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Uppsala, Uppland, Sweden. *Concentration profiles for Moser-Trudinger functional look like toy
pyramids.*

We study concentration phenomena of critical sequences for semilinear elliptic functionals of Moser-Trudinger type. We show, that, up to a remainder vanishing in the Sobolev norm, any such sequence is a sum of elementary concentrations of the form $j_k^{1/2}w(|x - x_0|^{j_k})$, with $j_k \rightarrow \infty$, and the radial "concentration profiles" w have a peculiar shape reminding of a toy pyramid for toddlers.

Unlike their counterpart in higher dimensions, the Talenti solution, which is unique up to rescaling transformations, the set of "toy pyramids" is essentially uncountable. Since, unlike the higher dimensions, an elementary concentration of a critical sequence is not necessarily a critical sequence (See e.g. the paper of Adimurthi and Prashanth), we show that every rescaling sequence of a toy pyramid defines a critical sequence up to a remainder vanishing in the energy norm. (Received January 21, 2015)