

Name: Kevin Zhang

If we let  $L_1 = \{a^n b^m \mid n < m\}$ , and  $L_2 = \{a^n b^m \mid n > m\}$   $L = \{a, b\}^* - \{a^n b^n \mid n \in \mathbb{N}\}$  can be expressed as  $L_1^* \cup L_2^* \cup (L_1^R)^* \cup (L_2^R)^*$ . Union, Reveseral, and Star are closed under context-free languages, so  $L$  must also be context-free.