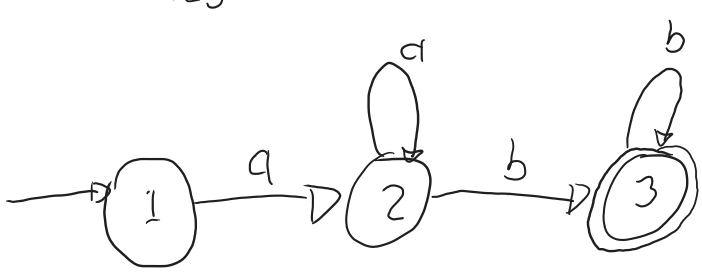
To C: Summative Assignment

1.1./ a./ No

b./ No

c./ Yes

1.2./



1.3./ $\Rightarrow R_1 ::= a R_2$

$R_2 ::= a R_2 \mid b R_3$

$R_3 ::= b R_3 \mid \varepsilon$

2.1./

Leftmost Derivation of abbba:

$S \rightsquigarrow a S a$

$\rightsquigarrow a B a$

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2.2./ $L(G) = \{a^n b^m a^n \mid n \geq 0, m \geq 1\}$

2.3./ This is non-regular, an example of the matching Problem. Suppose we are given a DFA that recognizes $L(G)$, consider the state after reading a^n. this state then accepts b^m, and then a^n, but not the word a^x for $x < n$. Hence all states prior to the b's are inequivalent to the a^x states. Therefore the state has infinitely many states, and thus is not finite or regular.

3./ No, the RGB Gamut often uses 256 discrete values for denoting the prescence of red, green and blue in a colour. This cannot describe the infinite number of colours in the ideal light Spectrum, even if the quantization was minimized.