

CS 525: Theory of Computation

Problem Set 5

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5.28 **Solution:** By contradiction, assume M decides P :

N : on input (M, w)

- (a) Obtain code of $\langle M \rangle$
- (b) Simulate M on w
- (c) If M accepts w , reject, otherwise accept.

Then $N(M, w)$ returns the opposite of M , and therefore no M exists for an arbitrary P .