

# How can we classify universal theorems (that is, of the Fermat's-last-theorem type)?

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Kreisel, a long time ago, posed the question “What more than its mere truth do we know if we have proved a theorem by restricted means?” For statements of complexity  $\Pi_2^0$ , that is, of arithmetical  $\forall\exists$  form, and higher complexities answers have been provided by Gentzen, Gödel, Kreisel etc., using such methods as Cut Elimination and the Dialectica and No-Counterexample interpretations. However, for  $\Pi_1^0$ -theorems it appears that we still have no good answer. H. Friedman referred to this problem as one of the few great mysteries of f.o.m. The talk will survey the situation and look at possible answers.