

$$S \rightarrow c h a / c S h b a / c S h a / c S h b S h a$$

HW2

2. Construct a cly for $L = \{a^m b^m c^h \mid h = m + m\}$

$$S \rightarrow a S c / a T c / a c \quad T \rightarrow b T c / b c \quad Q \rightarrow S T$$

$$a^m b^m c^h \in L(G)$$

$$t \in \mathbb{N} \Rightarrow T \xrightarrow{+} (b c)^t \Rightarrow (b c)^t \in L(G)$$

$(b c)^t \in L(G) \text{ st. } h = m, m = 0 \quad (a)$

$$q \in \mathbb{N} \Rightarrow S \xrightarrow{q} (a c)^q / a^q T c^q$$

$? (a c)^q \in L(G) \Rightarrow (a c)^q \in L(G) \text{ st. } h = m, m = 0 \quad (b)$

$? a^q T c^q \in L(G) \Rightarrow a^q T c^q \rightarrow a^q (b c)^z c^q, z \in \mathbb{N}$

$a^q b^z c^z c^q \in L(G) \quad h = m + m = z + q \quad (c)$
 $m = q \quad m = z$

$$(a), (b), (c) \Rightarrow L = L(G)$$