

# On the equivalence between a conjecture of Babai-Godsil and a conjecture of Xu concerning the enumeration of Cayley graphs

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## Abstract

In this paper we show that two distinct conjectures, the first proposed by Babai and Godsil in 1982 and the second proposed by Xu in 1998, concerning the asymptotic enumeration of Cayley graphs are in fact equivalent. This result follows from a more general theorem concerning the asymptotic enumeration of a certain family of Cayley graphs.

*Keywords: Regular representation, Cayley graph, automorphism group, asymptotic enumeration, graphical regular representation, GRR, normal Cayley graph, Babai-Godsil conjecture, Xu conjecture.*

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# Ekvivalentnost domnev Babai-Godsila in Xuja o preštevanju Cayleyevih grafov

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## Povzetek

V tem članku pokažemo, da sta dve različni domnevi o asimptotskem preštevanju Cayleyevih grafov, in sicer prva, ki sta jo postavila Babai in Godsil leta 1982, in druga, ki jo je postavil Xu leta 1998, dejansko ekvivalentni. Ta rezultat sledi iz splošnejšega izreka o asimptotskem preštevanju določene družine Cayleyevih grafov.

*Ključne besede: Pravilna predstavitev, Cayleyev graf, grupa avtomorfizmov, asimptotsko preštevanje, pravilna predstavitev z grafi, normalen Cayleyev graf, Babai-Godsilova domneva, Xujeva domneva.*

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