The Efremov-Leader-Teryaev sum rule

$$\int x(g_1^V+2g_2^V)dx=0$$

or, using transverse and longitudinal SF: $\int xg_L^V dx=2\int xg_T^V)dx$

In lepton DIS framework, follows from gauge invariance
More generaly, follows from structure and gauge properties of hadronic matrix elements involved in g_1 and g_2.

- "Exact Sum rule" ? (does not need to rely on neglecting twist 3)
- Not from OPE (cannot be written as matrix elements of local op.)
- Set of sum rules (ELT, WW and BC sum rules are part of them)
- Valid at any Q^2 ?
- Low-x issue minimized.

- If twist 3 matrix elements are small, then:

$$\int x(g_1+2g_2)dx=0$$

- If sea is isospin invariant, then:

$$\int x(g_1^p+2g_2^p-g_1^n-2g_2^n)dx=0$$

World data: -0.011 ± 0.008 $<Q^2>5$ GeV^2

Is it interesting to form this sum ? Can we learn about HT, duality, valence/sea, isospin violation, ... ?

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