

FYS: *Progress?*
Fall 2021

Prisoner's Dilemma

Bonnie and Clyde are arrested for a string of robberies. Each has been given reason to believe (through their attorneys) that the DA has resolved as follows:

- 1) If each remains silent, each will receive 1 year in jail.
- 2) If both confess, each will receive 10 years in jail.
- 3) If one remains silent and the other confesses, the confessor is released while the other goes to jail for 20 years.

We must bear in mind that both Sally and Bobby are (a) rational, (b) motivated to secure the shortest sentence for themselves, and (c) know that each has the same information as the other. We can represent their situation in this way:

	Clyde confesses	Clyde does not confess
Bonnie confesses	10 / 10	0 / 20
Bonnie does not confess	20 / 0	1 / 1

[Where “ x / y ” means that Bonnie receives x years in prison and Clyde receives y years.]

What would it be rational for Bonnie to do? Why?

Let's be more explicit about the principle of reasoning involved here. The action **do not confess** dominates **confess** in the sense that no matter what the other person does **do not confess** leaves you at least as well off as **confess** and sometimes better. A general principle of rationality, the dominance principle, says that *if there is one course of action that dominates all others, it is rational to choose it.*

Now, Bonnie knows that she and Clyde are symmetrically situated (equal in terms of information available, capacity to reason, motivation, etc.). So she knows that whatever she chooses, Clyde will choose as well. So she knows that Clyde will confess, and they will both go to prison for 10 years. But despite this knowledge, rationality demands that she confesses. A paradox?

Possible solutions?

- Might allowing full communication between Bonnie and Clyde prior to their (privately-made) decision help get out of the quandary? Is the problem generated by the fact that they haven't been able to plan what they would do under these circumstances?

- Since Bonnie knows Clyde will do whatever she does, it's actually rational (but what about the dominance principle!?) for her to choose not to confess – for then Clyde will do likewise and they will each receive 1 year in prison.
- Or is this problem an indictment of self-centered reasoning: Bonnie and Clyde are described as motivated solely by the desire to get the shortest prison sentence for themselves.

Let's consider a “real-world” application of this: competitive consumerism. Let's assume that superior social status is more important to us than additional work and that superior social status is obtained by having things that others don't have.

	Douglas works very hard to buy a Tesla	Douglas does not work very hard to buy a Tesla
George works very hard to buy a Tesla	Equal social status and exhaustion (for both)	Superior social status and exhaustion / Inferior social status and leisure time
George does not work very hard to buy a Tesla	Inferior social status and leisure time / Superior social status and exhaustion	Equal social status and leisure time (for both)

Is there a dominant course of action? Yes: working hard for a Tesla. Note how that leaves Douglas and me in a worse off position than if neither of us worked hard.

And another one: grade competition. Let's assume that superior grades – i.e., ones above the norm – are more important to students than living a relaxed life.

	Others work hard for As	Others don't work hard for As
I work hard for As	Grade equality and exhaustion	Superior GPA and exhaustion / Inferior GPAs and well being
I don't work hard for As	Inferior GPA and well being / Superior GPAs and exhaustion	Grade equality and well being

Is there a dominant course of action? Yes: working hard for good grades. Note how that leaves you all in a worse off position than if you decided not to work hard for As.