Group invariance and Pohozaev identity
in Moser type inequalities

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Abstract: We consider embedding inequalities in the so-called limiting Sobolev cases and in particular in dimension two. Differently from J. Moser, we consider optimal embeddings into Zygmund spaces: we derive related Euler-Lagrange equations, and show that Moser’s concentrating sequences are the solutions of these equations and thus realize the best constants of the related embedding inequalities. Furthermore, we exhibit a group invariance, and show that Moser’s sequence is generated by this group invariance and that the solutions of the limiting equation are unique up to this invariance. As a consequence, we derive a related Pohozaev identity and use it to prove that equations related to perturbed optimal embeddings do not have solutions.