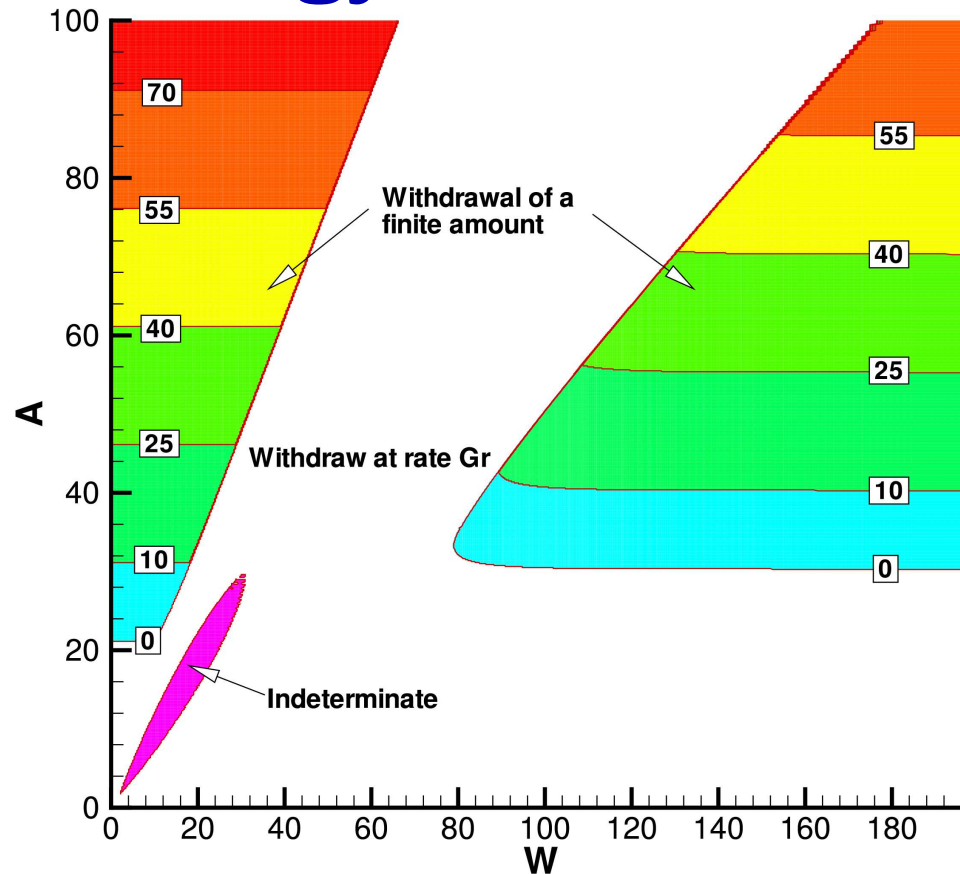


# Optimal Strategy: GMWB Guarantee



Contour plot for the optimal withdrawal strategy of a Guaranteed Minimum Withdrawal Benefit (GMWB) guarantee at  $t = 0$  in the  $(W, A)$ -plane.  $W$  represents the amount invested in a risky asset, and  $A$  is the guarantee amount. The initial premium is \$100, with  $\sigma = .30$ ,  $r = .05$  and  $T = 10$  years. The holder can withdraw  $G_r = \$10$  per year without penalty. In the regions of withdrawing finite amounts, contour lines representing the same withdrawal levels are shown, where the withdrawal amounts are posted on those contour lines. In the region labelled indeterminate, any withdrawal rate  $[0, G_r]$  is optimal.