There! If we steal one of those cars, we can get to the base and defuse the bomb!

Hmm, the one on the left accelerates faster but has a lower top speed.

Ooh, the right one has good traction control. Are the roads wet?

Protip: If you ever need to defeat me, just give me two very similar options and unlimited internet access.
There are known knowns; there are things we know we know.

There are known unknowns; that is to say we know there are some things we do not know.

There are also unknown unknowns—the ones we don’t know we don’t know.

There are unknown knowns, which is when an association that appears strong in the past is the result of an unknown variable factor that makes predictions unreliable.
“Judgment involves determining what we call the “reward function,” the relative rewards and penalties associated with taking particular actions that produce particular outcomes.”

- What is/are the reward functions in various situations?
Should you take an umbrella?

- Take umbrella
  - Rain (1/4) → Dry plus umbrella
  - Shine (3/4) → Dry plus umbrella

- Leave umbrella
  - Rain (1/4) → Wet
  - Shine (3/4) → Dry without umbrella
“A prediction is not a decision -- it is only a component of a decision.”

– Prediction Machines. Agarwal, et.al.
Prediction + Judgement $\equiv$ Decision
"Open the pod bay doors, Hal"

– 2001: A Space Odyssey
How far should we go?
What’s the judgement call?

1. Skin cancer diagnosis
2. Car repair (not body work)
3. Computer crash analysis/repair
4. Severe weather warnings
5. Stock trades
6. Real estate purchases
7. Building code inspection
8. Prescribed medicine insurance claims
9. Who gets tested for COVID-19
However, judgment is costly. Figuring out the relative payoffs for different actions in different situations takes time, effort, and experimentation.

– *Prediction Machines*. Agarwal, et.al.
“Prediction machines are a tool for humans. So long as humans are needed to weigh outcomes and impose judgment, they have a key role to play as prediction machines improve.”

– Prediction Machines. Agarwal, et.al.