

作业 3

1. 根据题意可以构造如下CFG

令 $P = \{S \rightarrow aSb|aAd, A \rightarrow bAc|bc\}$

所构造的CFG为 $G_1 = \{\{S\}, \{a, b, c, d\}, P, S\}$

2. 根据题意可以构造如下CFG

令 $P = \{S \rightarrow AM|MB, A \rightarrow aA|a, B \rightarrow Bb|b, M \rightarrow aMb|\varepsilon\}$

所构造的CFG为 $G_2 = \{\{S, A, B, M\}, \{a, b\}, P, S\}$

3. 根据题中所给CFG，构造其对应PDA的状态转移函数 δ

$$\delta(q, \varepsilon, S) = \{(q, A)\}$$

$$\delta(q, \varepsilon, S) = \{(q, 0S1)\}$$

$$\delta(q, \varepsilon, A) = \{(q, 1A0)\}$$

$$\delta(q, \varepsilon, A) = \{(q, S)\}$$

$$\delta(q, \varepsilon, A) = \{(q, \varepsilon)\}$$

$$\delta(q, 0, 0) = \{(q, \varepsilon)\}$$

$$\delta(q, 1, 1) = \{(q, \varepsilon)\}$$

故其PDA = $\{\{q\}, \{0, 1\}, \{S, A\}, \delta, q, S, \emptyset\}$