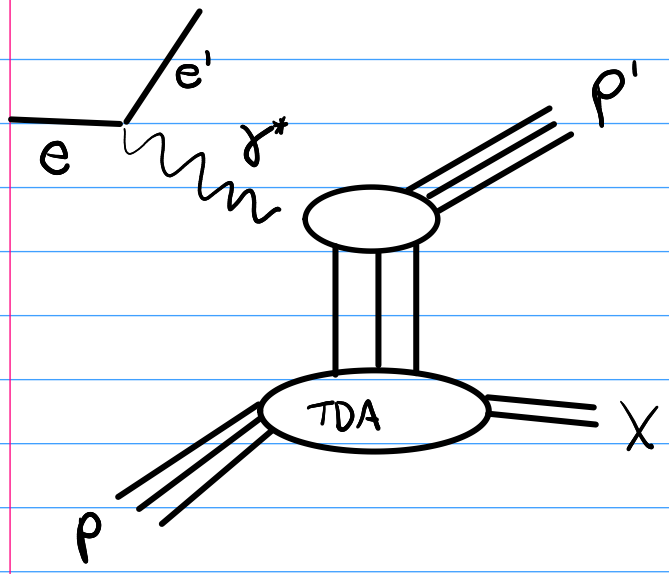
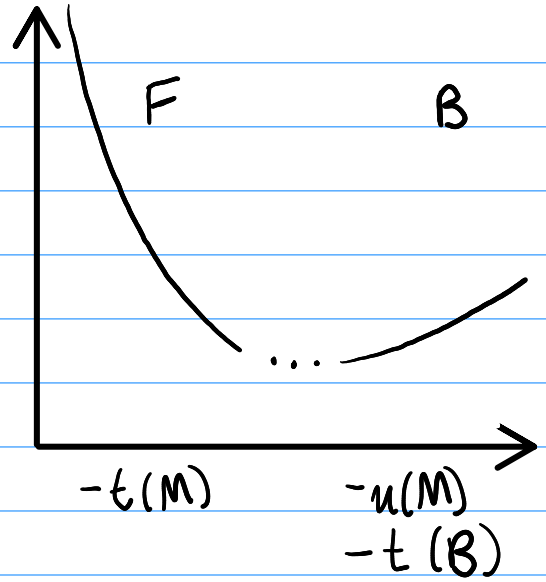
Interesting Discussions at JLab



Q: Is the forward proton the same particle as the target proton?

My thoughts: No, but it doesn't matter, they are identical particles.

Bill's thoughts: Unsure, but the answer will change the interpretation of results.

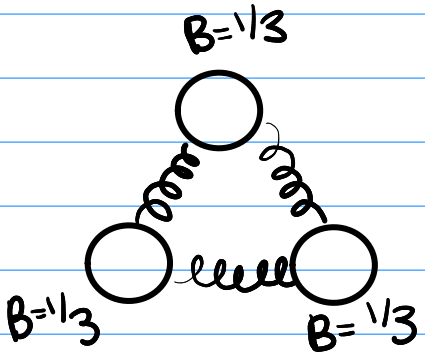


If $p = p'$:
backward region is u-channel meson production

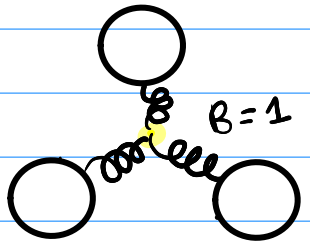
If $p \neq p'$:
backward region is t-channel baryon production

→ Is there a difference?

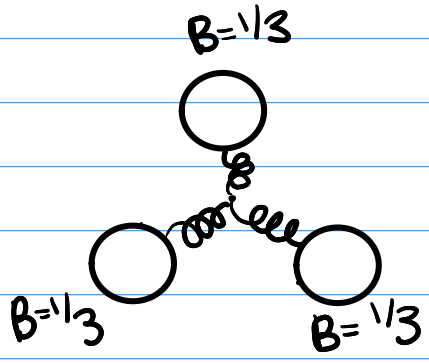
Textbook picture

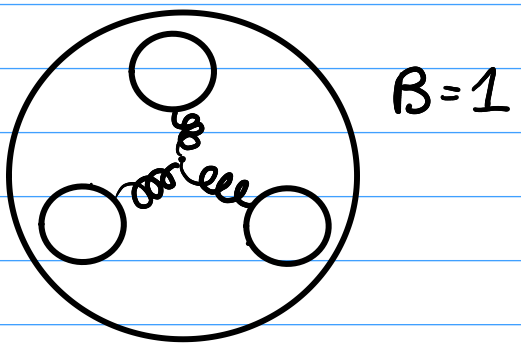


Verton picture



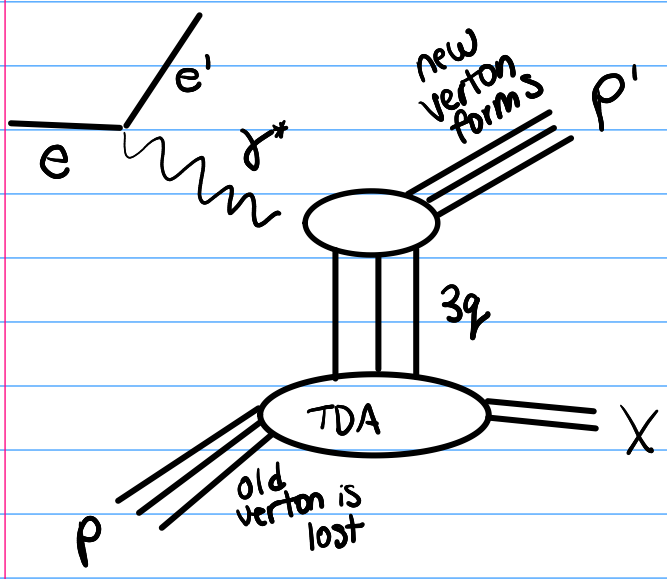
Existance of gluon junction is well-supported by theory/phenomenology. But it does not necessarily carry baryon number.

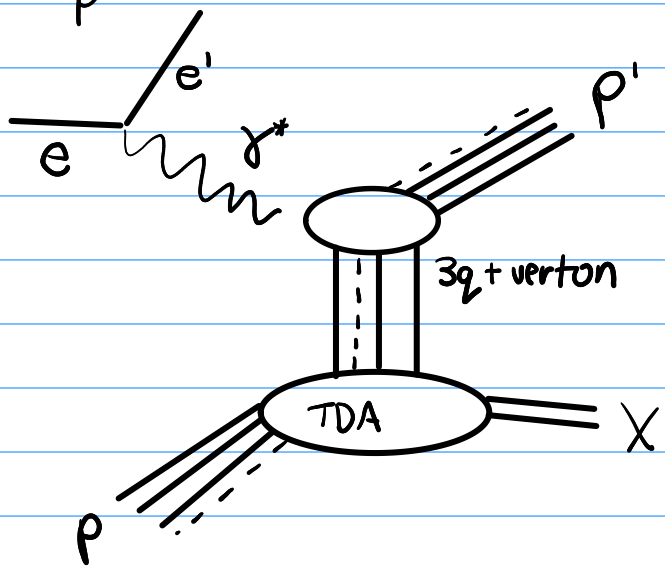




If the verton is always attached to the valence quarks, then does the distinction matter?

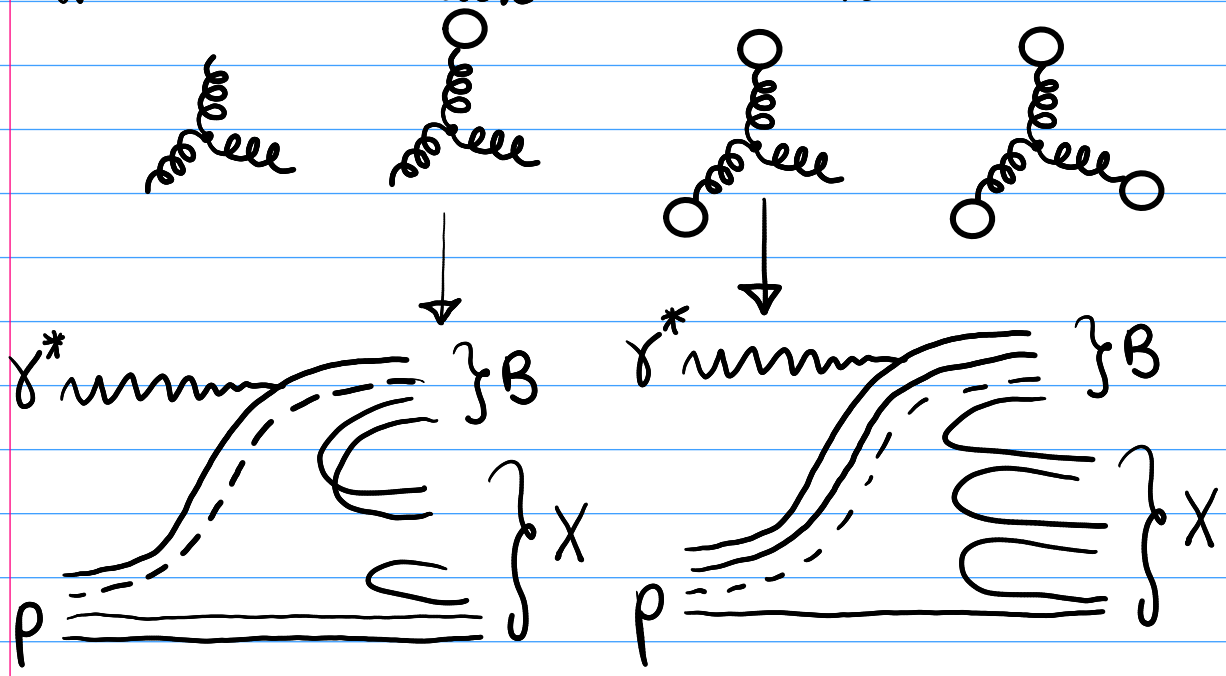
Is the verton transferred in the TDA picture?



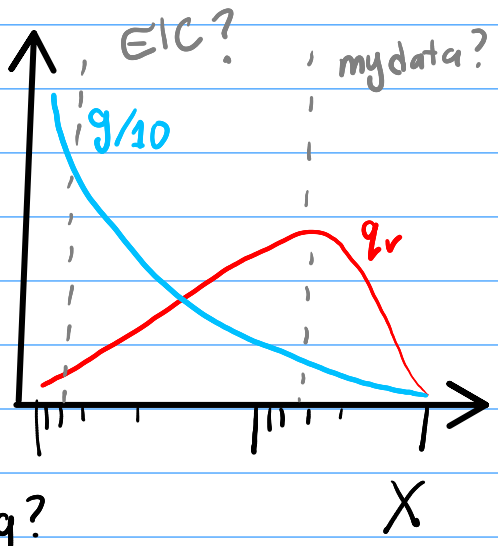


The observables of DEMP are not sensitive to the difference. u-channel SIDIS would be more sensitive:

u-channel SIDIS could involve transfer of verton + 0-3g



However, Bill suspects a comparison of DEMP over a range of x_B might give insight.



Consider PDFs:

- if DEMP involves transfer of 3 valence quarks + no verton, σ should scale as q_v
- if the reaction mechanism is primarily verton, should it scale as g?
- if both, how would σ scale?