Systems Theory in Design
Exercises

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Government

What is government?

– What is the simplest possible model?
– What actors should be included?
– Do you need more than citizens, laws, government?
– What are their relationships?

Extra credit: What about rights, property, and taxes?
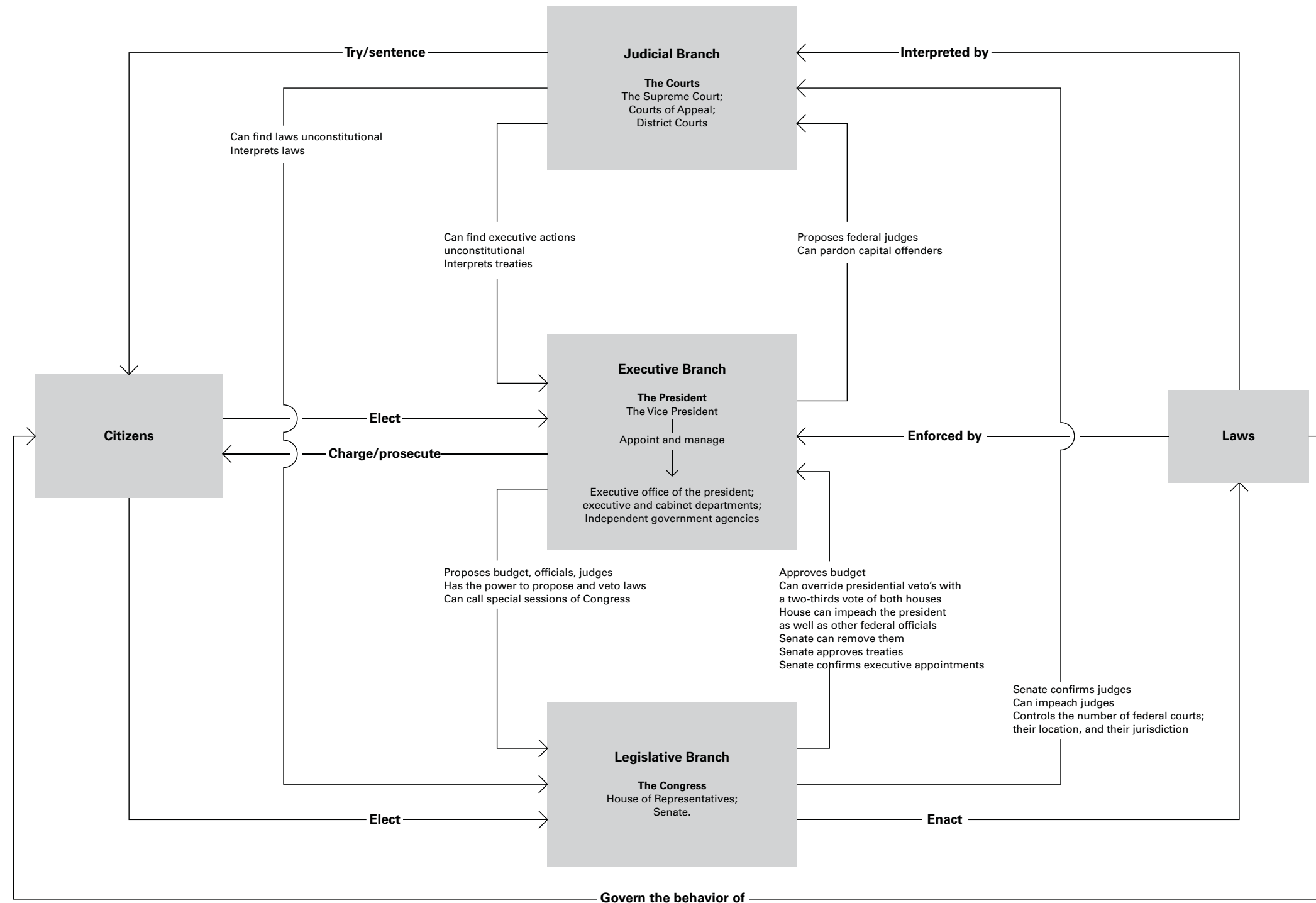– What are the goals of government?

What are the types or forms of government?

How might you model the differences between the following types? i.e., what are their structural differences?

— Monarchy
— Oligarchy
— Republic
— Democracy
— Anarchy

Extra credit: How do these systems fail?

The U.S. federal government is divided into three branches.

Citizens

Judicial Branch

The Courts
The Supreme Court;
Courts of Appeal;
District Courts

Executive Branch

The President
The Vice President

Appoint and manage

Executive office of the president;
executive and cabinet departments;
Independent government agencies

Legislative Branch

The Congress
House of Representatives;
Senate.

Laws

Try/sentence

Interpreted by

Can find laws unconstitutional
Interprets laws

Can find executive actions
unconstitutional
Interprets treaties

Proposes federal judges
Can pardon capital offenders

Elect

Charge/prosecute

Enforced by

Proposes budget, officials, judges
Has the power to propose and veto laws
Can call special sessions of Congress

Approves budget
Can override presidential veto's with
a two-thirds vote of both houses
House can impeach the president
as well as other federal officials
Senate can remove them
Senate approves treaties
Senate confirms executive appointments

Senate confirms judges
Can impeach judges
Controls the number of federal courts;
their location, and their jurisdiction

Elect

Enact

Govern the behavior of

What is the structure of government in Ireland?

– What actors should be included?
– What are their relationships?
– How can you represent (model) those relationships?

Government and climate change

What is the mechanism of global warming?

— What green-house gases are key?
— What are their sources?
— What is driving their growth?
— What results are likely?
— How could you model these elements as a system?

How might we "control" deforestation?

– Deforestation is a component of global warming.
– Let's assume a satellite system providing 1m² images of the whole earth daily.
– How might it aid us in "controlling" deforestation?
– What might the technical (software) platform look like?
– What sorts of human (social/governmental) structures (platforms) might be needed?
– How could you represent this "control" as a feedback loop or loops?

Extra credit: How might you balance deforestation with food security?

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