

# Dr. Chun's Numb3rs & Løgic

*Hoosier Millionaire*



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From "Ask Marilyn," Parade Magazine ( July 9, 1995 ), p. 15.



"Our **state lottery** has a weekly TV show. After elimination rounds, one contestant gets the opportunity to win \$1 million. The contestant picks from **four hidden windows**. Behind each is one of the following: \$150,000, \$200,000, \$1 million, or a "stopper."

The contestant may keep picking a window until either **\$1 million** is won or the "**stopper**" is picked - in which case nothing is won. Before playing this final round, the contestant is offered **\$100,000 cash** to stop there.



The same applies to the windows; the contestant can either keep the cash contents of the chosen window and stop there or can pick a new window.

Speaking only statistically, would a contestant be better off to take the **\$100,000** and not play the final round at all?"

- Douglas Offutt, Newburgh, Ind.

**\$1,000,000**

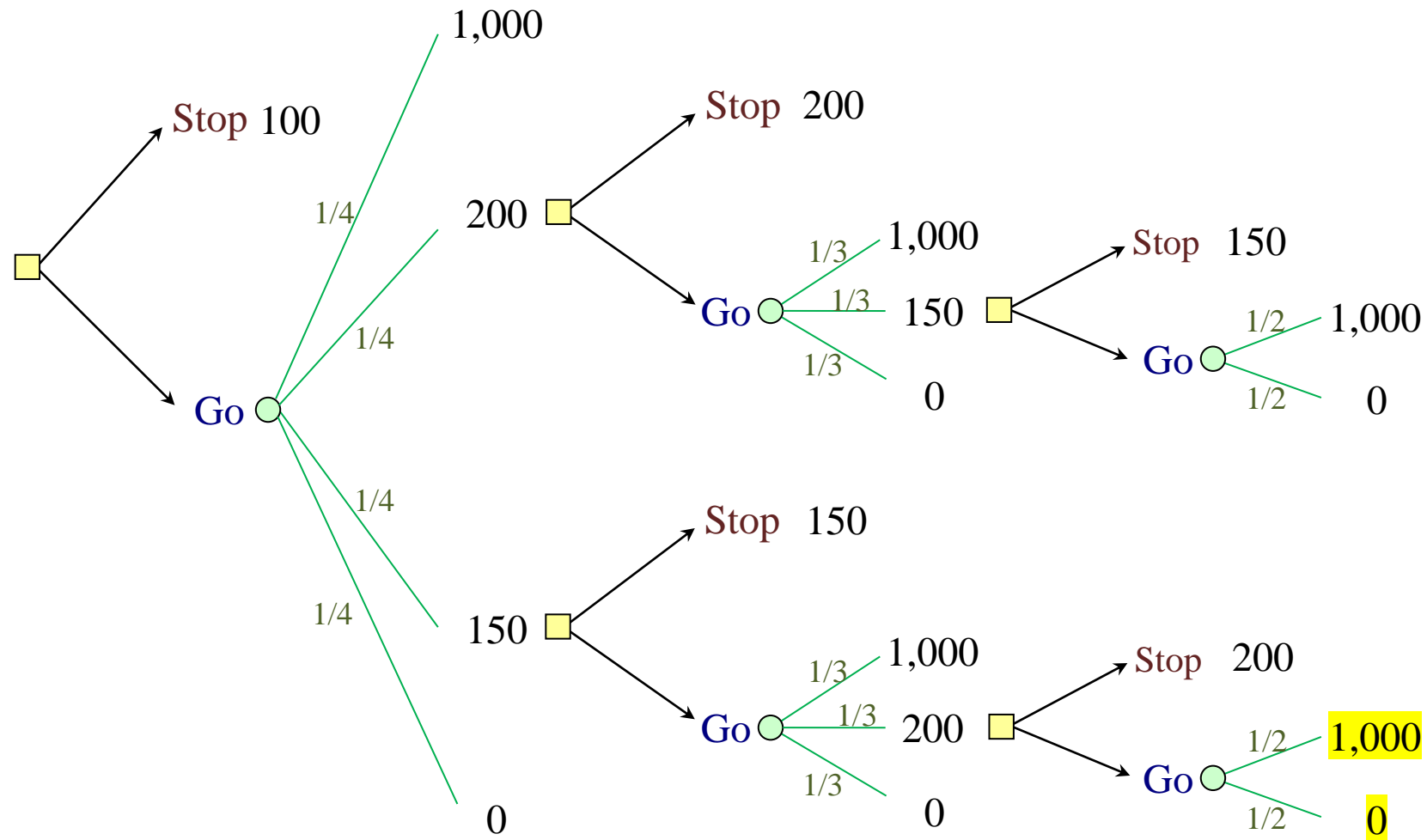
**\$200,000**

**\$150,000**

**\$0**



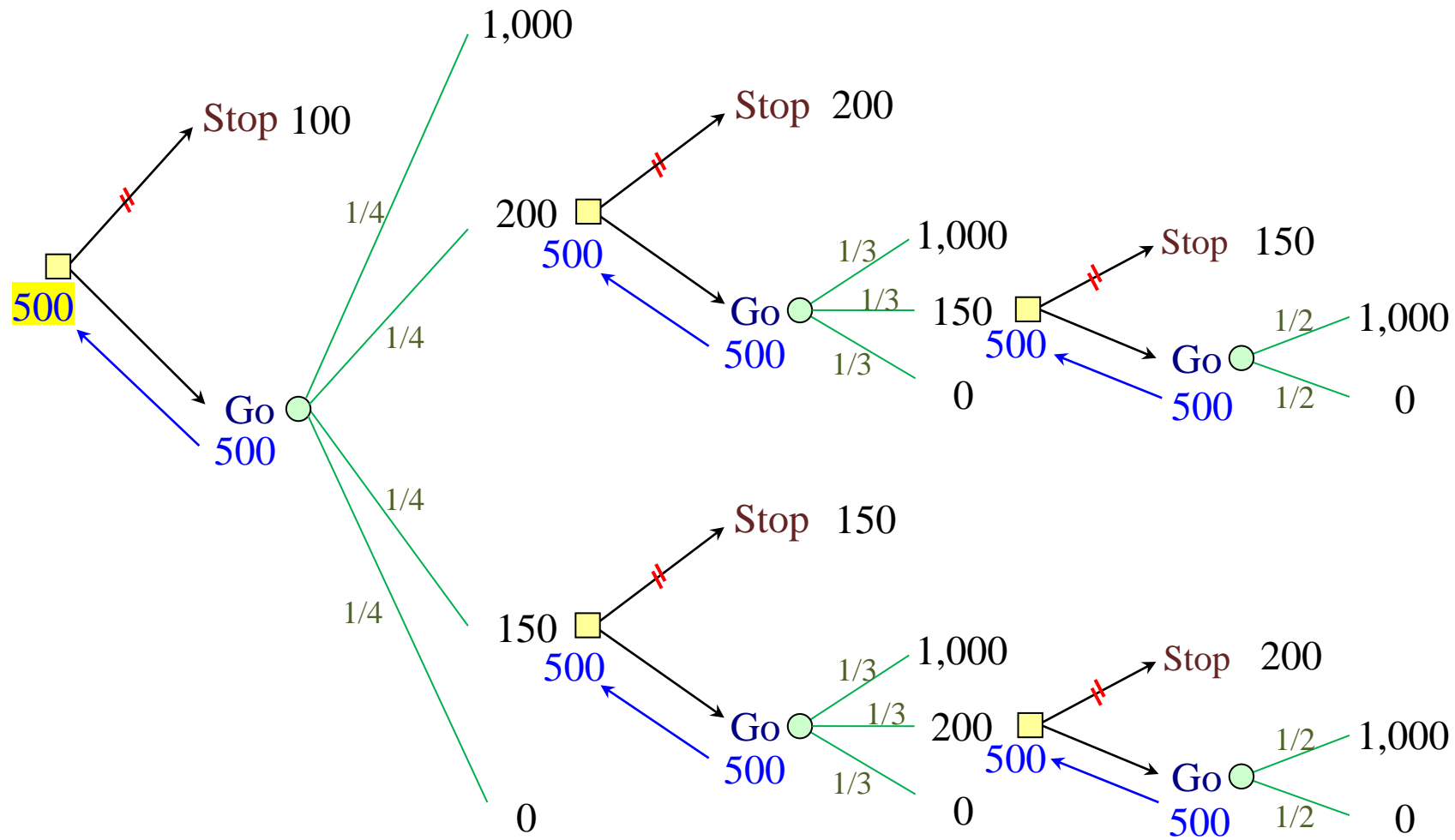
▪ **Decision Tree** and the **Optimal Strategy**



**Biggest tree** you have ever seen?



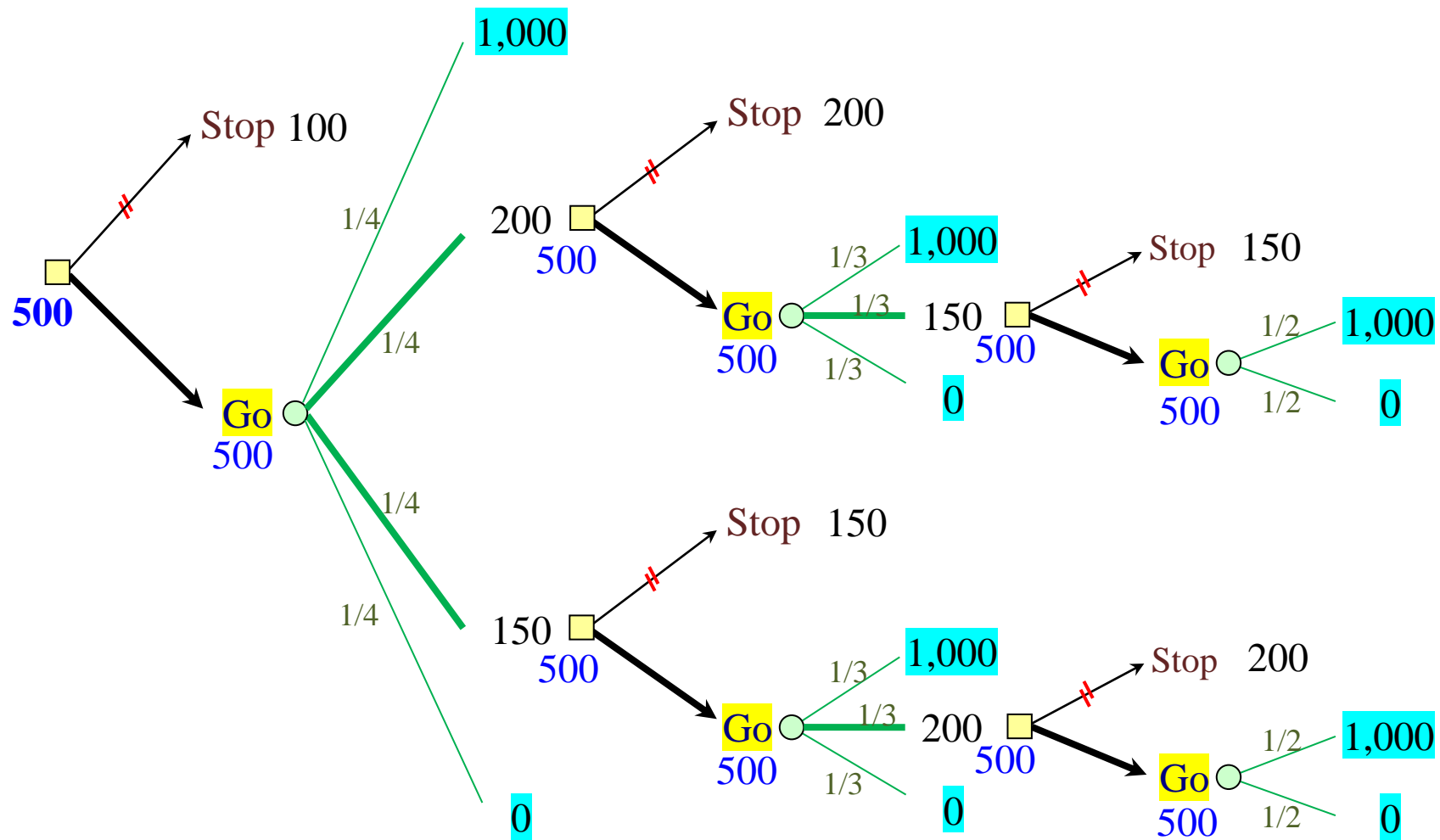
# Decision Tree and the Optimal Strategy



Optimal strategy by backward iterations?



## Decision Tree and the Optimal Strategy



**Never stop!**

Then your expected payoff is **\$500,000!**

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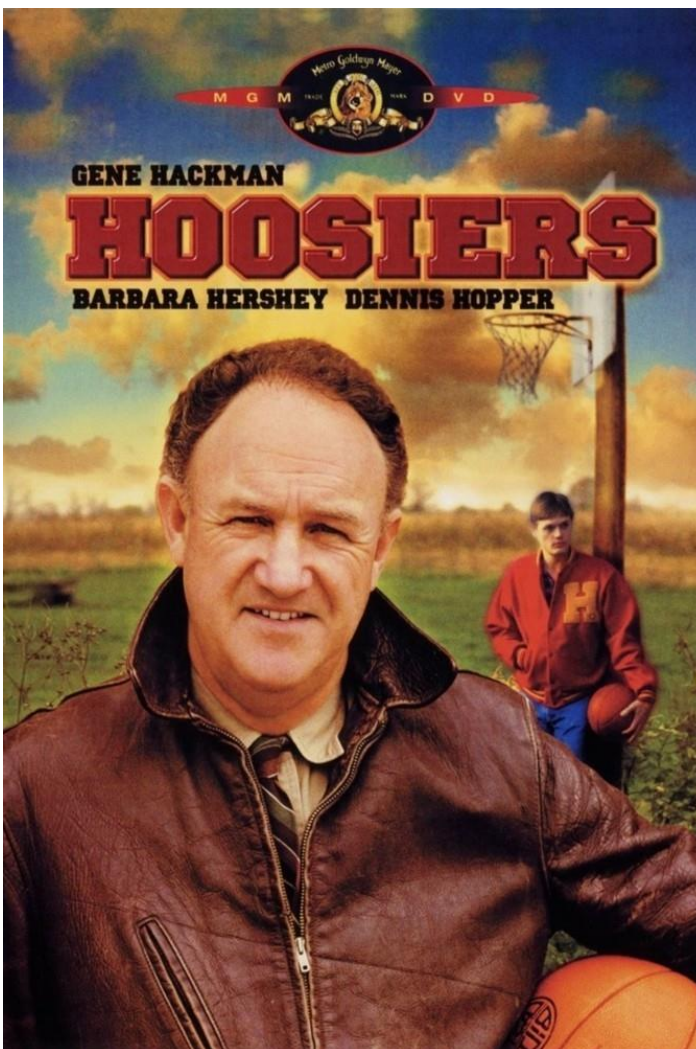
The TV Game Show => **Hoosier Millionaire!**

## Movie Trivia



A **coach** with a checkered past and a local **drunk** train a small town **high school basketball team** to become a top contender for the Indiana State championship.

## Hoosiers (1986)



A **coach** with a checkered past and a local **drunk** train a small town **high school basketball team** to become a top contender for the Indiana State championship.



- Hoosier State => Indiana
- Buckeye State => Ohio
- Keystone State => Pennsylvania
- Empire State => New York
- Magnolia State => Mississippi
- Sunshine State => Florida
- Lone Star State => Texas
- Peach State => Georgia
- Show Me State => Missouri

▪ **Pelican State** => **Louisiana**



# You will see this type of problems in the **final exam!** 😊

# New Orleans Pelicans !

