Superconducting glue: are there limits on T_c?

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The restrictions due to requirements of stability for the possible mechanisms of high-temperature superconductivity are discussed. The condition for the static dielectric function to be positive is reexamined. It is argued that the static dielectric function not only can but indeed must be negative in many stable systems, including most of the conventional metals. In the literature up to now a number of incorrect and unfounded statements exist. One of these - that the static dielectric function cannot be negative - is discussed in detail, as well as its consequence, a strong coupling limit on the transition temperature T_c. Proofs are given that the static dielectric function not only can but indeed must be negative in many stable systems, including most of the conventional metals. Various types of electron - electron interaction in superconducting cuprates are discussed. An importance of the electron - phonon interaction in cuprates is highlighted. The role of spin-fluctuations effects in novel multiband superconductors is considered.