The Relative Consistency of $\mathfrak{g} < \mathrm{cf}(\mathrm{Sym}(\omega))$

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We give a forcing construction for a model where the groupwise density number $\mathfrak{g}$ is $\aleph_1$ and the bounding number, $\mathfrak{b}$ and the cofinality of the symmetric group, $\mathrm{cf}(\mathrm{Sym}(\omega))$, are both $\aleph_2$.

Simon Thomas asked whether $\mathfrak{g} \neq \mathrm{cf}(\mathrm{Sym}(\omega))$ is consistent [**?**, Question 3.1].

Though the iterands have the countable chain condition and iteration is with finite supports, the construction works so far only for length $\aleph_2$ because of the preservation theorems we prove along the way.

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