

Since  $T_n = \{0, 1\}^{10 \log_2(n)}$  we have  $2^{10 \log_2(n)}$  possible tags, and since  $M_n = K_n = \{0, 1\}^n$  we have  $2^n$  possible messages and  $2^n$  possible keys. Which means that we have much more messages than tags.

$$Pr[\text{Mac-Forge}_{A,\Pi}(n) = 1] = \frac{1}{2^{10 \log_2(n)}} \approx \frac{1}{2^{\log_2(n)}} = \frac{1}{n} > \text{negl}(n)$$

When the last equality comes from logarithm rules. This contradicts Definition 4.2 ■.