# 1 Apply the taylor series method to the L1 model

Define the L2 model statespace function and output function.

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$$F := [k_{a1} C_T (R - x_1) - k_{d1} x_1]$$
$$H := \alpha\, x_1$$

Generate the first n derivatives of the output in either phase.

Consider two parameter vectors giving equal the output in the dissociation.

$$Sd := [\{k_{d1} = kh_{d1}, kh_{d1} = kh_{d1}, x_1 = xh_1, xh_1 = xh_1\}]$$

Consider two parameter vectors giving equal the output in the Association.

$$1 := [\Big\{ R = R, Rh = \frac{R\,(Ch_T kh_{a1} - k_{d1} + kh_{d1})}{Ch_T kh_{a1}}, C_T = \frac{Ch_T kh_{a1} - k_{d1} + kh_{d1}}{k_{a1}}, Ch_T = Ch_T, k_{a1} = k_{a1}, k_{d1} = k_{d1}, kh_{a1} = kh_{a1}, kh_{d1} =$$

For a parameter vector to give equal output in both phases it must satisfy the following.

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$$R = Rh$$
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$$C_T = \frac{Ch_T kh_{a1}}{k_{a1}}$$
$$Ch_T = Ch_T$$
$$k_{a1} = k_{a1}$$
$$k_{d1} = kh_{d1}$$
$$kh_{a1} = kh_{a1}$$
$$kh_{d1} = kh_{d1}$$
$$x_1 = xh_1$$
$$xh_1 = xh_1$$