1145-11-491 **David Zureick-Brown*** (dzb@mathcs.emory.edu), 400 Dowman Drive, Atlanta, GA 30322, and **Jordan Ellenberg** and **Matthew Satriano**. *Counting points, counting fields, and heights on stacks.*

A folklore conjecture is that the number $N_d(K, X)$ of degree-d extensions of K with discriminant at most d is on order c_d X. In the case K = Q, this is easy for d=2, a theorem of Davenport and Heilbronn for d=3, a much harder theorem of Bhargava for d=4 and 5, and completely out of reach for $d > 5$. More generally, one can ask about extensions with a specified Galois group G; in this case, a conjecture of Malle holds that the asymptotic growth is on order $X^a(logX)^b$ for specified constants a,b.

The form of Malle's conjecture is reminiscent of the Batyrev–Manin conjecture, which says that the number of rational points of height at most X on a Batyrev–Manin variety also grows like $X^a(logX)^b$ for specified constants a,b. What's more, an extension of Q with Galois group G is a rational point on a Deligne-Mumford stack called BG, the classifying stack of G. A natural reaction is to say "the two conjectures is the same; to count number fields is just to count points on the stack BG with bounded height?" The problem: there is no definition of the height of a rational point on a stack. I'll explain what we think the right definition is, and explain how it suggests a heuristic which has both the Malle conjecture and the Batyrev–Manin conjecture as special cases. (Received September 07, 2018)