

$$a) m = (\{p, q\}, \Sigma, v, \Delta, p, \{q\})$$

$$\Sigma = \{ (,), [,] \} \quad V = \{ S, (,), [,] \}$$

$$\Delta = \{ ((s, a, e), (s, a)), ((s, e, e), (f, e)), ((f, b, a), (f, e)), ((f, b, a), (g, e)), ((g, b, c), (f, e)) \}$$

$$\Delta = \{ (q_1, a, e), (q_2, c), (q_2, a, e), (q_2, a), (q_2, b, e), (q_2, b), (q_2, a, c), (q_3, e), (q_2, b, c), (q_3, c), (q_2, c, e), (q_3, c), (q_3, a, e), (q_3, e), (q_3, b, b), (q_3, e), (q_3, c, e), (q_4, e) \}$$

$$\Delta = \{ ((s, b, e), (s, B)), ((s, b, A), (s, e)), ((s, a, B3), (s, e)), ((s, a, e), (s, AA)), ((s, a, B), (s, A)) \}$$

$$\Delta = \{((p, e, e), (q, s)), ((q, e, s), (q, e)), ((q, e, s), (q, ss)), ((q, e, s), (q, (s))), ((q, e, e), (q, e)), ((q), ()), (q, e)\}$$

$$\begin{aligned} & (p, (c), e) \vdash (q, (c), s) \vdash (q, (c), (s)) \vdash (q, (c), s)) \\ & \vdash (q, (c), ss) \vdash (q, (c), (s)s) \vdash (q, (c), s)s \vdash \\ & (q, (c),)s) \vdash (q, (c), s) \vdash (q, (c), ss) \vdash (q, (c), (s)s) \\ & \vdash (q, (c), s)s) \vdash (q, (c),)s) \vdash (q, (c), s) \vdash (q, (c),) \vdash (q, c, e) \end{aligned}$$

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