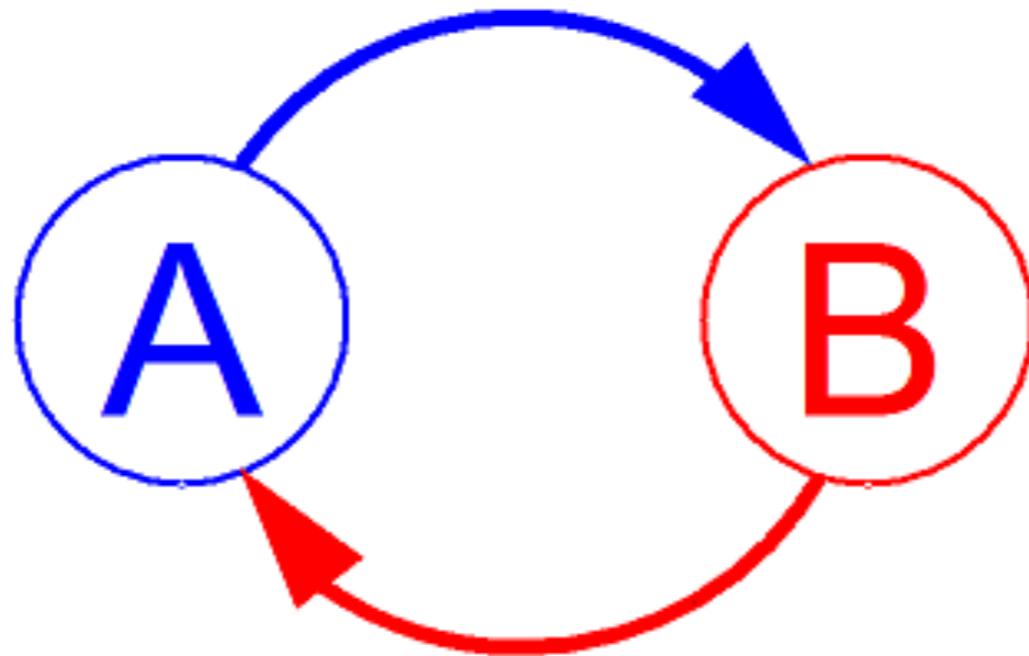# Systems Thinking: Systems modeling feedback presentation
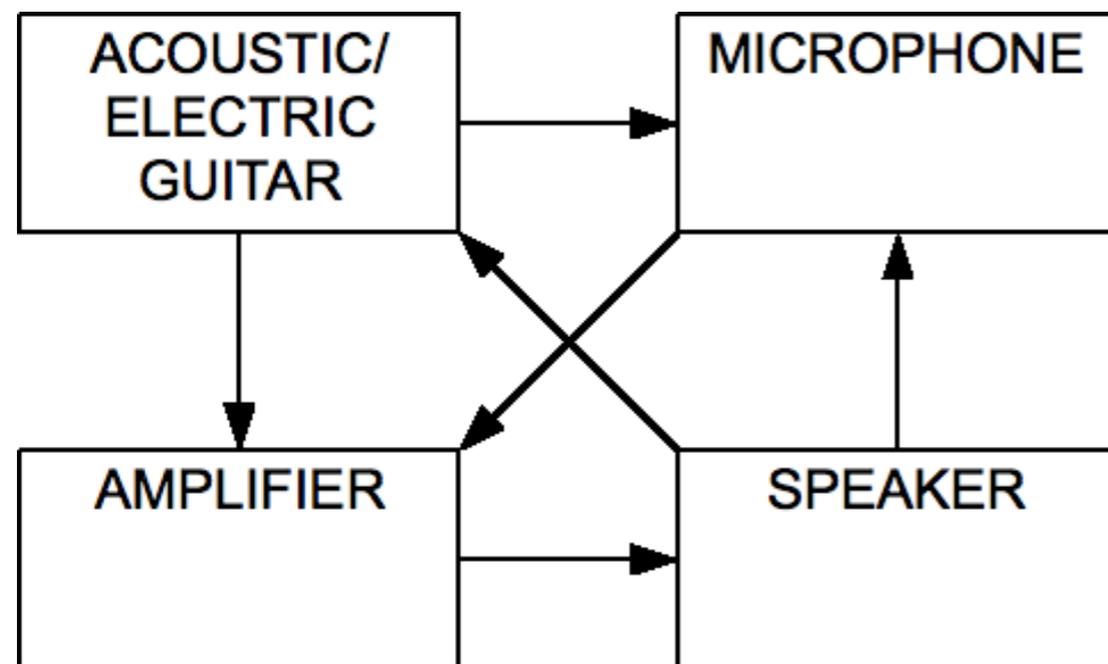
Feedbacks in a system

- Feedback exists between two components of a system when each affects the other.
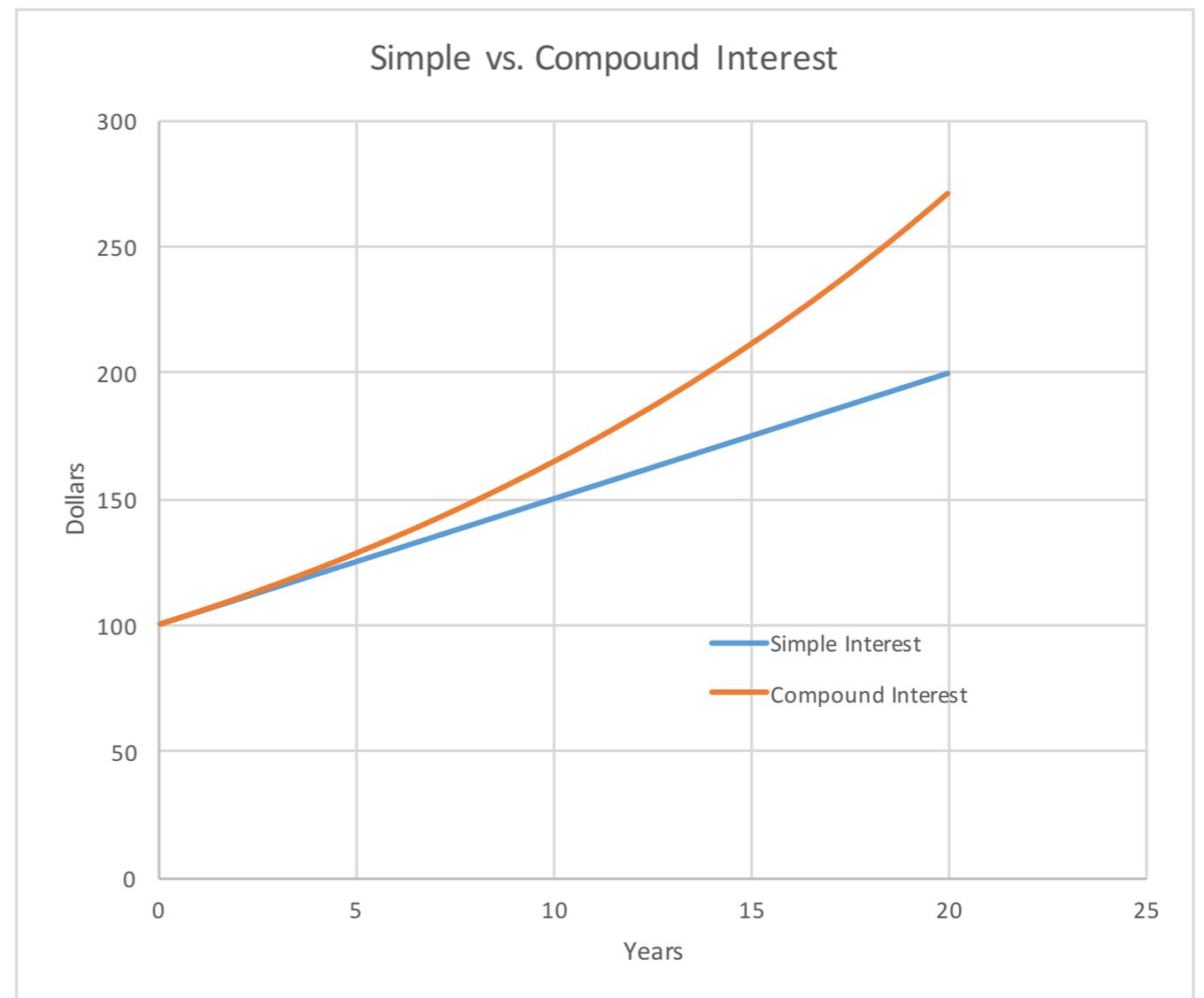
Feedbacks can cause undesirable outcomes…
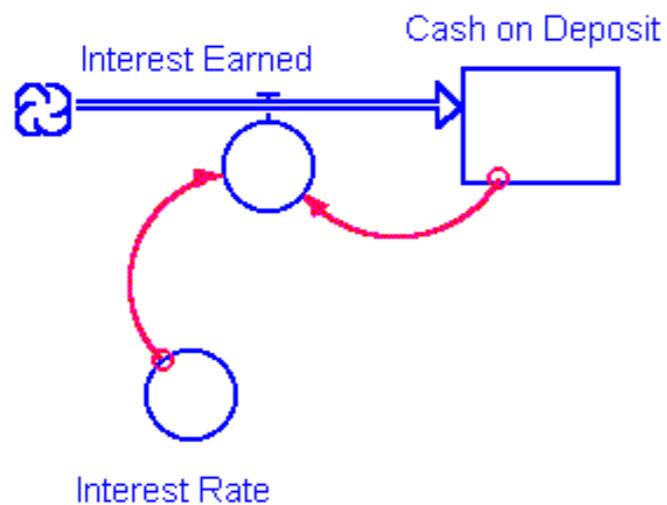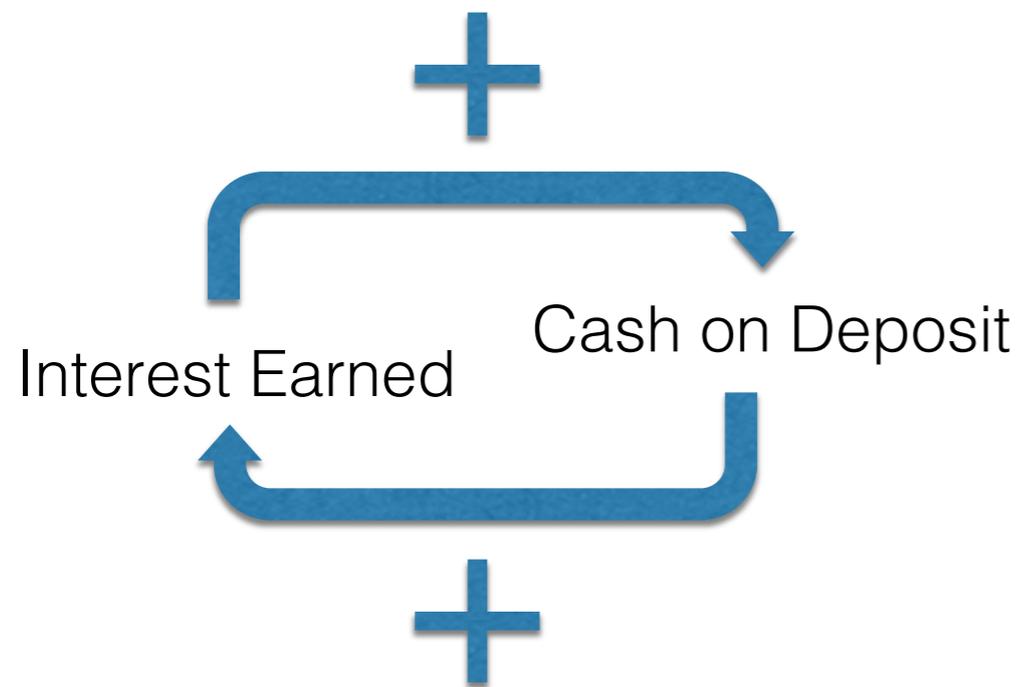
- We have all probably covered our ears when experiencing audio feedback.

Feedbacks can cause desirable outcomes ...

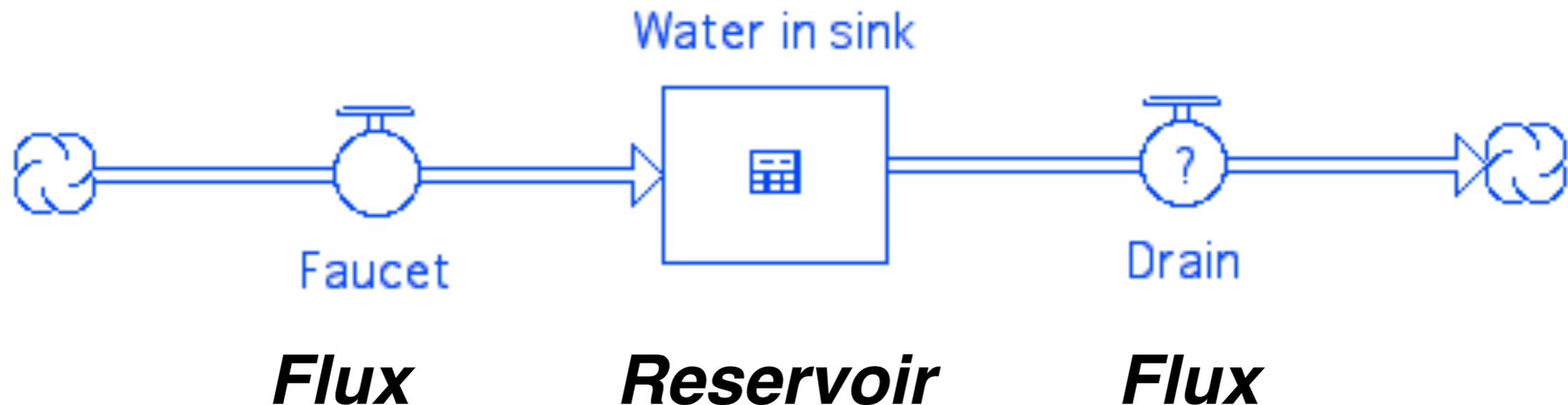- Compound interest in finance is a feedback, and a very useful one

Interest Earned

Cash on Deposit

Simple vs. Compound Interest

Systems model of the bathtub — review

- A STELLA model of a bathtub from Unit 3 includes a reservoir for the bathtub, and two flows that represent the faucet and drain.
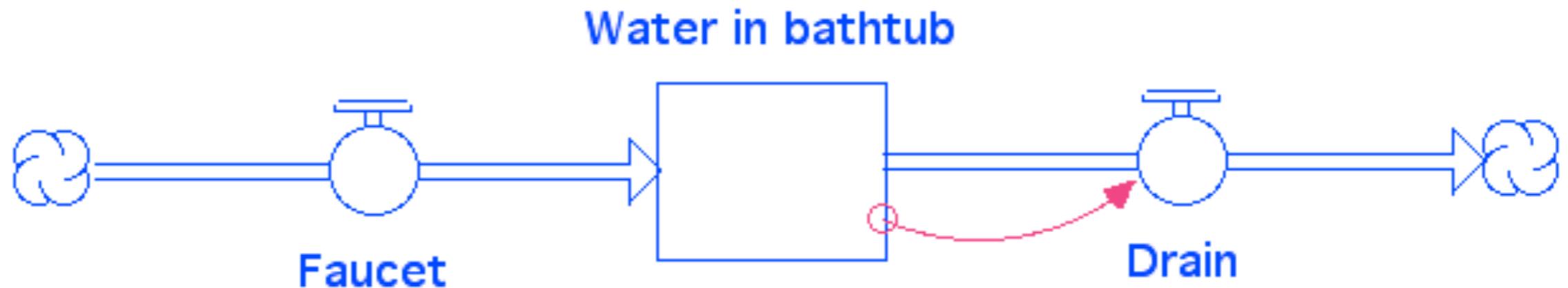

Flux   **Reservoir**   **Flux**

In this case, the inflow and outflow rates are **independent** of reservoir size.

Adding a feedback loop

- Now we will make the flow rate of the Drain dependent on the size of the reservoir in Unit 4 Bathtub Model_Exp1

- In equation form, Drain = 0.1 * Water in Sink

Water in bathtub

Faucet

Drain

Systems diagram of this new configuration