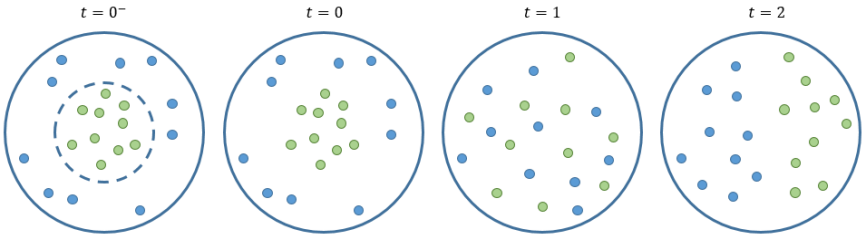
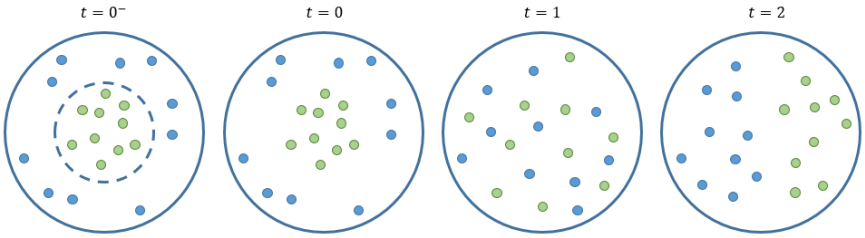


Consider the system above. There are 10 molecules of a and 9 molecules of b, each initially occupying equal volumes of a cylinder of unit depth into the page. At time 0 the partition between them is removed and the particles are allowed to mix.

(i) Find the change in entropy between time 0^- and time 1

(ii) Find the change in entropy between time 1 and time 2

(iii) Answer (i) and (ii) if, instead of molecules, there are 10 *moles* of a and 9 *moles* of b



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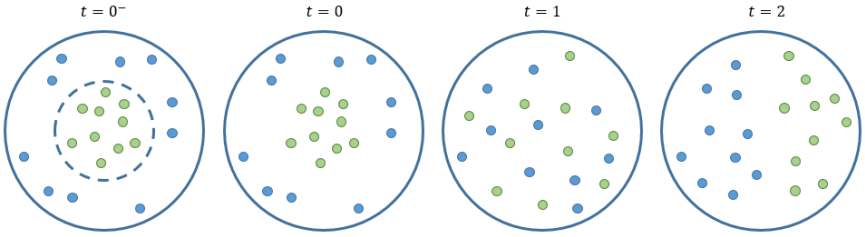

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