# An Introduction to the Theory and Practice of Poker

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Johns Hopkins University

# Brief survey, show of hands

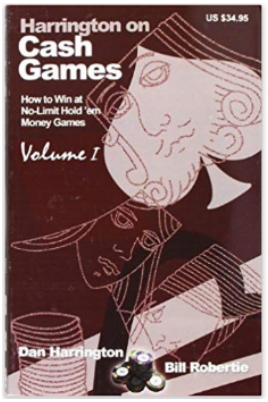
- How many of you (raise your hand):
  - Have never played poker before?
  - Have played poker before?
  - Play poker regularly?
  - Have played poker in a casino?
  - Understand concept of Pot Odds?
  - Know what it means for your hand to be counterfeited?
  - Can figure out side pots?
  - Have won more than $3,000 in a poker tournament?
  - Have won more than $100,000 in a poker tournament?
  - Have won more than one million dollars in poker?

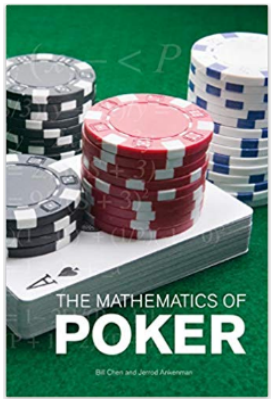
# Goals of this course

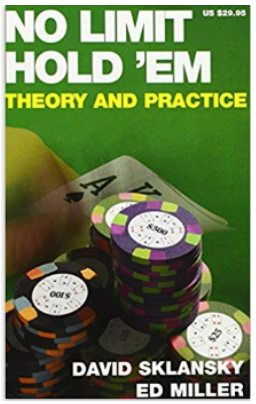
- Basic understanding of the theory of poker
- Know how to apply the theory
- Make poker fun
- Improve your chances of winning
- Appreciation for the history of poker
- Hands-on experience playing poker
  - PokerStars Home games

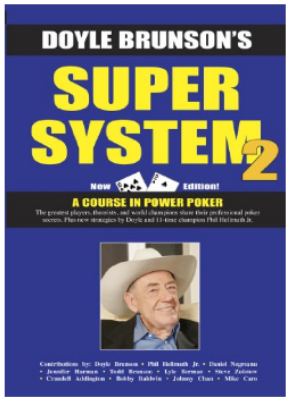
- An unforgettable intersession!

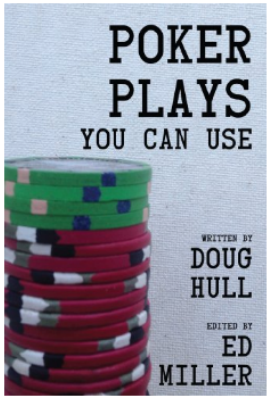
# Credits: Material & hand examples from these

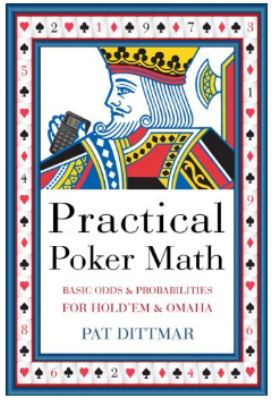


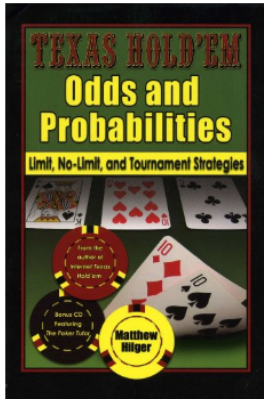



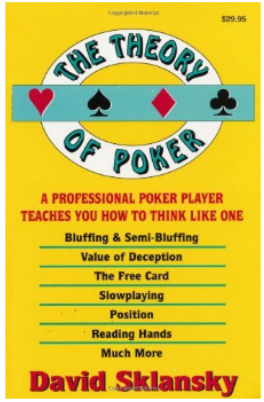


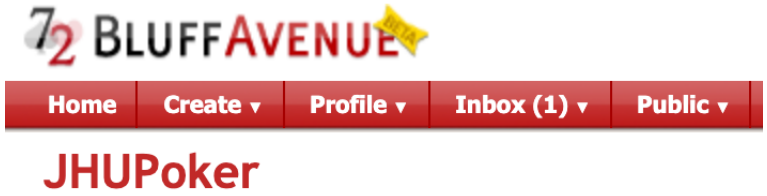
# Broad outline

- Introductory concepts
  - How to play the game
  - Rules & Mechanics
  - Primary focus – cash games
- Fundamentals
  - Basic foundational concepts
- Play pre-flop
- Play on the flop
- Play on the turn
- Play on the River
- Advanced concepts
- Tournaments
- Poker Etiquette
- Poker variants

# Course resources

- Web site:  HopkinsPokerCourse.com
- Videos of lectures will be posted
  - Filmed/Produced by Danny Blessing, Daniel Wang & Eda Incekara
- Lecture slides will be available after each class
- Course assistants
  - Danny Blessing dblessi2@jhu.edu
  - Daniel Wang dwang89@jhu.edu

# Using BluffAve.com




- Go to bluffave.com
  - Requires Flash
- Set up an account using FirstnameLastname Lastname
  - User FirstnameLastname as your first name
- Go to groups, “Find group” and select JHUpoker
- Cash game tables will be available
  - Students expected to play in the 7-11 pm window weeknights
    - Tables will always be available
      - If you want to play/practice, this is when to expect others to be there
- I will start class each day with the top 10 cash leaders

# Poker tourneys

- Satellite tournaments on BluffAve
  - Tuesday, Jan. 21, starting 6:30 pm
    - top 20 will qualify
  - Wednesday, Jan 22, starting 6:30 pm
    - top 20 who haven't already qualified will qualify
- Live tournament at my house
  - Thursday, Jan. 23 – more details to come
  - 48 Seats total
    - 40 qualifiers from satellites
    - 8 special invites (including me, course assistants, riddle solver, & special guests)
  - Prizes, trophy & bragging rights

# Social media

- Please share your experiences in this class
  - Take pics

- Instagram
  - @jhupoker
  - #jhupoker

- Instagram post competition
  - Your post containing @jhupoker and #jhupoker in caption
  - That gets the most likes
    - Between now and noon on Tuesday Jan 21
  - You get: automatic entry into the live tournament at my house

Johns Hopkins
Poker Class Tournament
CHAMPION
2020

Johns Hopkins
Poker Class Online Satellite
CHAMPION
2020

Johns Hopkins
2020
Poker Class Tournament
Professor
Bounty

# BluffAve demo after class

Course Assistant Danny Blessing

# Other resources for practicing poker

- Play on Zynga – mobile app
  - Especially tournaments
  - Play money
  - Get a feel for flow of the game and the rules

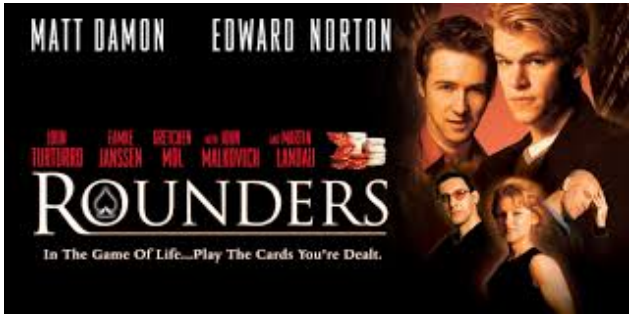
- Watch poker online or on TV
  - Poker after dark
  - High stakes poker
  - WPT, WSOP, Heartland Poker Tour
  - Pause the action and think about what the players are thinking
  - Cover the hole cards on your screen and try to deduce what they have

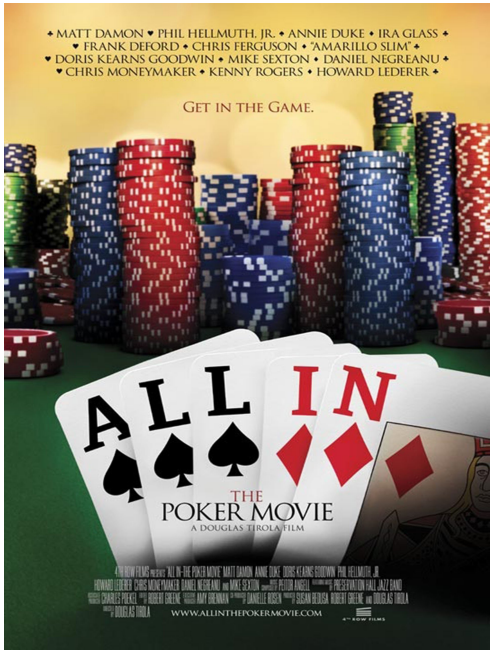
# Theory vs. Practice

- Knowing all the theory, without playing a lot
  - Like learning to fly an airplane from a book
- You need to experience situations
  - Need to see lots of hands
- Play, play play!

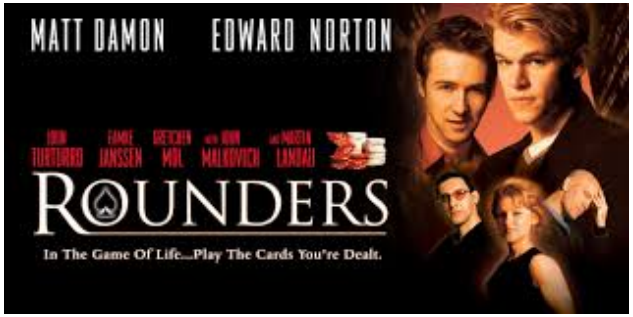
# Workload – requirements to pass

- Watch two movies
  - Rounders with Matt Damon – all time greatest movie
  - All In the Poker Movie  (Chris Moneymaker story)
- Play online cash games
  - Must register at least 6 hours of play (bare minimum)
- Two online satellites
  - Must play at least one
- Live tourney
  - If you qualify
- Come to class

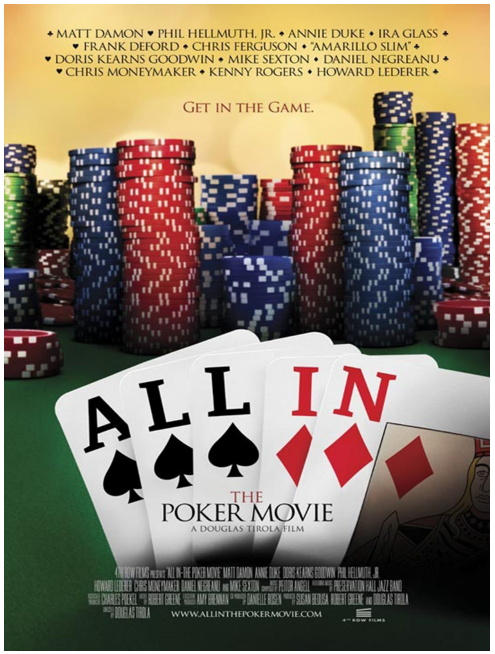


# Movie screenings




- Friday, Jan 17, 7:30 pm
- Bloomberg 272




- Two showings:
  - Wednesday, Jan 15, 7:30 pm
  - Monday, Jan 20, 1:30 pm
- Bloomberg 272

Or watch them on your own

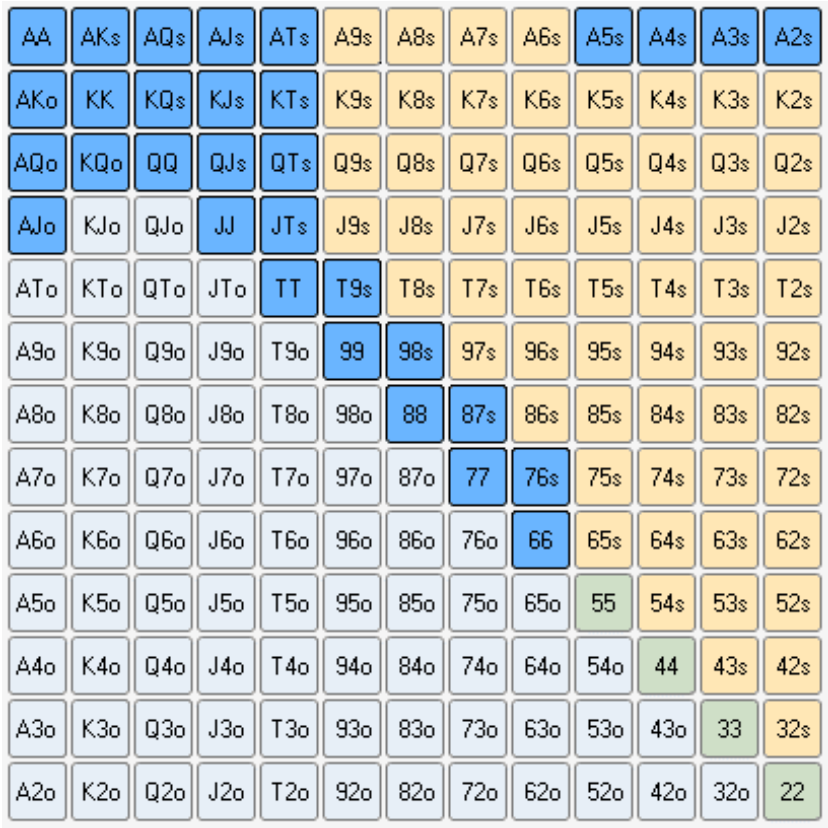
# Special guest lecture on 1/22

- Steve Dannenmann
  - From Severna Park, MD
- Self-employed CPA
- 2005 WSOP Main Event runner up
  - Won $4.25M
- Also placed 5th in WSOP tournament of champions

- One of the real characters/celebrities of poker

# Understanding poker

- A bit of math
  - Mostly basic arithmetic (6th grade level)
  - Well, just a little simple probability
  - Combinatorics
- Some basic game theory
- Might seem complicated initially
  - But we will look at lots of examples
- Please stop me and ask questions
- Make sure to play cash games in our HomeGame on BluffAve
  - You learn the most by doing



# Poker players

- Types of poker players:
  - Casual
  - Recreational
  - Grinder/regular
  - Top Pro

- Other types
  - Whale
  - Donkey
  - Fish
  - Shark

# The poker world

Carlos Monti © Rational Intellectual Holdings Ltd.

- Great social outlet
  - Lots of home games – popular around the world
- Fun hobby for competitive people
  - Lots of tournaments of all sizes
    - Get on ESPN!
  - Cash games at all stakes
- Meet all kinds of people
  - Same table might have Fortune 50 CEO and a brick layer
- See and play with celebrities at the WSOP
- The Chris Moneymaker story
- Dark side
  - Addictive
  - Even great players go on losing streaks
  - Some people playing beyond their financial means
  - Sometimes brings out the worst in people

# Be the house

- Casinos win by having an edge
  - Blackjack: you bust before the dealer goes
  - Craps: best you can do is slightly below even
- Even a slight edge works in favor of the house
- Law of large numbers
- Goal in poker
  - Be the house
  - Get into situations where you have the edge
  - You will lose sometimes when favored
    - But in the long run if you have an edge, you will win

# Lots of jargon

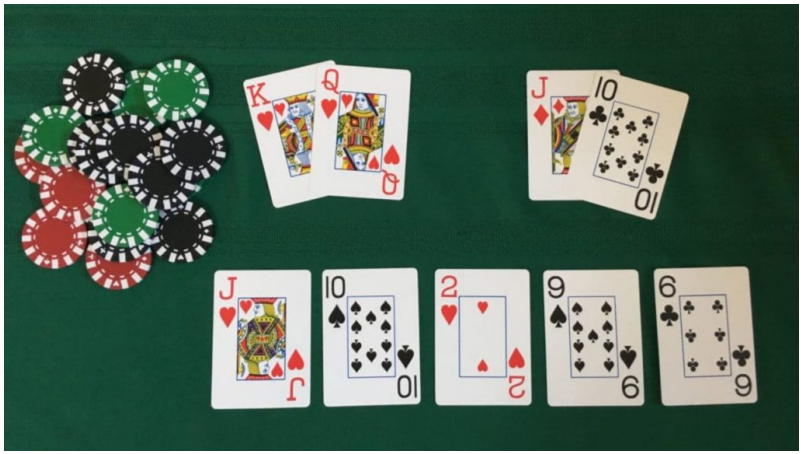
- Flop, Turn River
- Big blind, small blind, button
- On a draw
- The board
- Drawing dead
- The nuts
- In position, out of position
- Outs
- Kicker
- Bad beat
  - Life Pro Tip: Bad beat stories are much more fun to tell than to listen to

# The basics

Texas HoldEm

# POKER HAND RANKINGS

# Texas Holdem



- Each player dealt 2 cards face down
  - Betting round #1
- Three community cards dealt face up (flop)
  - Betting round #2
- One community card dealt face up (turn)
  - Betting round #3
- One community card dealt face up (river)
  - Betting round #4
- Players hand is best 5 cards from 2 private and 5 community cards

# Who wins? Who has 2nd best hand?

# What is best possible hand? 2nd best?

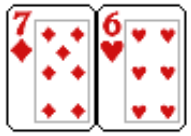
# Who would have likely won this hand?

# Who wins?

No Limit | $0.25/$0.50
ID:9592626
seat 9
$0.00
seat 10
$0.00
seat 1
$0.00
seat 2
$0.00
D
Pot: $400
seat 7
$0.00
seat 6
$0.00
seat 5
$0.00
seat 4
$0.00
PokerHandReplays.com

# What is best possible hand?

# Two types of big straight draws

- Double belly buster:
  - When two different cards give you a straight using different board cards
- You have  and the flop is
- There are two card ranks (8 cards) that give you a straight
  - Any 4 and any 8
- This will be well disguised if you hit
- Contrast to open-ended straight draw
- You have and the flop is

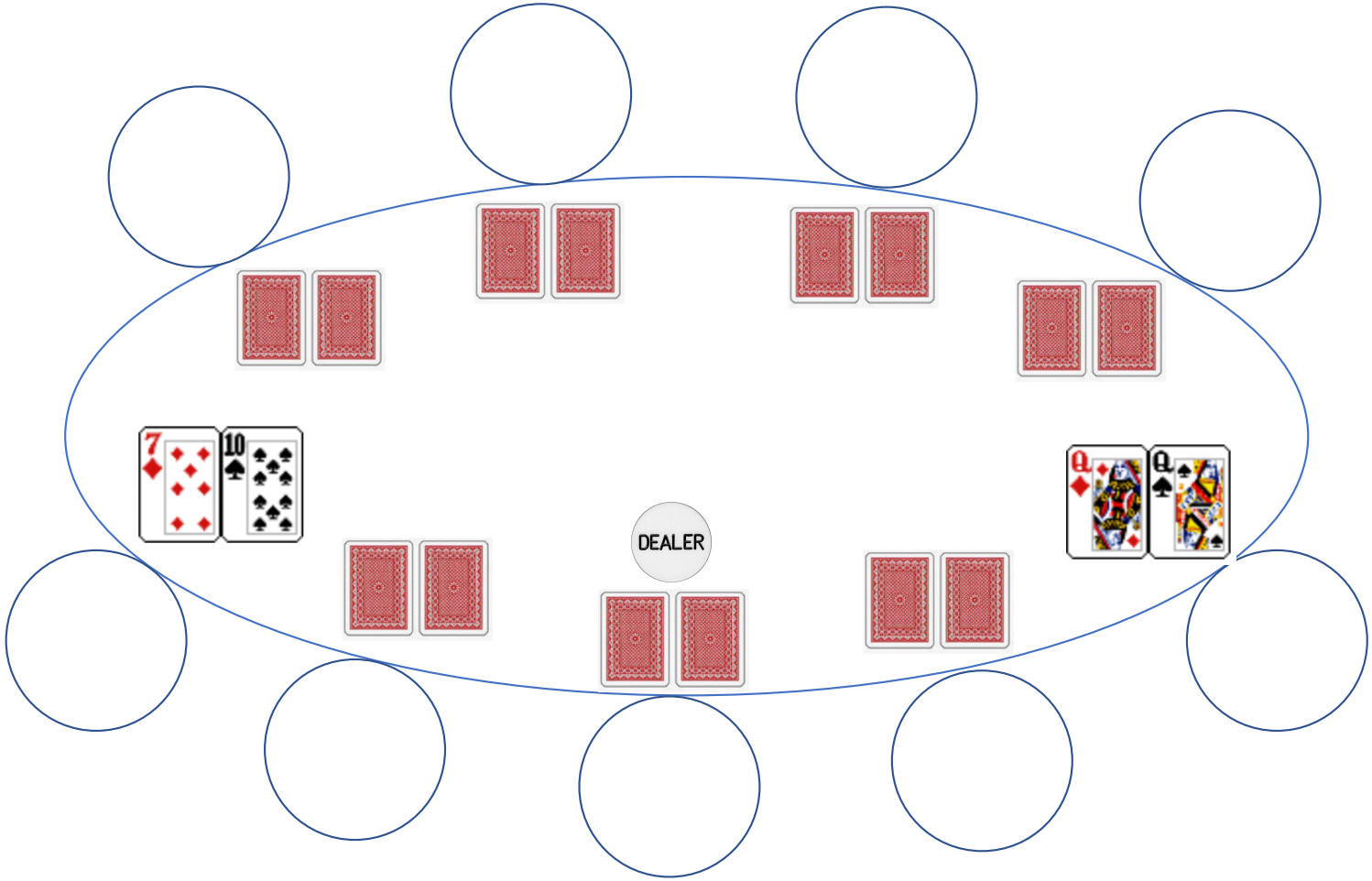
# Cool (and useful) facts

- You cannot make a full house or better without a pair on the board
- You cannot make a flush without 3 to a suit on the board
- Straights are a little tricky to identify – few unpaired boards can't have a straight
- You can't have a straight without a 5 or a 10
- Bottom two pair is a vulnerable hand – if a higher card pairs on the board, you are counterfeited.

Question: Under what circumstances is your full house the best possible hand?

# An example hand

Counterfeiting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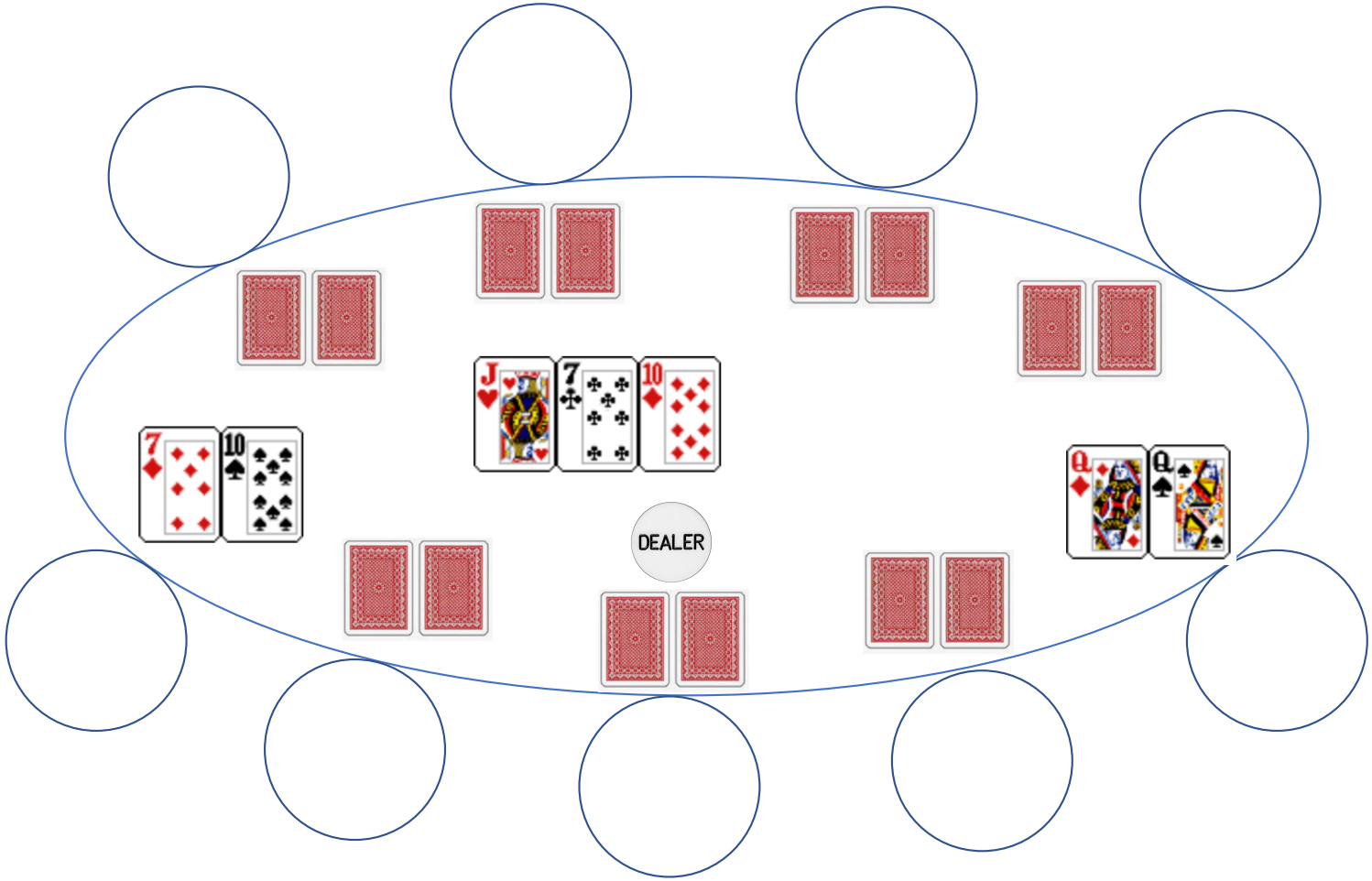
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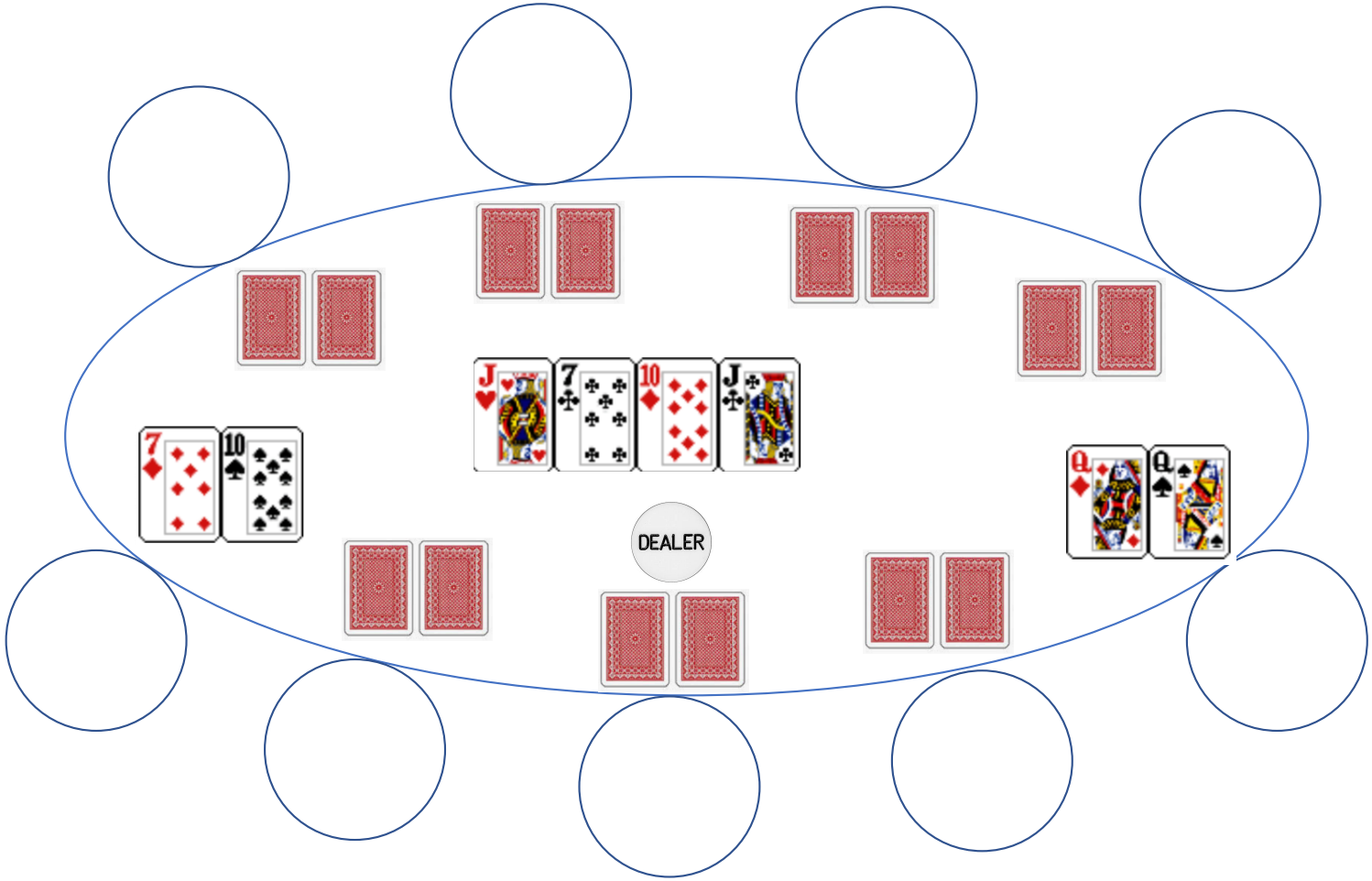
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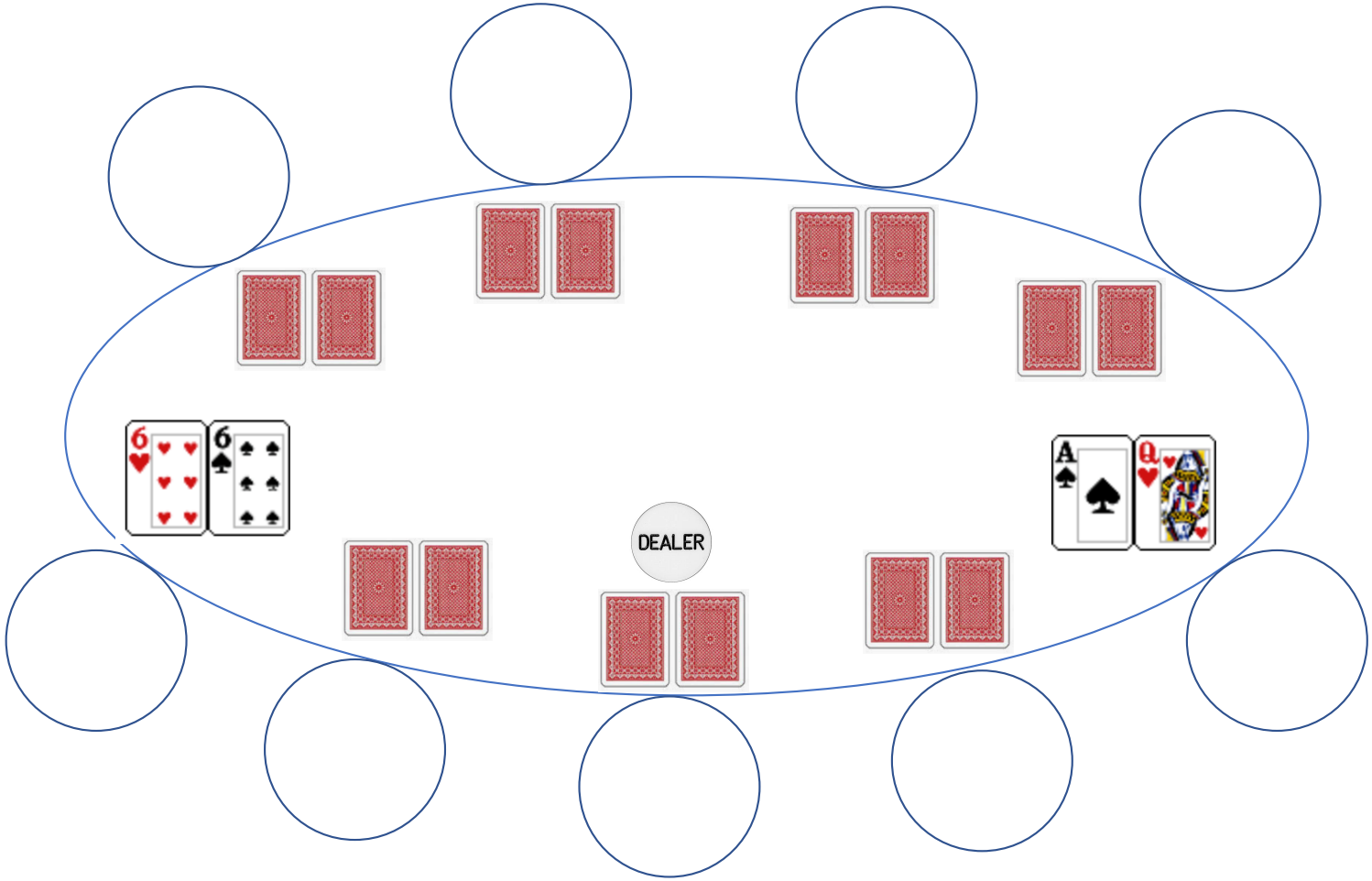
# Example hand

More conterfeiting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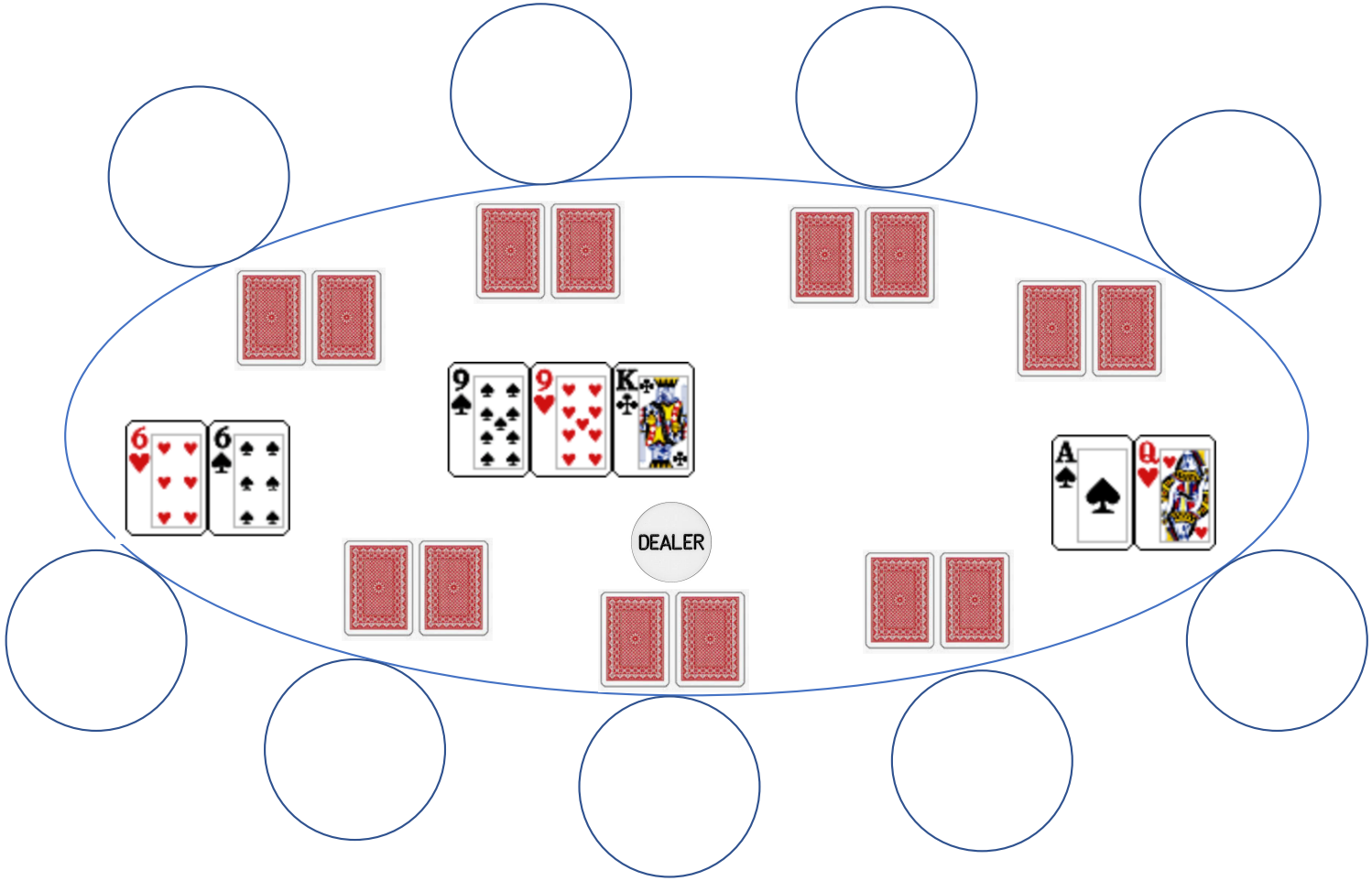
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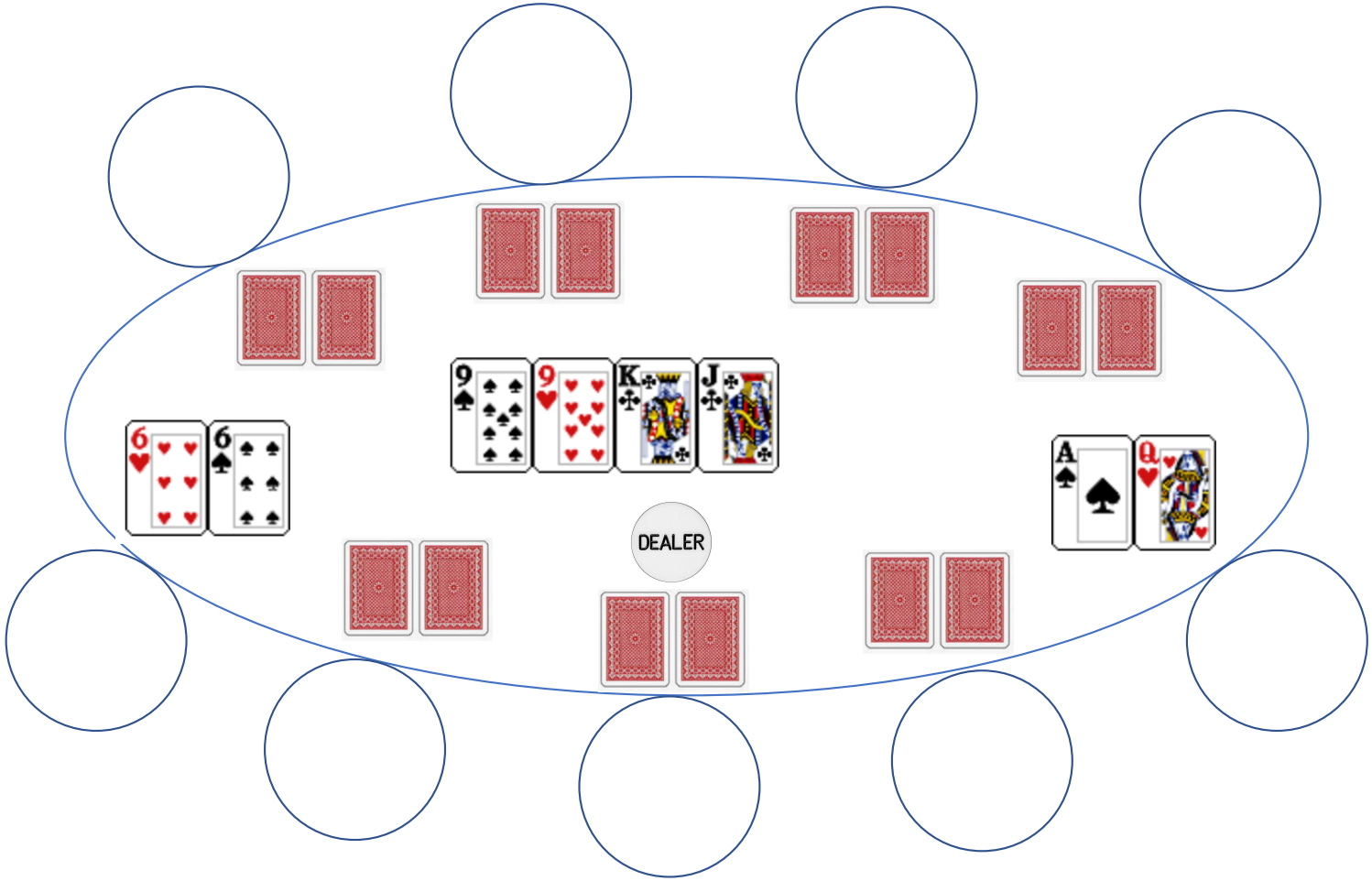
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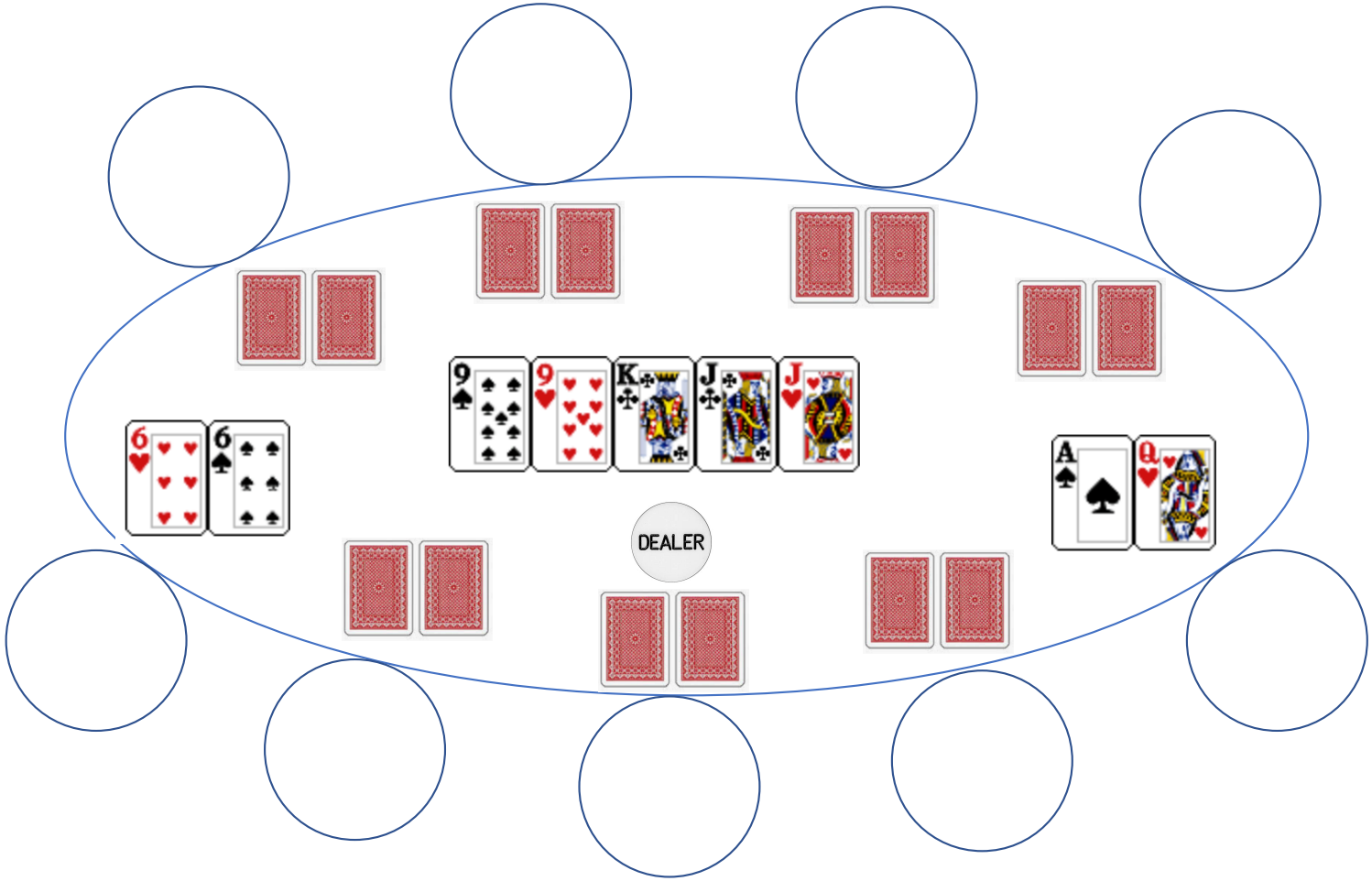
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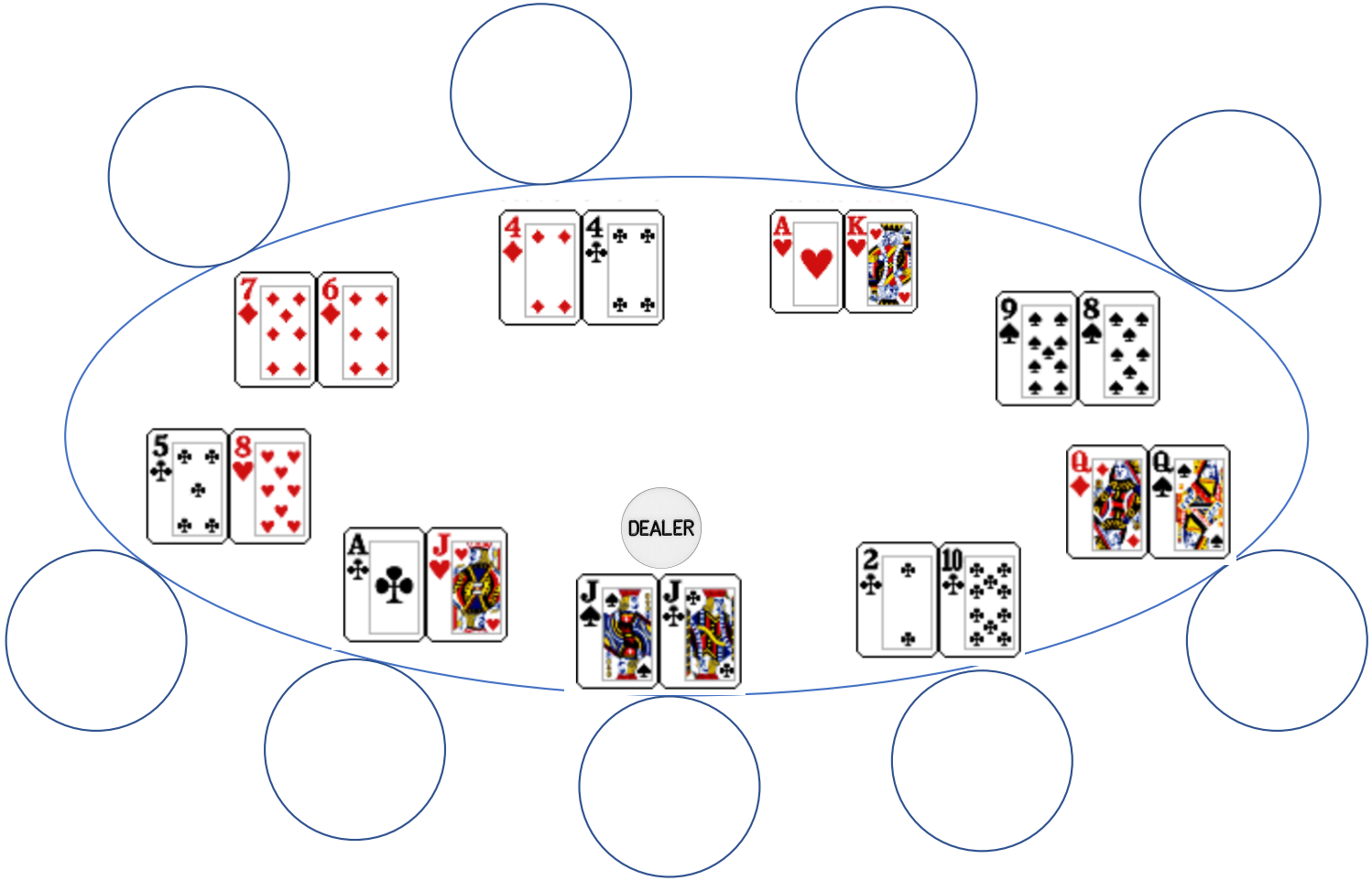
# An example hand

Action turn card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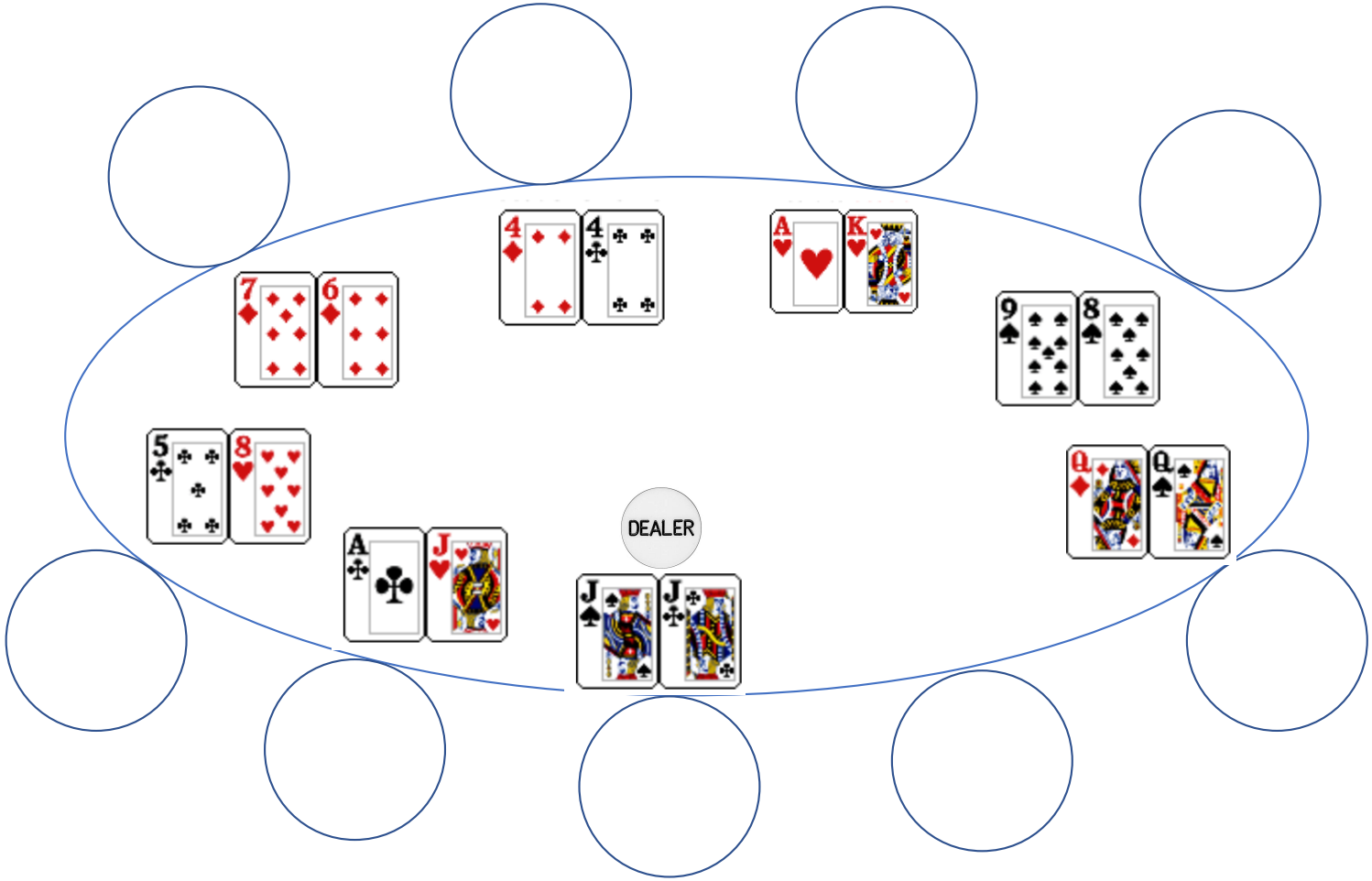
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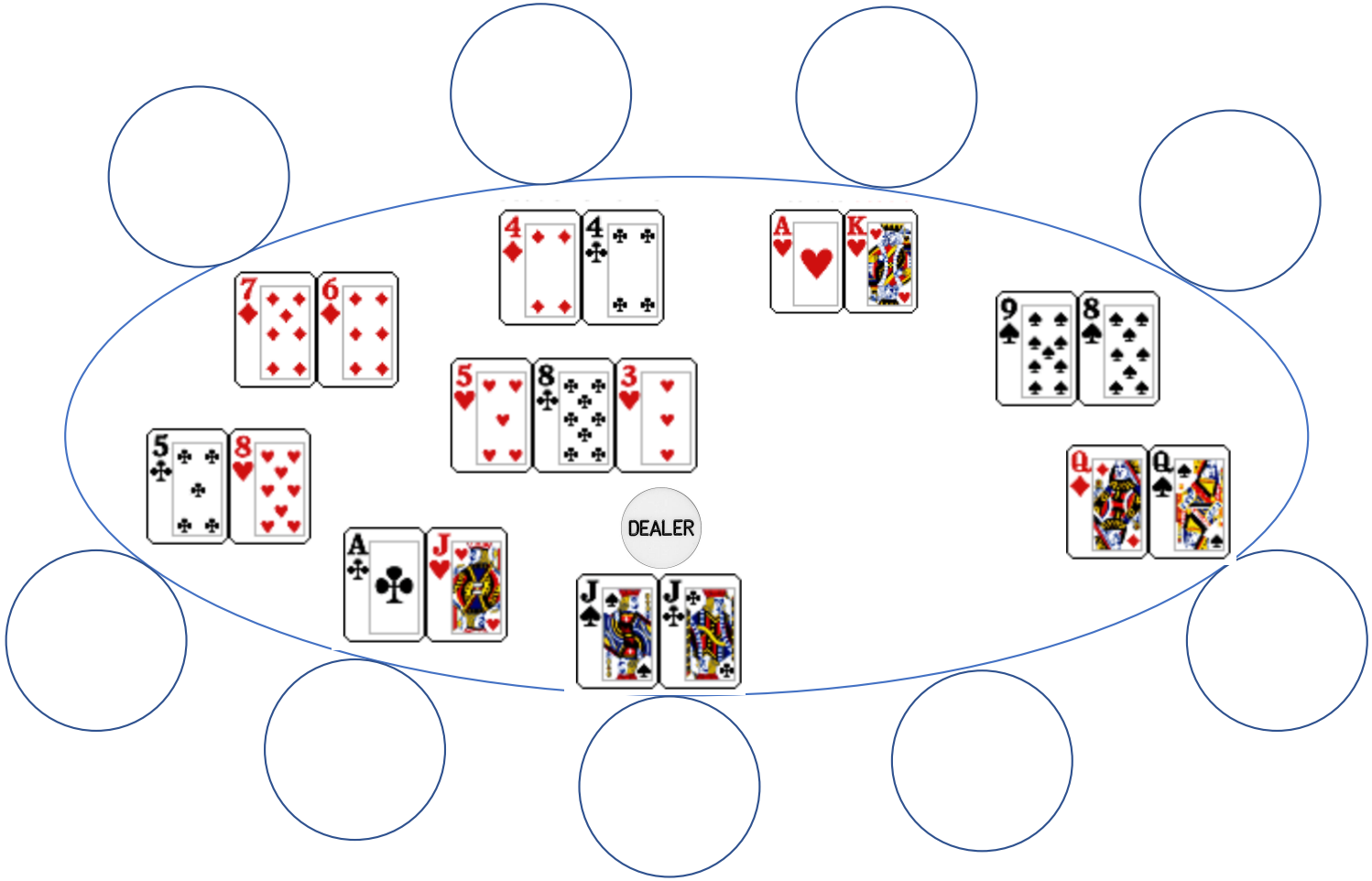
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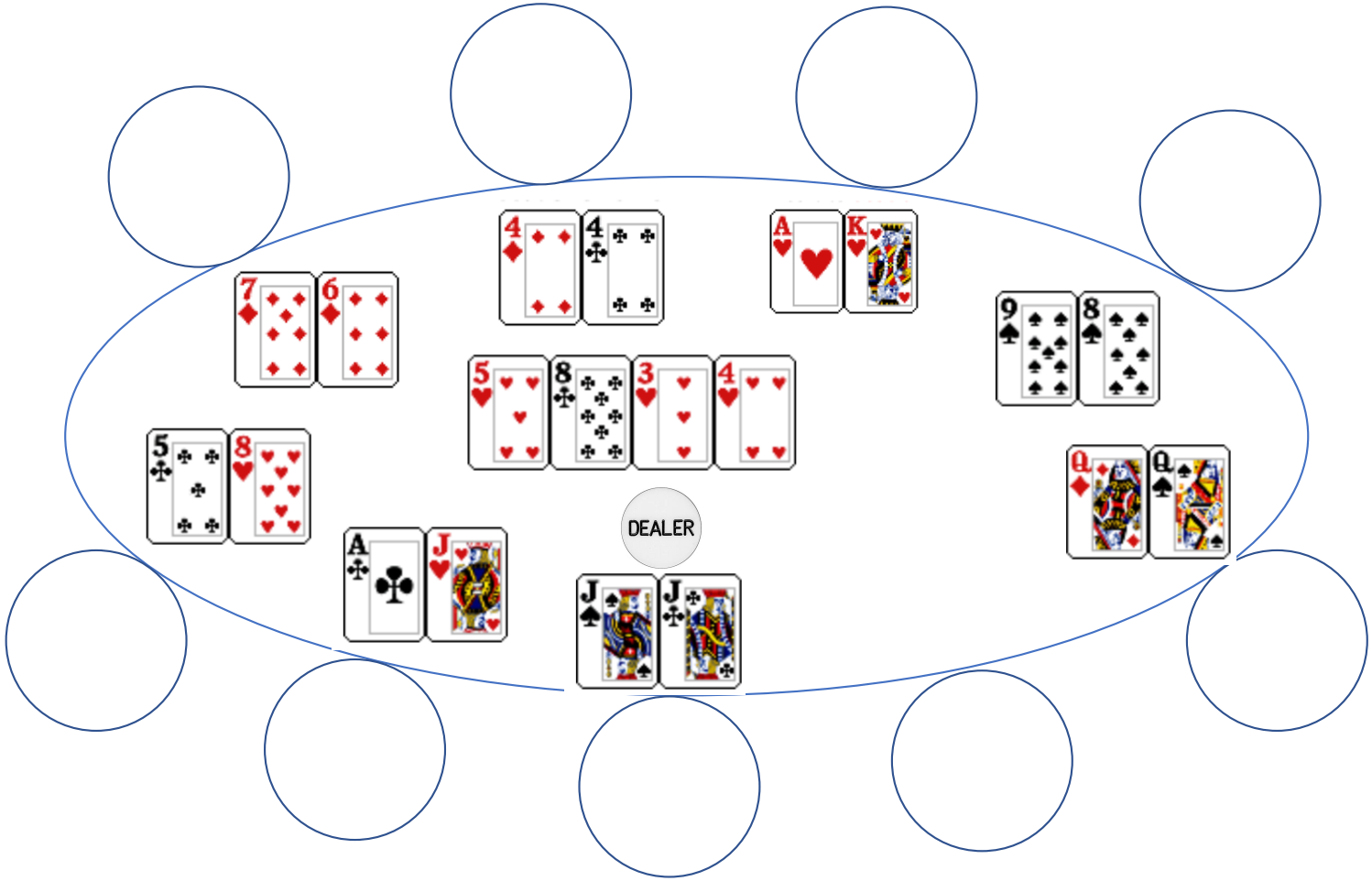
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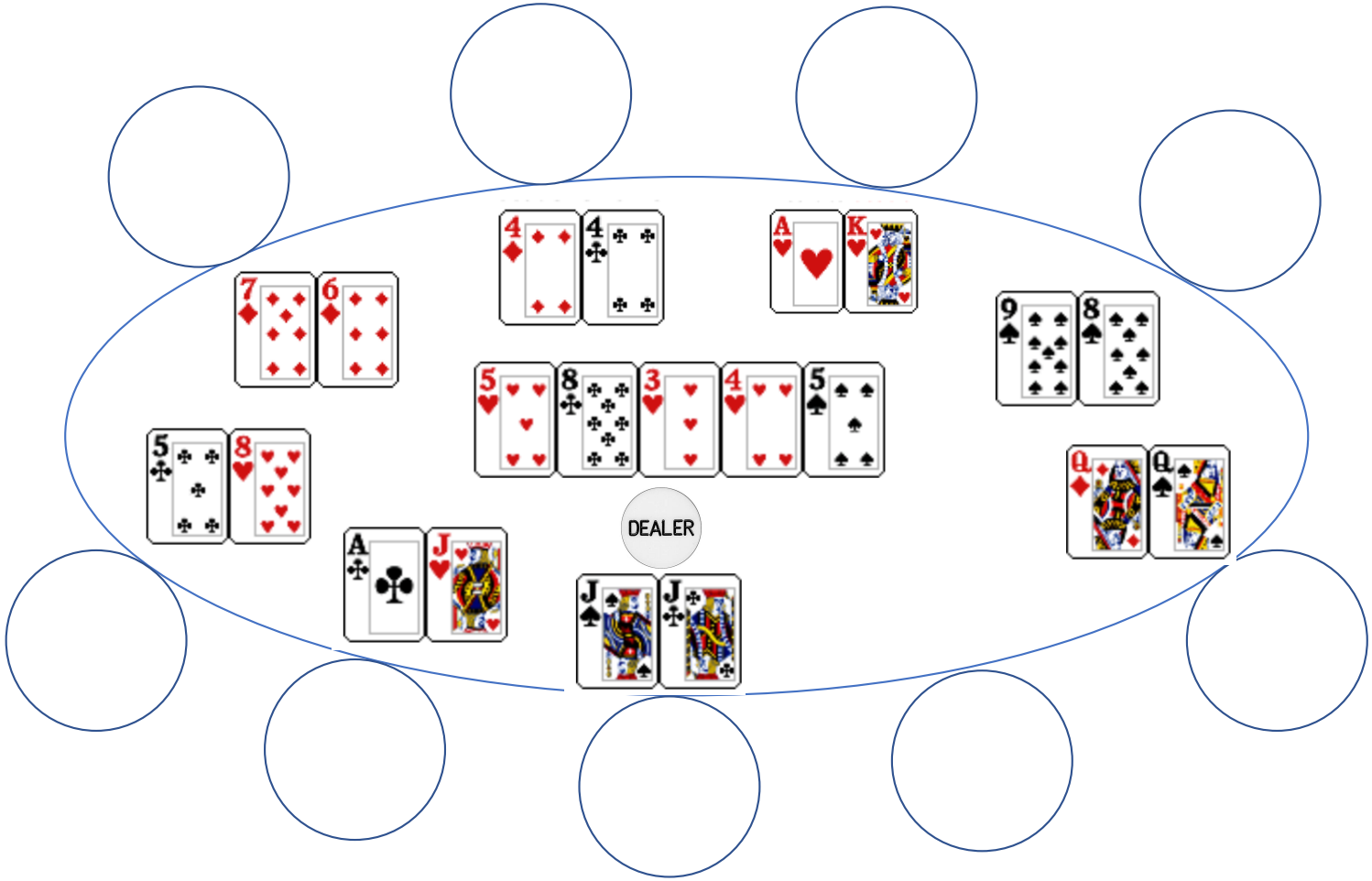
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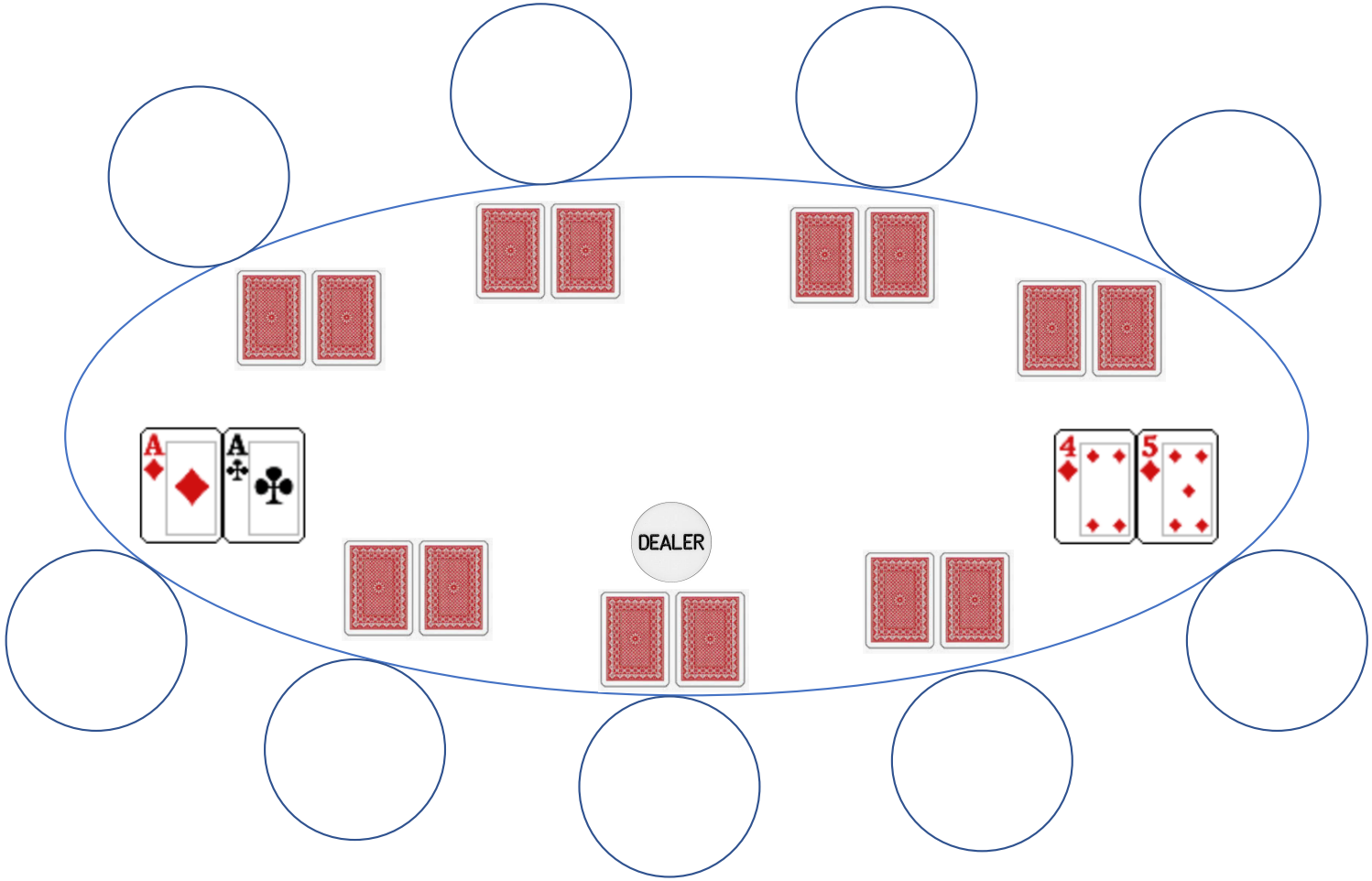
# Example hand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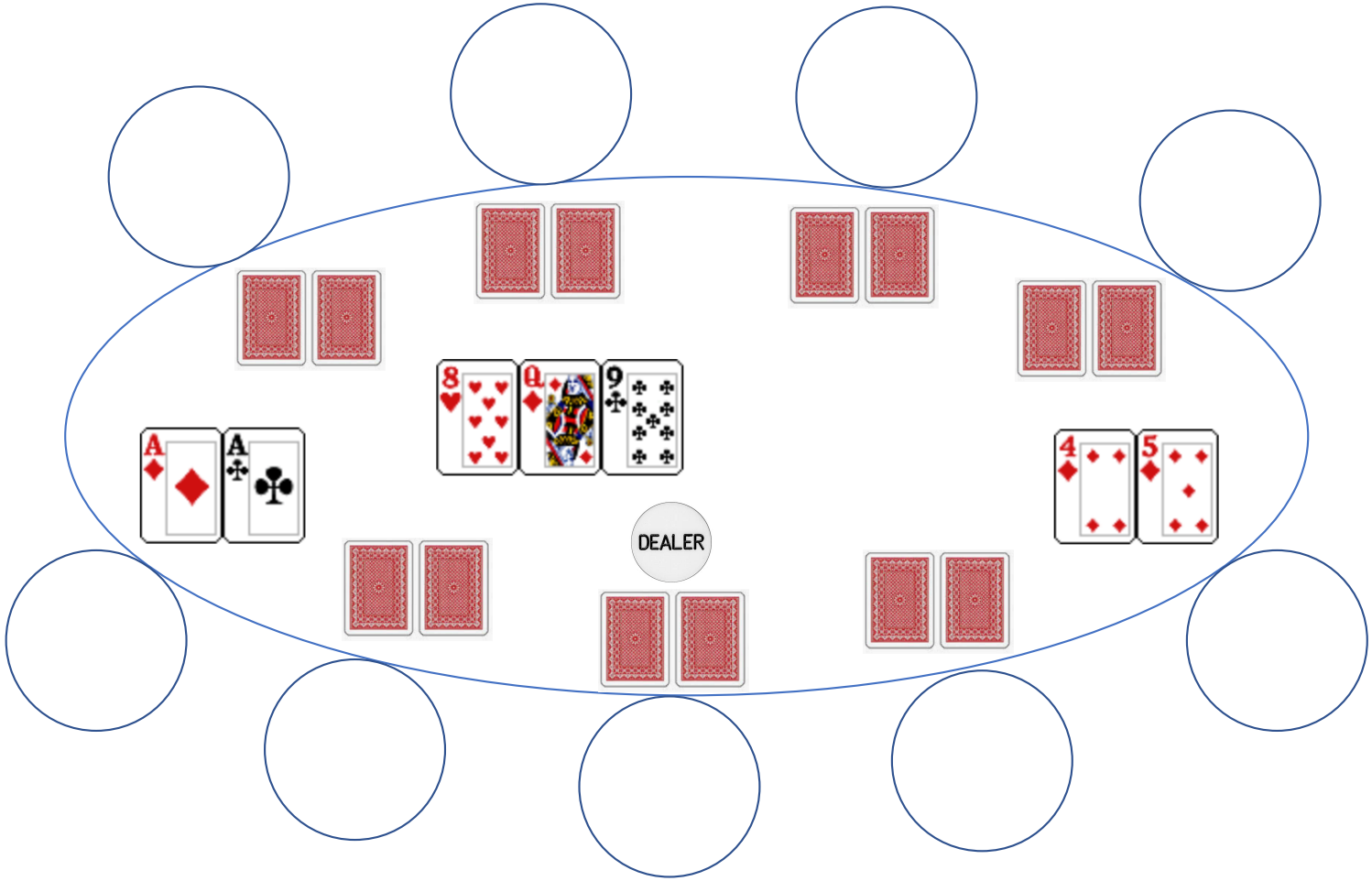
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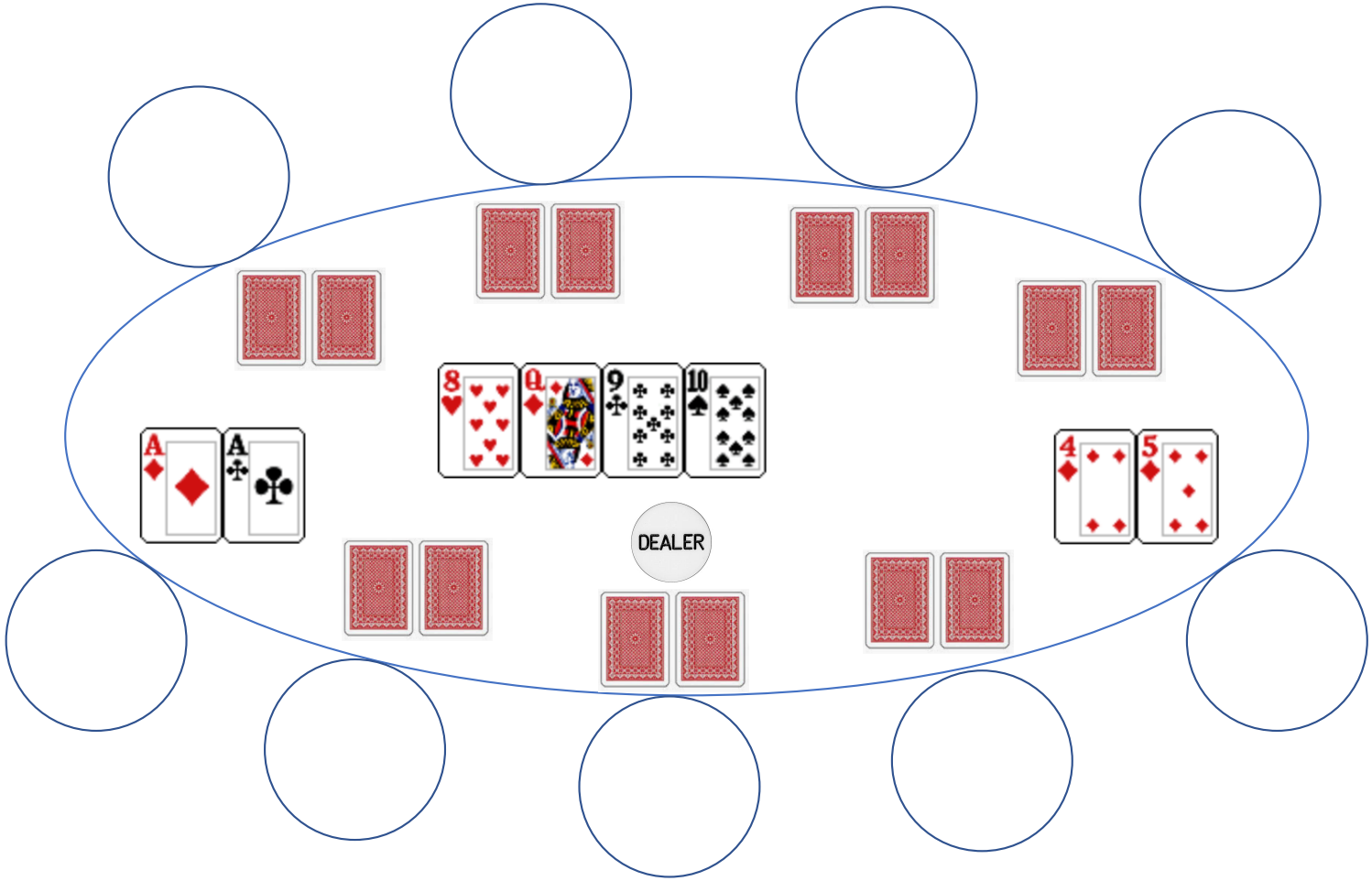
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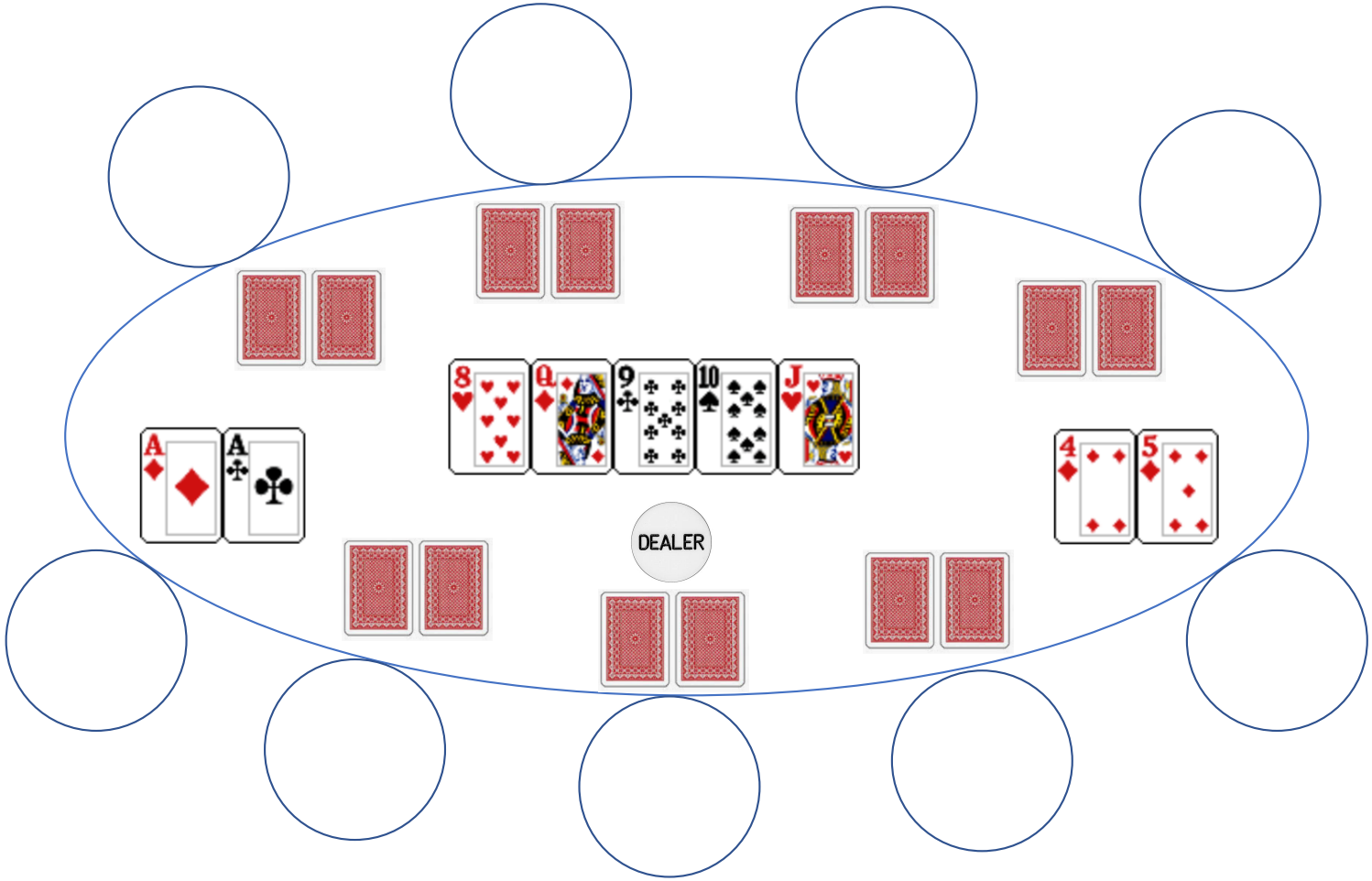
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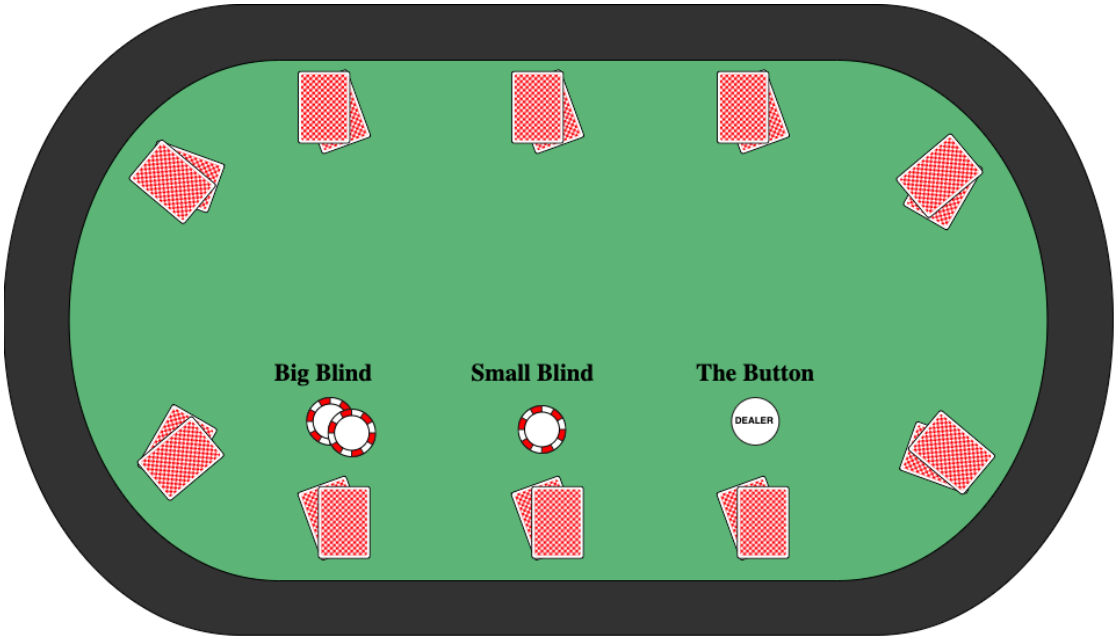
# Setup



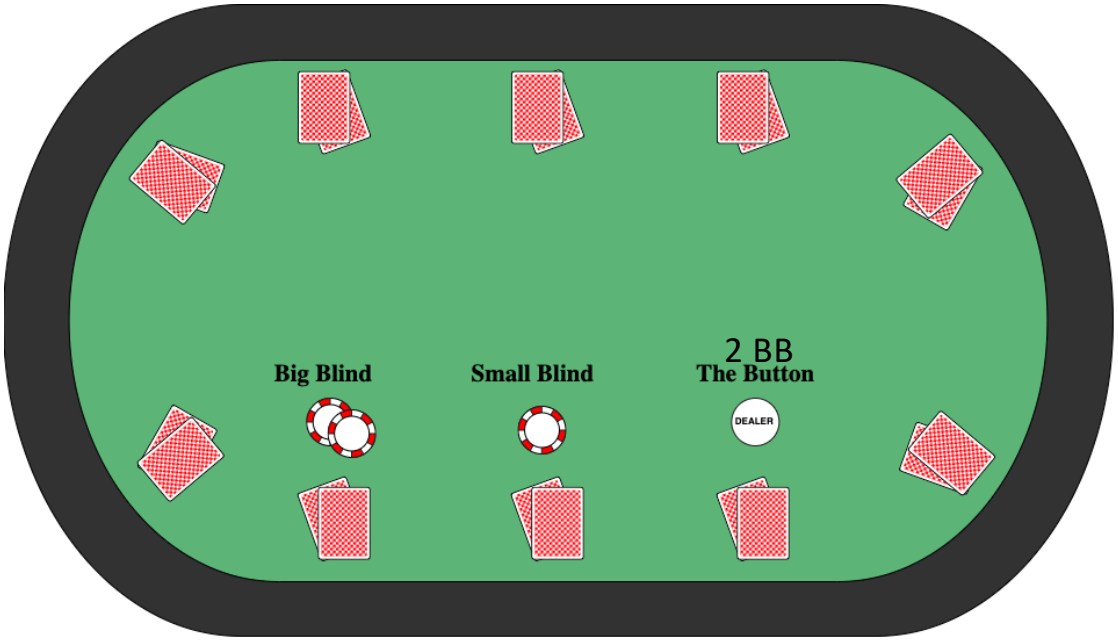

- One player is the “button” or the “dealer”
- To the left of the button is the small blind
- To the left of the small blind is the big blind
- Forced bet pre-flop
  - Small blind posts a small bet
  - Big blind posts a big bet
- For example, if the stakes are 1-3
  - Small bet is $1
  - Big bet is $3
- To the left of the big blind is Under the Gun (UTG) and acts first
- Minimum bet is a big blind
- Minimum raise is the amount of the previous bet or raise

# Blind Straddles

- Only in cash games
- Under the gun can post
  - Usually double the big blind
  - Straddle is “live”

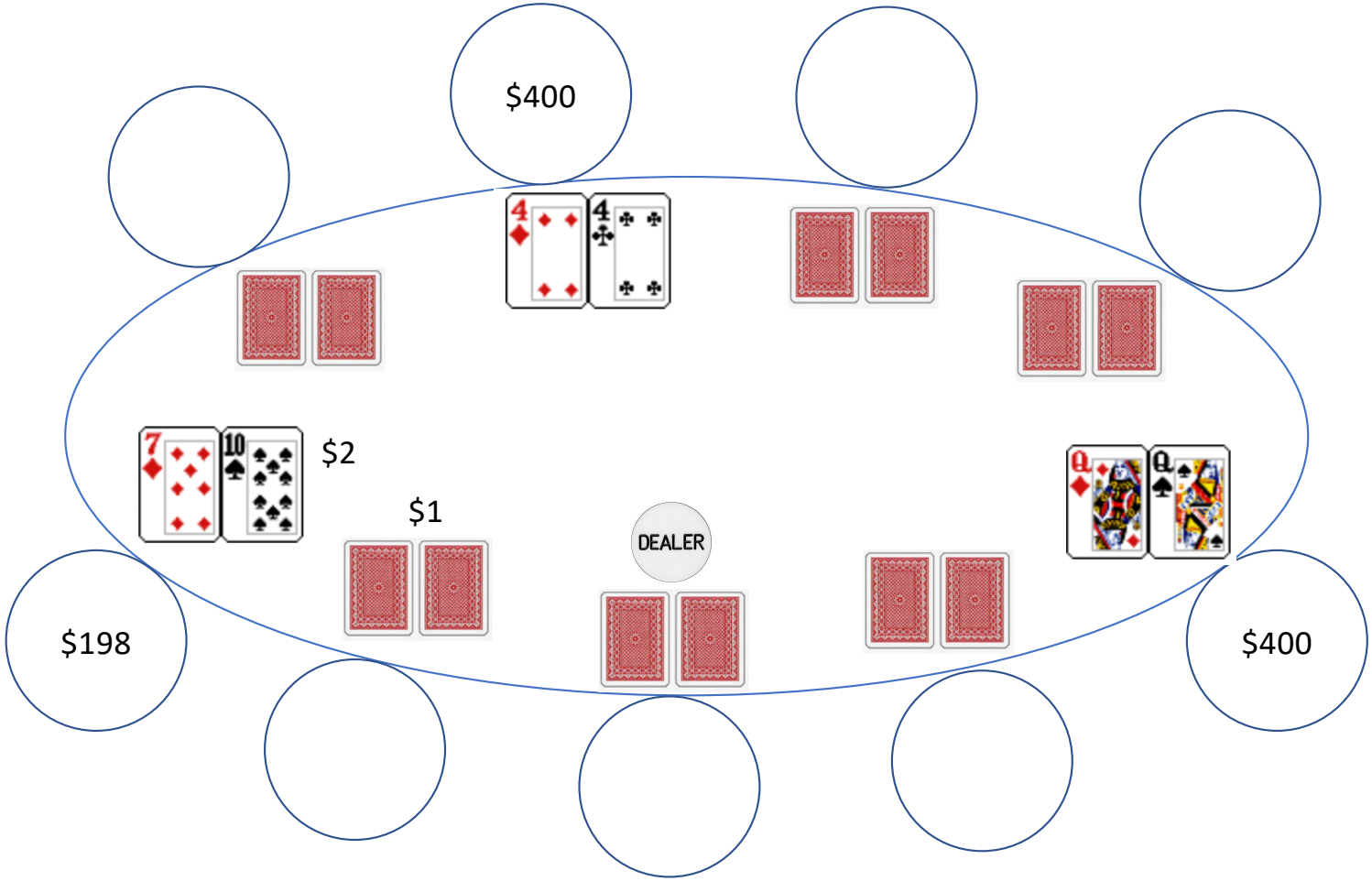
- Mississippi straddle
  - From any position
  - Position gets priority
  - 2-5 times the big blind

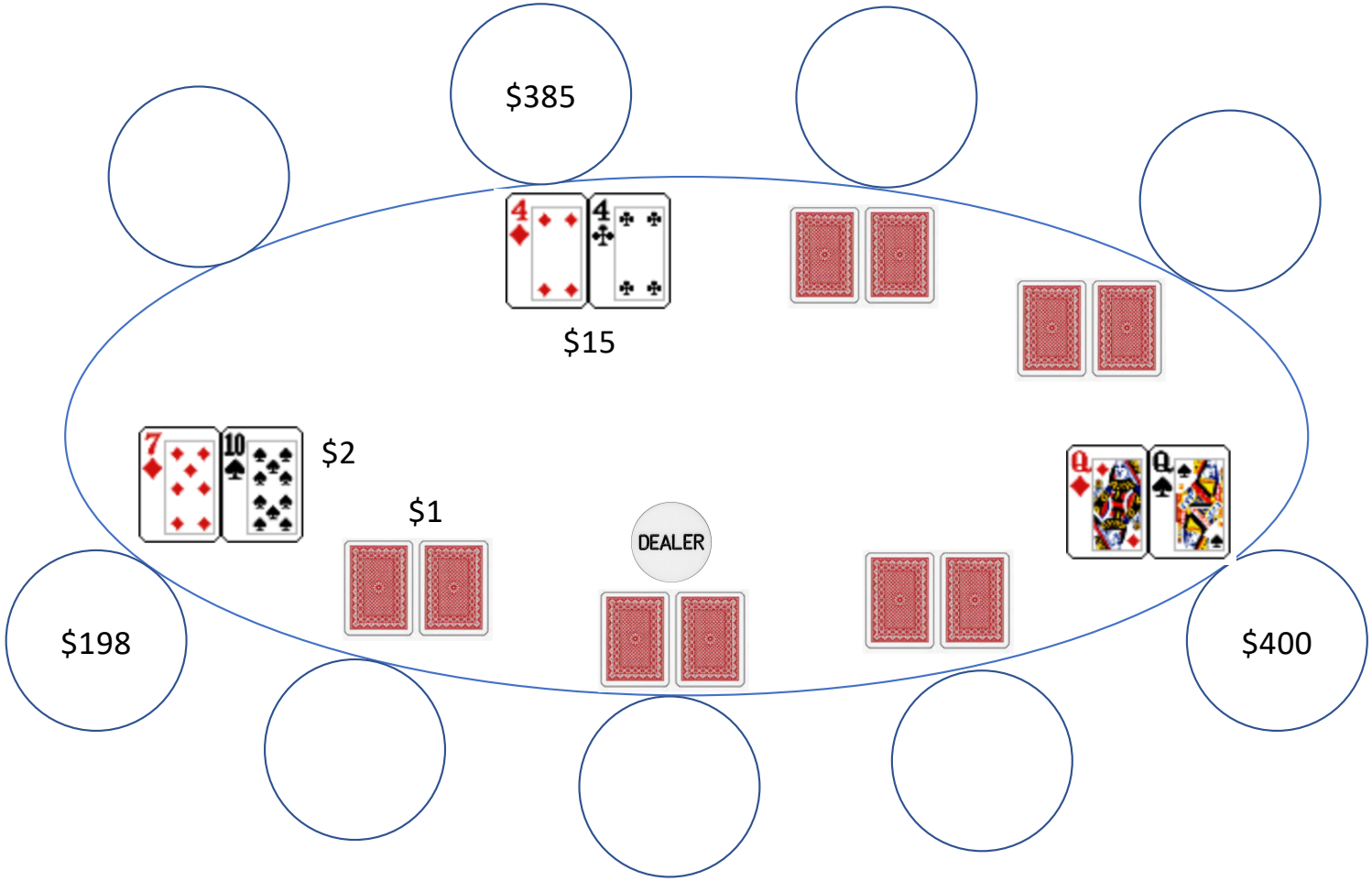
- Generates action & raises stakes



# Chip stacks

- Each player has a certain number of chips on the table
- Effective stack
  - You can only bet the chips in your stack.
  - Player A has 1,500;  Player B has 800; Player C has 2,300
    - If they go all in, then player B can only win 1,600
  - Side pots
    - If all 3 players go all in, and player B has the best hand, player A has second best hand
      - Player B wins pot of 2,400 (including his original 800)
      - Player A win “Side Pot” of 1,400
      - Player C gets back 800
- Often refer to a stack as the number of big blinds


$400
$2
$1
DEALER
$198
$400


$385
$15
$2
$1
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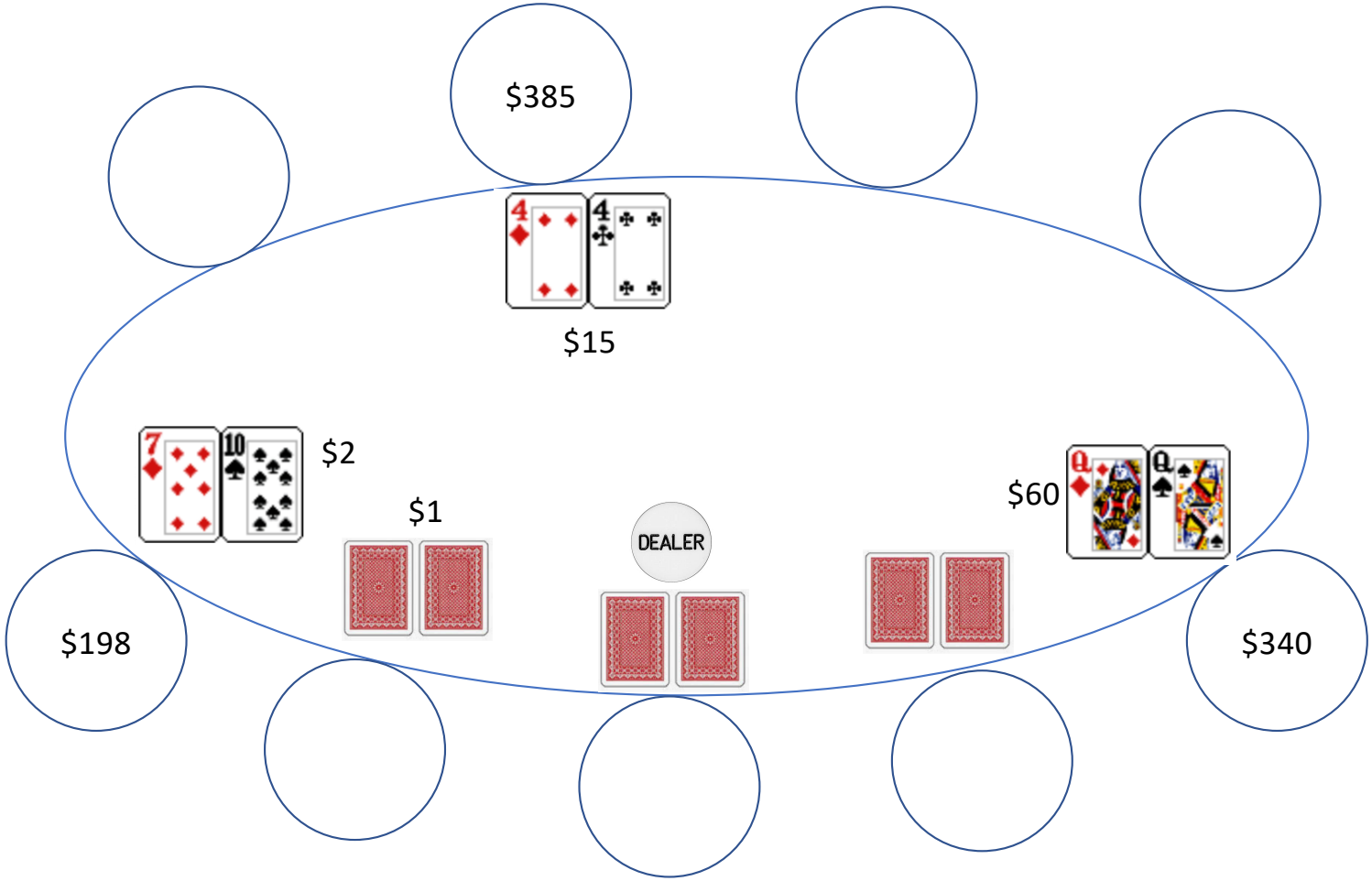
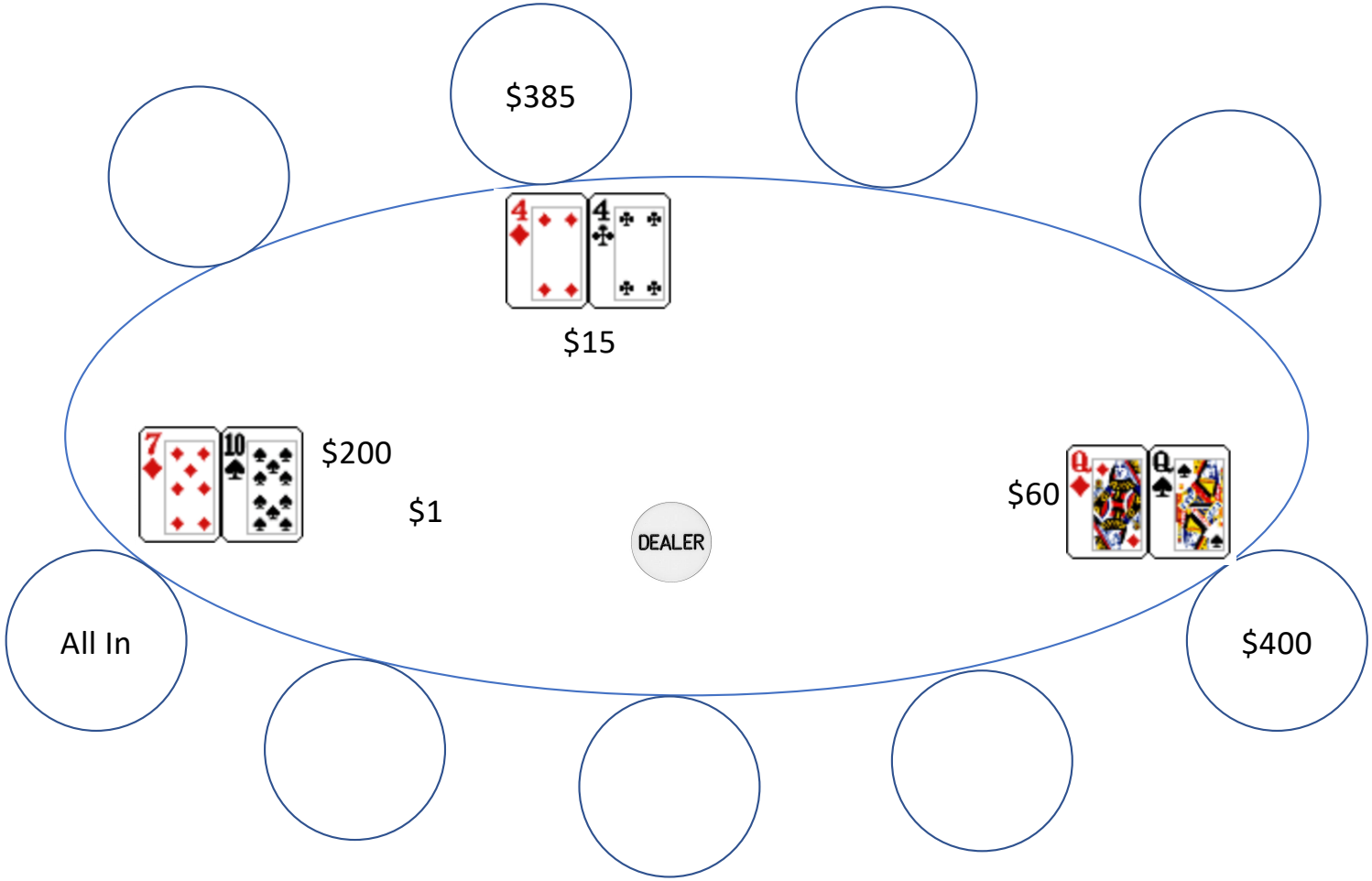
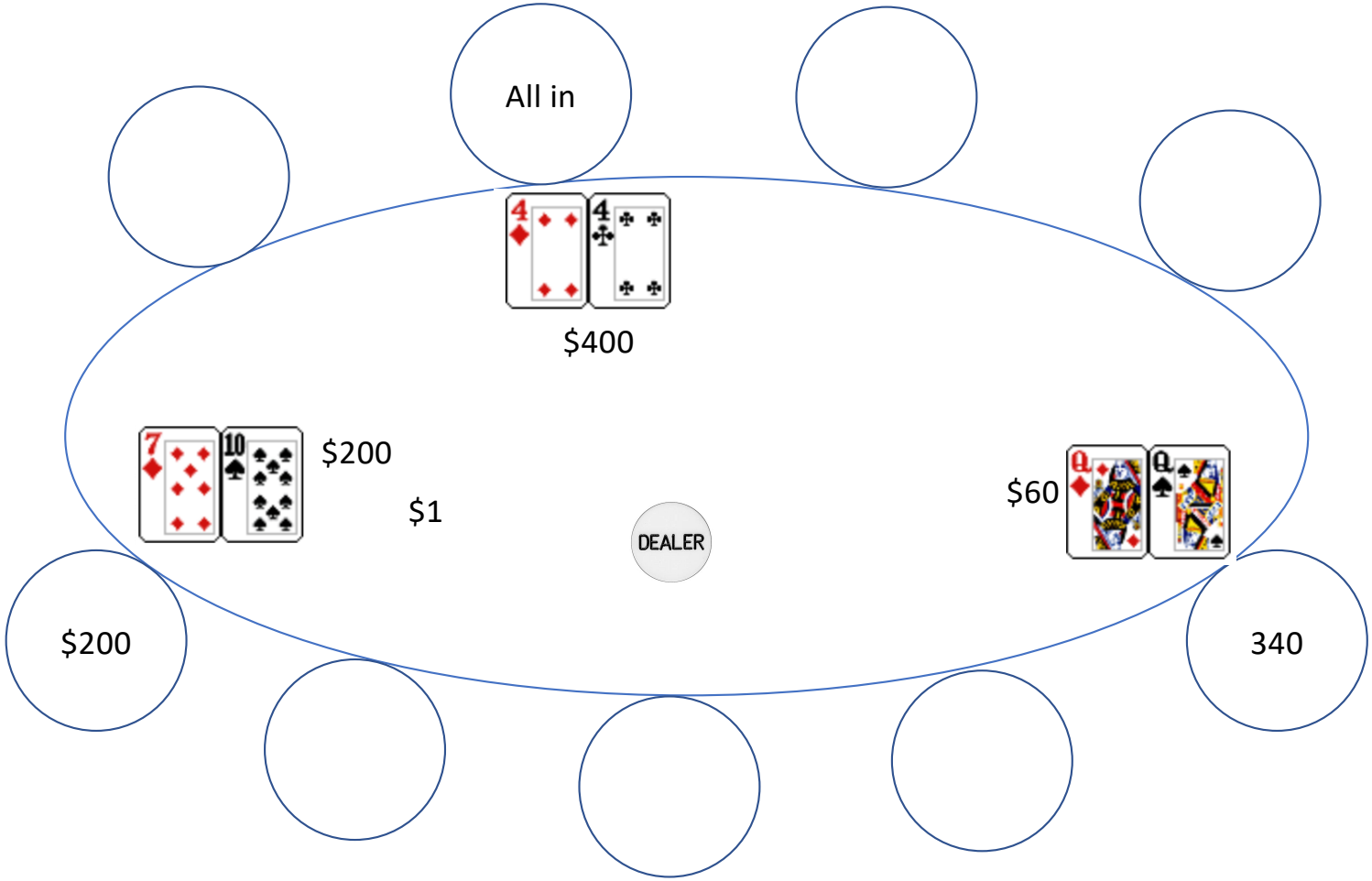
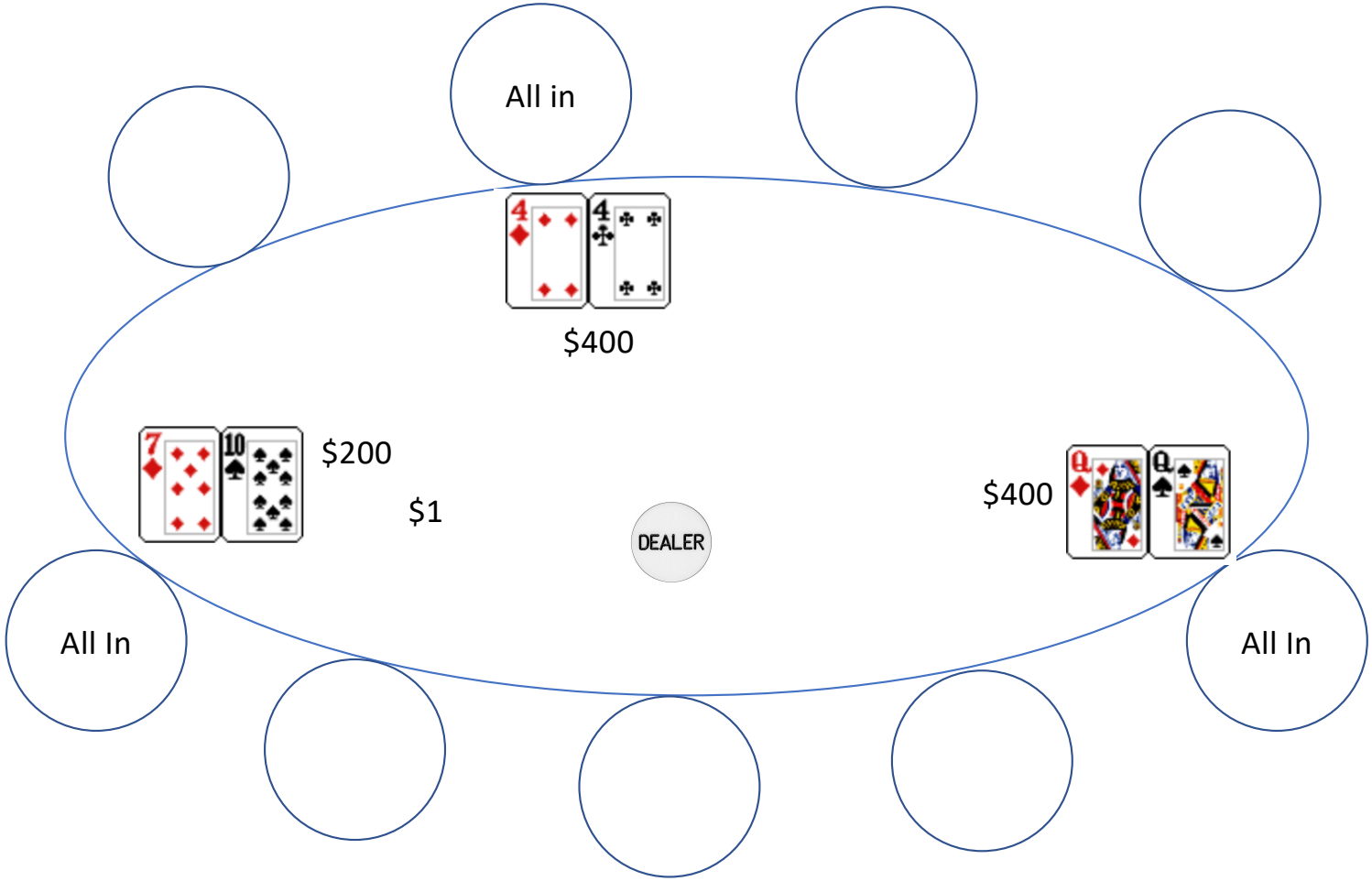
$198
$400

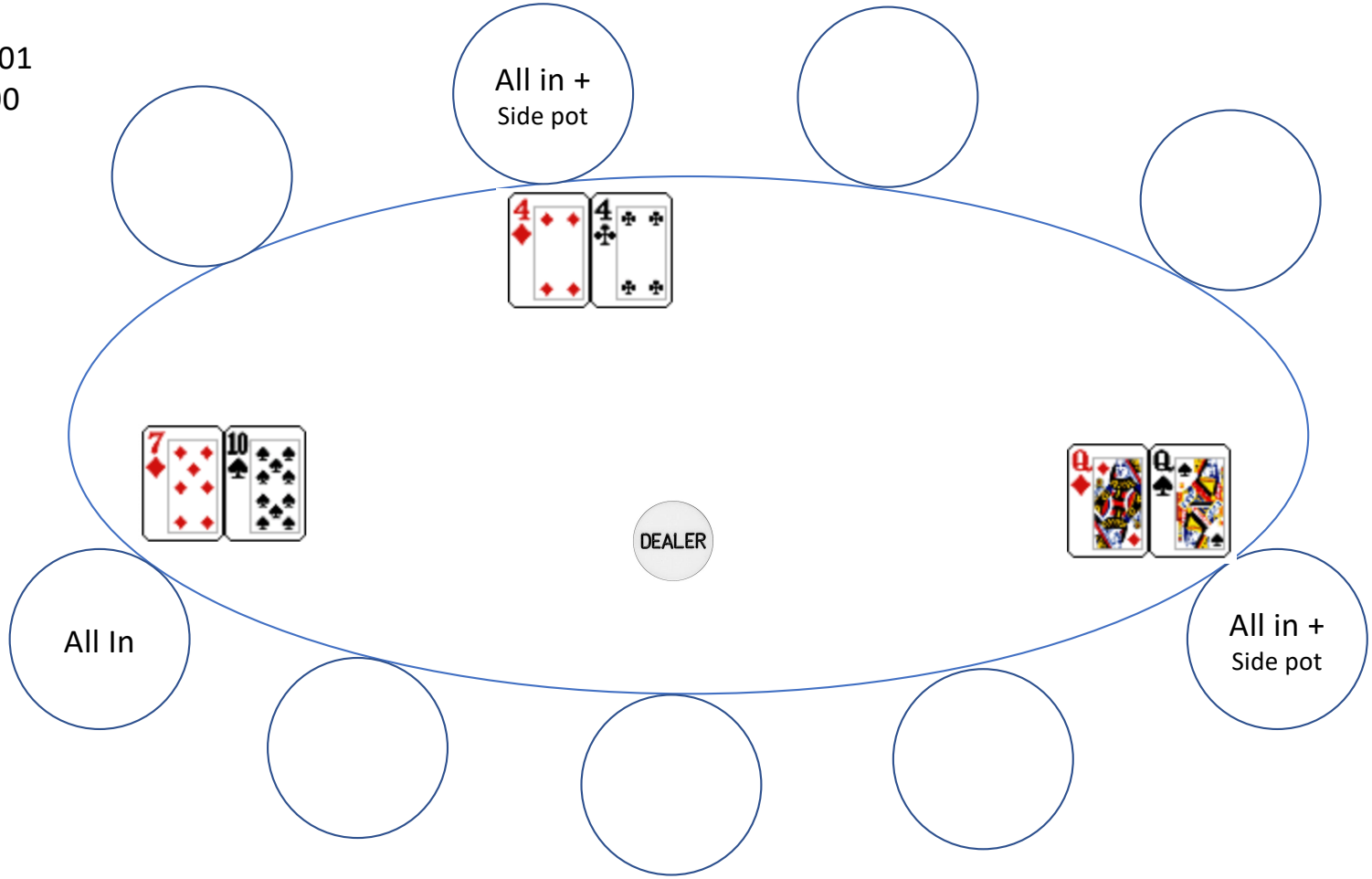

$385
$15
$2
$1
DEALER
$60
$198
$340


$385
$15
$200
$1
DEALER
$60
All In
$400

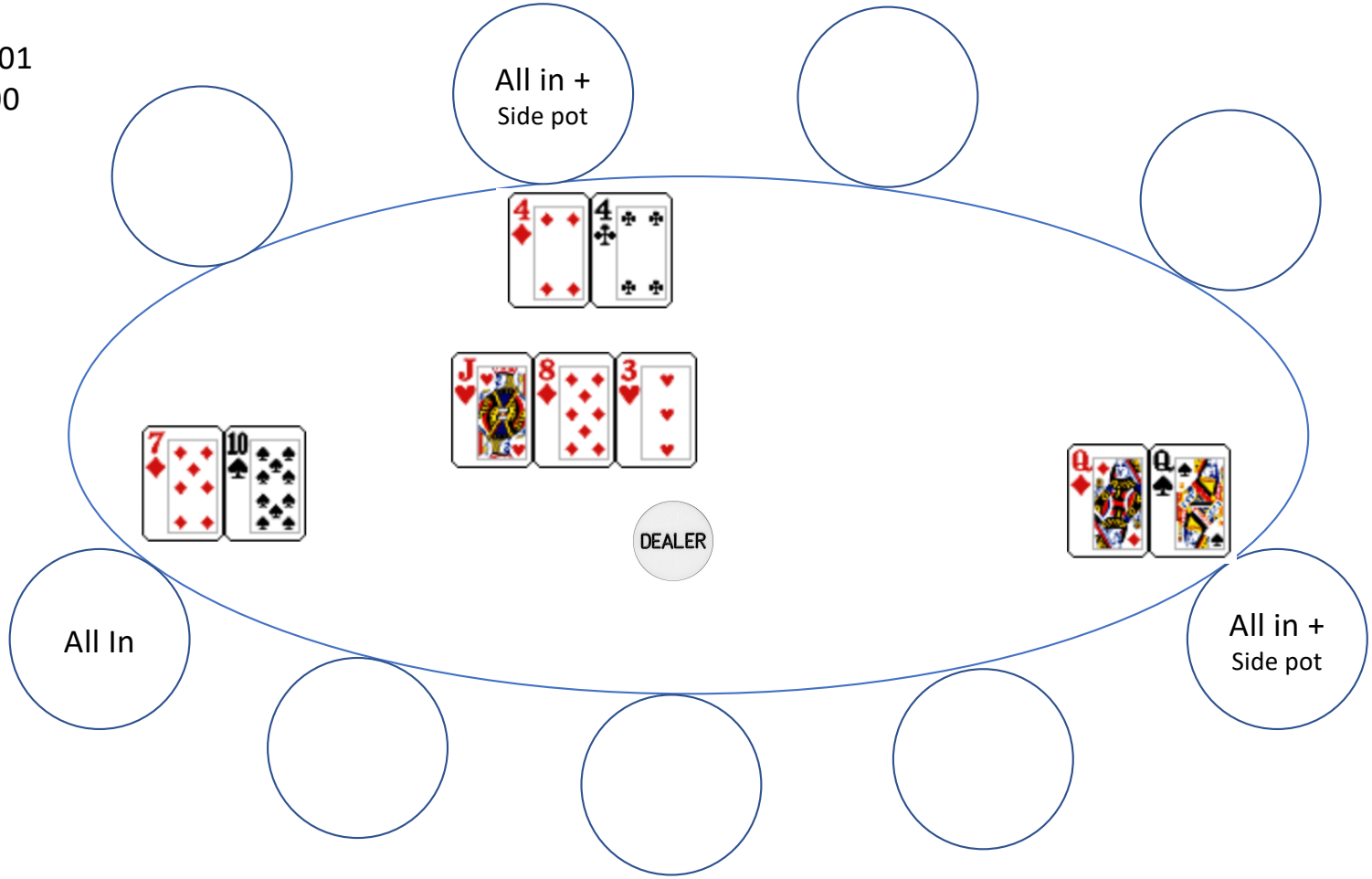

All in
$400
$200
$1
DEALER
$60
$200
340


All in
$400
$200
$1
DEALER
$400
All In
All In

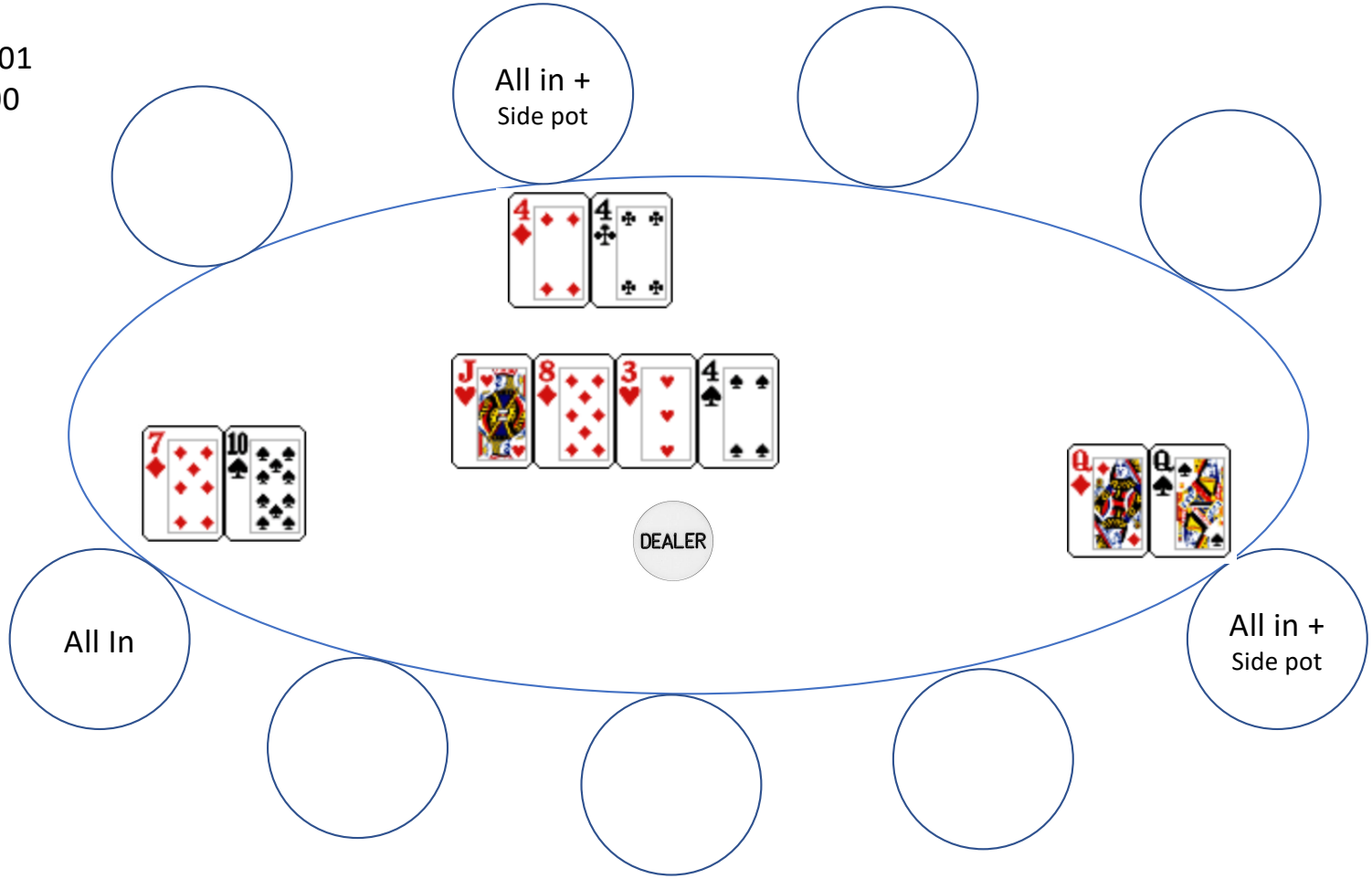
Main Pot: $601
Side Pot: $400



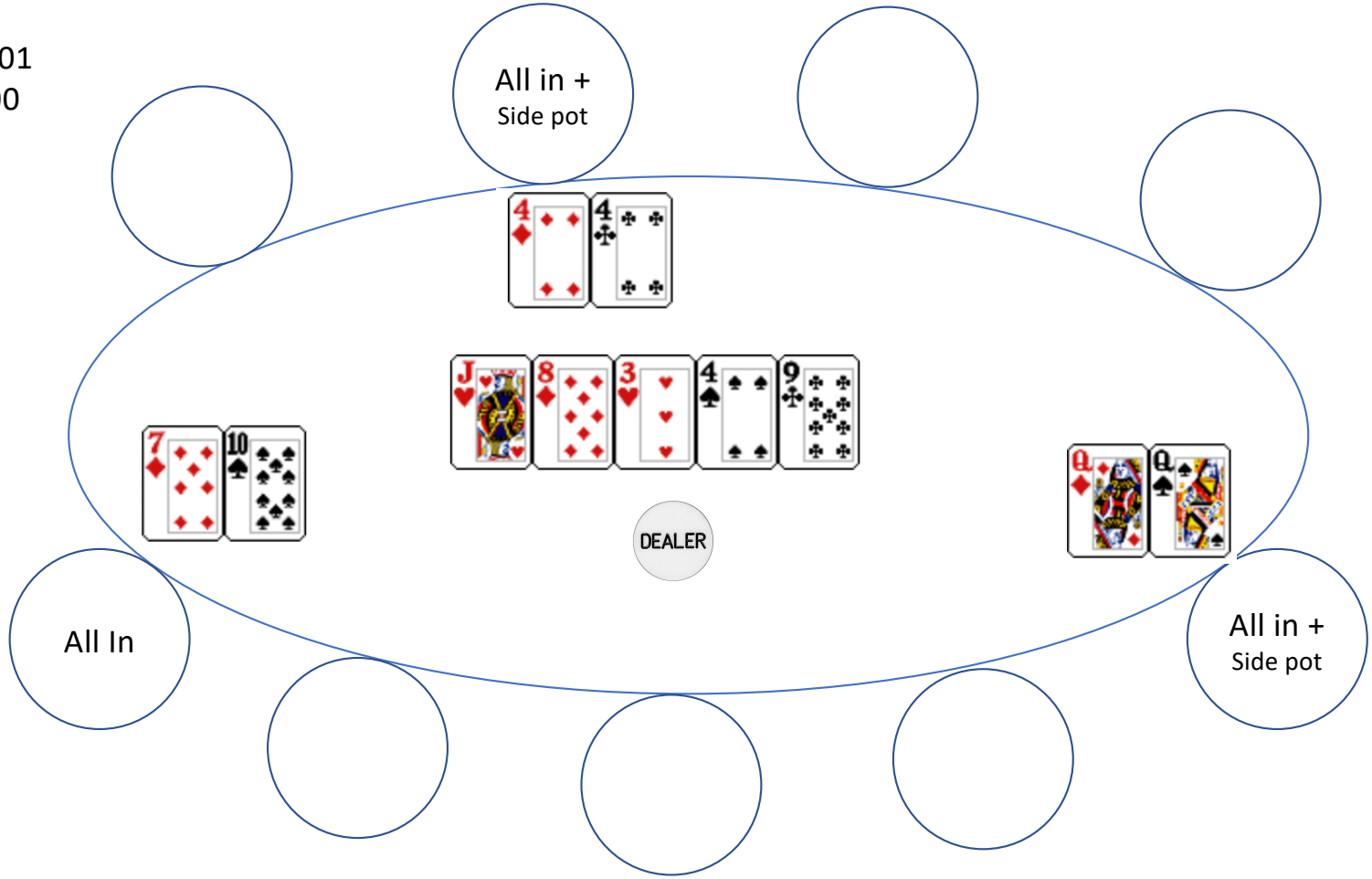
Main Pot: $601
Side Pot: $400



Main Pot: $601
Side Pot: $400

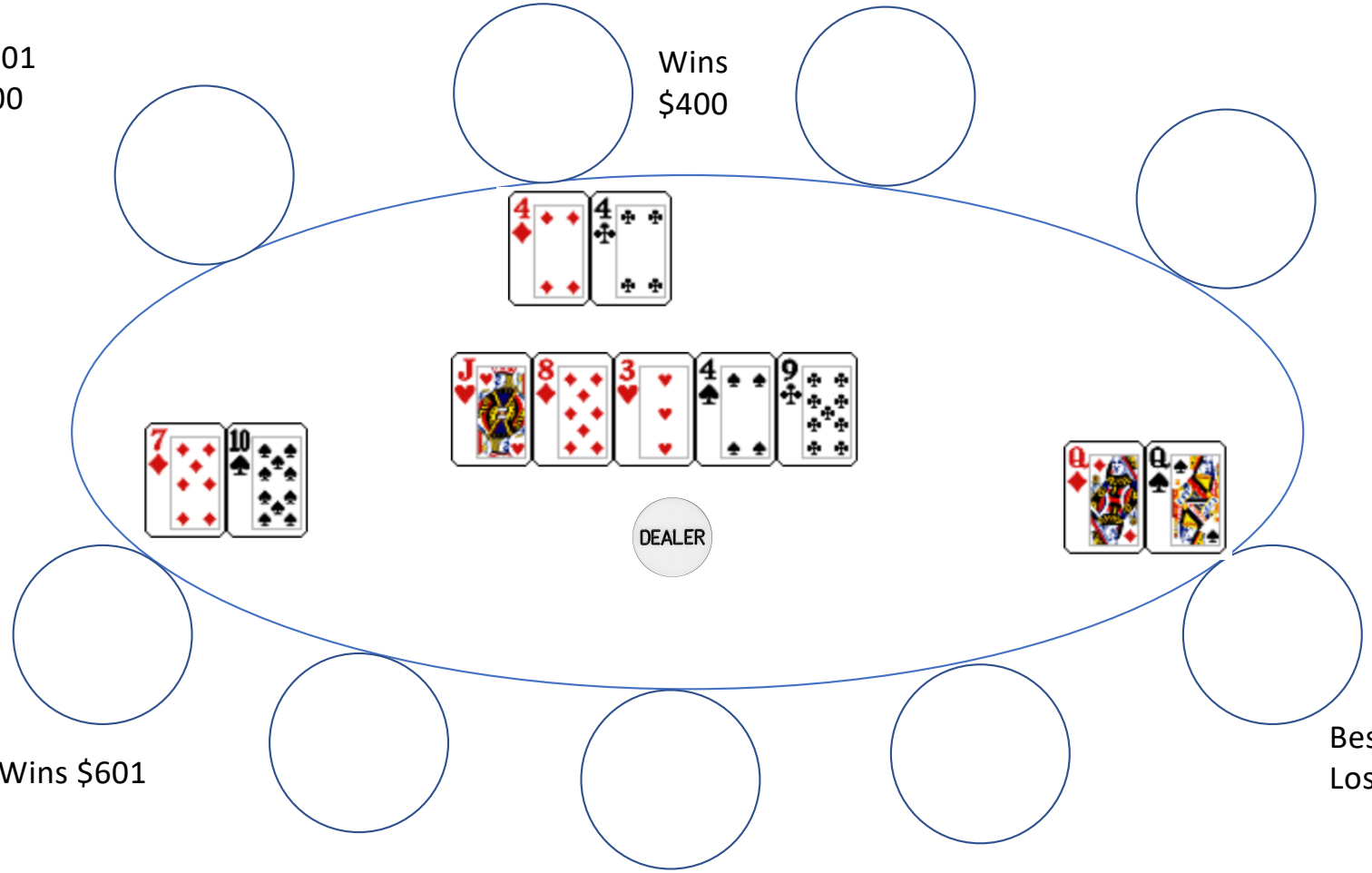


Main Pot: $601
Side Pot: $400



Main Pot: $601
Side Pot: $400

Wins
$400




Wins $601

Best hand pre-flop
Loses

# Chess vs. Poker

- In chess, the best player almost always wins
  - In poker the best player will win more often than the worst player
- In chess, the worst player will grow frustrated and quit
  - In poker, a bad player will win big sometimes and keep coming back
- In the world championship of chess, only the top handful of players compete
  - In poker, any donkey with $10k can play in the World Series Main Event
- Playing chess well is hard
  - Playing poker well is also hard! (and it's easy to play badly and not realize it)

# Cash versus tournaments

- Cash games
  - Chip values = cash value
  - Blinds stay the same
  - Can add chips to stack up to the maximum anytime
  - Take any available seat
  - Can never remove chips from the table
  - Can take breaks anytime
  - Straddles usually allowed
  - Running multiple boards out
  - Stacks tend to be large
    - Relative to big blind

- Tournaments
  - Chips have no real value
  - Blinds go up regularly
    - So stack size goes down relative to big blind value
  - Game is on the clock
  - Assigned seating
  - Cannot add chips
  - Top # of places get paid, e.g. top 10-15% of the field
  - You can only lose your buy-in
  - Different formats:
    - Bounties
    - Shootouts
    - Satellites

# House cut – the rake

- Cash games – in casinos
  - Rake each pot
  - Usually 5% up to $5
    - Same for $1 - $3 and $2 - $5
  - Typically $5 - $10 and above is timed rake
    - Every half hour, each player pays a big blind
  - Tip to dealer is expected from winner of each hand
  - Many places take additional $1 or $2 for bad beat jackpot and high hand promotions
- Tournaments
  - Part of buy-in goes to house
  - E.g. $100 buy-in, $15 goes to house, $85 goes to prize pool
  - Players who cash are expected to tip based on how much they win