1.3.7: Work and Heat Have a Simple Molecular Interpretation

1.3.7.1: Statistical interpretation

We can use what we know about the statistical side of thermodynamics to give a simple interpretation to a change dU:

we see that because $\delta w_{rev} = -PdV$

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Image:CH431_Image68.gif

See also section 17-5 :In this section it is shown that we can manipulate the partition function to find the pressure of a system by calculating the above moment of the distribution. Again we take the derivative of the logarithm of the partition function Q, this time versus V and show that the result resembles the last equation pretty closely (apart from a factor). Thus we get:

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Once again we can find an important quantity of our system by manipulating the partition function Q.
