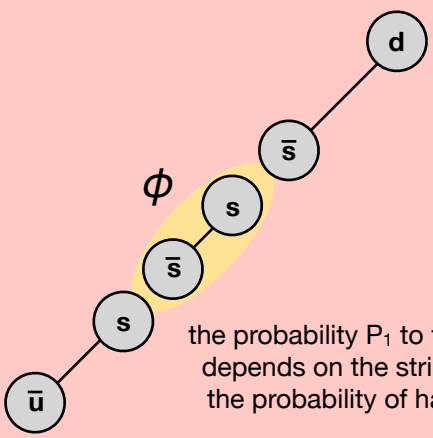
Are strange quarks already there or are they born at hadronisation?

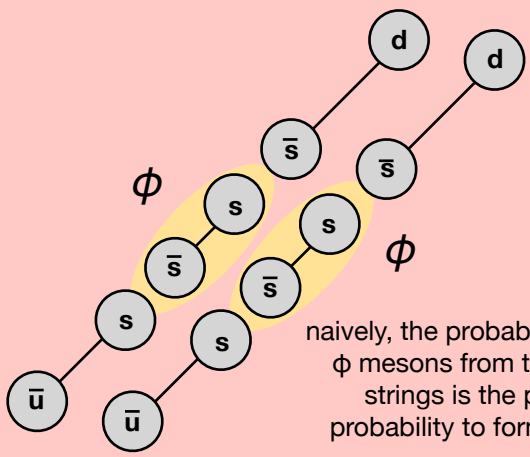
***Introduction*: it has been pointed out already several times that the ϕ meson has a big potential to help us understand how hadronisation works and from where the observed strangeness enhancement in high multiplicity pp builds up.**

***Caveat*: I did not have much time to think about this before coming here, but here it is anyway**

(a) strange quarks are born in the breaking of colour strings/ropes



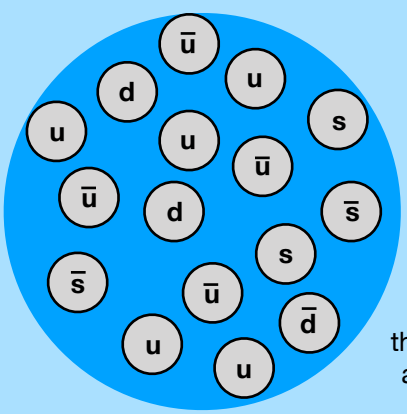
the probability P_1 to form a ϕ meson depends on the string tension and the probability of having s-breaks



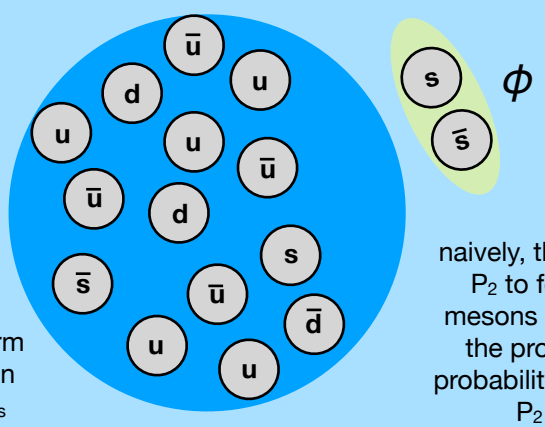
naively, the probability P_2 to form two ϕ mesons from two independent strings is the product of the probability to form one. $P_2 = P_1P_1$

for a given high N_{ch} event class with multiple strings, with the same average tension

(b) QGP soup with strange quarks which eventually form hadrons



the probability P_1 to form a ϕ meson depends on the s-quark density n_s



naively, the probability P_2 to form two ϕ mesons is lower than the product of the probability to form one. $P_2 < P_1P_1$

for a given high N_{ch} class of events with a given initial average quark density

***Conclusion*: I don't know whether this makes any sense, but I wonder whether studying the production yield of a given strage hadron A conditional to the production of another strange hadron B in the same event can give us some more hints on the hadronisation mechanisms and on the possible existence of a potential source of strange quarks (QGP) from where the system hadronises.**

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