In simple applications one deals usually with non-essential non- linearities of perturbative nature, when some well-defined linear background does exist and nonlinearity appears merely as a correction term. Then various perturbative treatments are used. This approach is mathematically non-reliable and physically artificial. The "true", essential nonlinearity appears when there is no linear background and some constructive methods must be used. It turns out that, as a rule, physically interesting essential nonlinearities appear in systems with appropriate "large" symmetry groups. Moreover, it is rather typical that for such high-symmetric problems the corresponding nonlinearity is not introduced "by hand" but just implied, quite often almost uniquely, by the symmetry demands. General covariance, gauge invariance and Born-Infeld schemes are typical, most convincing examples. We present certain mechanical and field- theoretic models of this kind and discuss their range of applications. It is rather wide and covers so mutually remote subjects like field theory, string theory, continuum mechanics, shell and membrane dynamics and integrable Hamiltonian systems. Certain ideas concerning possible nonlinearities in quantum mechanics are suggested.