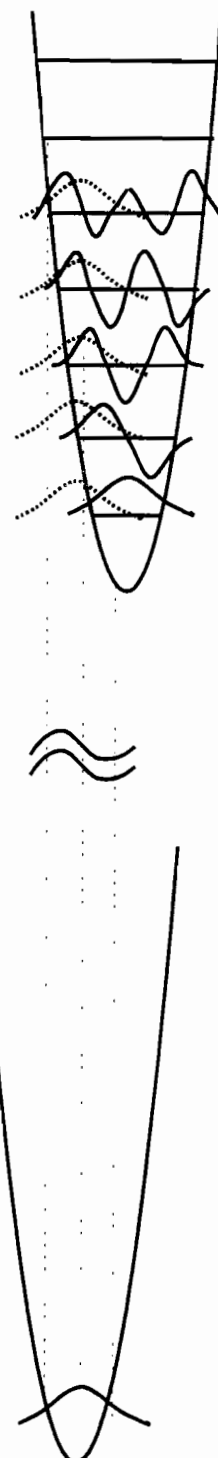
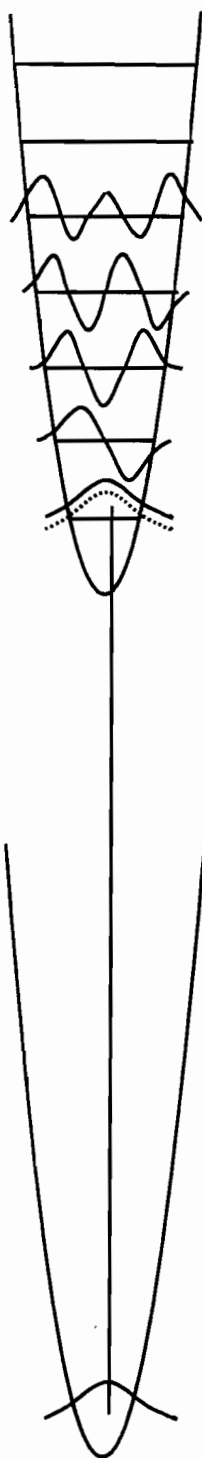


# Frank - Condon Factors

ala Sponglar.



Possible Transitions



Relative intensities of vibrations are determined by the square of the overlap integral. The overlap is shown visually



$\lambda$  is the "Spring energy" (in units of  $hw$ ) caused by the sudden change in potential due to electronic transitions.

More precisely 
$$\frac{f_{0,v'}}{f_{0,v'-1}} = \frac{\lambda^{v'}}{v'!} \cdot \frac{(v'-1)!}{\lambda^{v'-1}} = \frac{\lambda}{v'}$$

So ratio of  $0 \rightarrow 1$  to  $0 \rightarrow 0 = \lambda$

and  $f_{0,v'-1} = f_{0,v'}$  for  $v' = \lambda$

