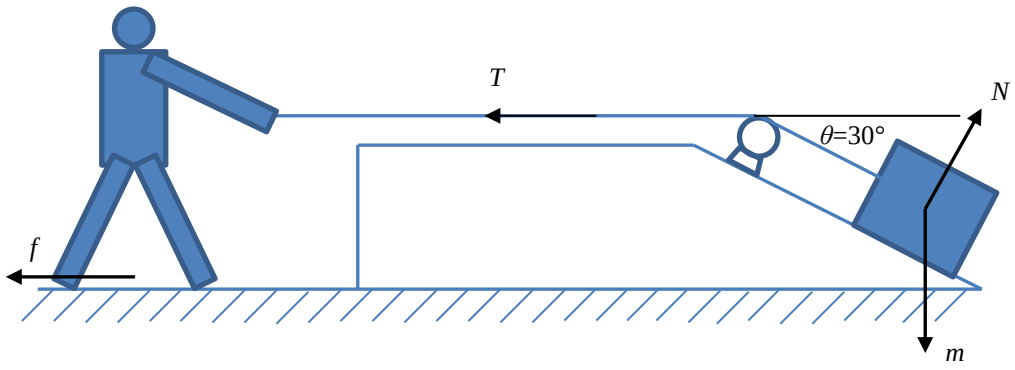
2. A man is pulling a crate on a frictionless slant. If the weight of the crate follows a normal distribution $m \sim N(90, 1^2)$ kg. (1) Determine the distribution of the minimum force T for the man to pull the crate. (2) If the man has a weight of 85kg and the static friction between him and the floor follows another normal distribution $\mu_s \sim N(0.55, 0.01^2)$, which is independent from m, determine the probability that man may fail to pull the crate if he uses the minimum force T.



Answer: (1) $T \sim N(441.45, 4.91)$ N

(2) $P = 0.038$