1118-30-63   **Dylan P Thurston*** (`dpthurst@indiana.edu`), 831 E. Third St, Bloomington, IN 47405. *Elastic graphs and degenerations of complex structures.* Preliminary report.

We describe a notion of a "p-conformal graph" (essentially a metric graph, but with a particular interpretation of the metric) and energies E_q^p for maps from a p-conformal graph to a q-conformal graph. Special cases include the length of a curve, Dirichlet (rubber-band) energy, Lipschitz stretching factor, and a versino of extremal length. The energies are sub-multiplicative, in the sense that

$$E_r^p(g \circ f) \leq E_q^p(f)E_r^q(g).$$

The same inequality is true if we minimize over homotopy classes. Furthermore, these inqualities are all tight in a fairly strong sense. In particular, we can use this to characterize when one rubber-band network is "looser" than another, which can in turn be used to give a necessary condition and a sufficient condition for one degenerating family of Riemann surfaces embeds inside another in a given homotopy class. (Received January 20, 2016)