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**WILL MA:**

All right, guys. I'm going to get started. If you haven't done attendance yet, you can do it at the break or afterwards. I think it will work. OK, so just a few quick announcements. So, homework 1 is posted and due Friday. I have it up on here. Are there any questions about homework 1, or anything about the procedure?

So, Lee Marie's going to have office hours shortly after class, 4:30 to 5:30 in E51-145. So if you have any questions, you can ask her as well. Or you can ask me now if you think they're applicable to the general class.

OK, cool. So, OK, so I'm going to proceed then. So I hope-- so most of you I think have started playing in the online tournaments. I hope you guys-- if you haven't, I hope you plan on starting soon. Yeah, I hope they've been fun so far.

OK, so today, I'm going to focus more specifically on poker itself. I know last class, I talked about a lot of general concepts on decision making and how to think about exploiting your opponent versus playing within a Nash equilibrium way. Today, I'm going to focus mostly on poker, and try to give a lot of hand examples. And I'm going to introduce post-flop play, which I didn't really talk about last time-- so basically, what happens after you see the flop.

OK, so I'm going to just start with an example hand. So, we get ace-queen offsuit in hijack minus 1, so I think I called it lojack in the earlier slide-- in last class, but basically, it's four away from the button. So it's how many people-- the thing that matters is how many people behind have cards and could be left to act.

So we raise a bit bigger than 2.25 big blinds, but I'm not going to nitpick that for now. So, we're a bit deeper stacked, so we want to build a bigger pot because we think we have an advantage, I guess.

OK, so, it's folded to both blinds. And both blinds call OK? So, the flop comes on 9-8-deuce. So we sort of missed the flop. And the small blind checks, and the big blind checks. OK, so what happened is clear so far?

OK, so now, we have a decision here, essentially. So first, I want to talk about checking to the preflop aggressor. So this is sort of-- this is sort of a conventional way to play. So, they both

checked, so we were the preflop aggressor. So in this case, I mean by preflop aggressor, the person who put in the last raise preflop.

And the reason why this is significant is because in some sense, we have a stronger range of hands than they do because we could potentially have pocket aces, which is the best hand. And it's going to be good hand on pretty much any flop. Whereas it's much harder-- it's much more unlikely for them to have pocket aces, because if they had pocket aces, it would be a good play, and a tempting play to re-raise preflop.

So basically, they're sort of just recognizing the fact that on average, we're going to have a better hand than them. So they're going to check us and let us bet because in general, on average, they would prefer if the pot was smaller. And we would prefer if the pot was bigger because our range is better.

Yeah, so they both check to us. And right, so, like let's say they had a pretty good hand. Like, let's say small blind had 10, 9 suited or something, which is the top pair-- so the highest pair on this board. That's a pretty good hand. But that's still a hand that loses to pocket aces.

And there's still the risk if he bets out with 10, 9, we could just raise. And then he has to be worried, you know, do we have pocket aces? There's basically always going to be this worry of pocket aces and pocket kings, and just big pairs that he has to worry about that we have to worry about less.

Occasionally, someone there probably should slow play pocket aces preflop and just call. But most of the time, it will be a better idea for them to re-raise to get more money in preflop. So that's why they both check to us.

So now, we have the opportunity to bet or to check back. So, let me first check what-- how big to bet if we decide to bet. So here, we bet 200 into 375, which is about half the pot. And so, between betting big and betting small, it's sort of the same principles I talked about last class between raising big and raising small preflop.

So the advantage of betting small-- so, the disadvantage of betting small is that you give your opponent better odds to call. So like let's say they have, I don't know, like Jack, 10 here, a hand that's losing to you. They have the better odds to call and a cheaper price to call to see another card to try and beat you.

But on the other hand, our hand isn't amazing. Our hand isn't good here, essentially. We've

missed the flop. We haven't paired our hand. And if we get raised, we're probably going to have to fold. And the more we bet, the more we lose when we get raised. So it's the same sweet spot principles. If you bet too small, you get called too often by worse hands that just have good odds to call. And if you get too big, you're just losing a lot when you get raised.

So a good rule of thumb is to bet half the pot on the flop and then like a slightly bigger percentage on the turn, like 60%, and then an even bigger percentage on the river, like 70% or something. Something like that is about reasonable. You could bet up to like 100% of the pot on the river. So I'd say just somewhere between 50% to 100% of the pot is a good amount to bet. And the fraction should increase as you get closer to the river.

So this might seem slightly contradictory, because what I said last class was you were able to-- last class, I said you want to give your opponent-- you don't want to give your opponent great odds. But in some sense, if we get to the river, right, all the cards have come out. There's no more unknown cards. So either they had the better hand or we have the better hand. But there's going to be no uncertainty in what cards could still come.

So in some sense, you might think it's more intuitive to bet smaller on the turn and river and bigger on the flop, because on the flop, they have more chances to outdraw us, whereas on the turn and river, they have fewer. But let me just find the-- all right, now I don't have to stand there.

OK, so this might seem contradictory, right? So I'm saying that bigger on the river, but on the river, they actually have in some sense-- on the river, there is-- it's more determined whether their hand is good or not. So why is this? Why do we want to bet bigger on the turn than the flop, whereas on the flop, any hand sort of has closer to 50% equity, because anything can still happen with two cards to come?

So the main reason is because when you bet the flop, they're not just deciding to call your flop bet for the equity there. They also potentially have to call a turn bet and a river bet. And essentially, this factor-- the fact that they have to, you can threaten to bet again on the turn and bet again on the river, and they have to call all these bets, is a bigger factor than the fact that they have-- there's slightly better odds to call on the flop.

OK, so another important thing to say is when I said bet between 50% to 100% of the pot, I mean I think that's-- it's very important to bet at least some fraction of the pot, especially when

they're checking you. Because in some sense, betting small is strictly worse than checking. Like in this case, you get 50, which I guess isn't nothing. But imagine you bet \$1 here.

The issue with this is the rules of betting safe, right, if anyone bets any positive amount, then the guys who checked now have a chance to check-raise. So if you're betting small, which is almost the same as checking, all you're doing is giving your opponent a free option. You're allowing them the opportunity to say, OK, I couldn't just-- like if you check, you see the turn, and the turn comes. But by betting, now they have the opportunity-- a second chance to bet. Yeah?

**AUDIENCE:** How does this change if you have the nuts? Should you bet? Like, you want calls at that point, right?

**WILL MA:** Right, right. Exactly. Yes. So, I'm going to get to that, yes. So if you have a good hand, yeah, you'll bet too because you want calls. Right now, I'm just talking about a general strategy to play with your entire range of hands. And in general, I guess that's all I'm trying to encourage people to think about poker in this class.

Like instead of thinking about what cards do I have and what cards do my opponent have, I try to talk in terms of what is the probability distribution over my opponent's hands, and what's the probability distribution over my hands in his eyes, essentially. So I'm just talking about a general scenario, yeah.

OK, cool. So, right. So you never want to bet too small, basically. It's better just to not bet. There's no point to bet. Really, it's not, because you're giving away free option. OK, so yeah. So this is what I just said, essentially. Because remember, just because they checked doesn't mean they have bad hands. They're often checking regardless for the reasons I described earlier.

OK, so in this situation with ace-queen offsuit, I think both betting 200 and checking are reasonable plays. And let's analyze the advantages and disadvantages of both. So the advantage of betting 200 is that you don't give some garbage hand like king-jack a chance to outdraw you.

So in this situation, if we bet 200, probably if someone had King, Jack, they'll probably just fold because it's almost one of the worst hands on this board. And if we bet 200, then they're going to fold. And then we could just win the pot right there. If we don't bet, maybe the turn will come

a king or a jack and they could beat us.

So what's the advantage of checking? The advantage of checking is we get to see the turn card for sure. We can't get check-raised. Like right now if we bet we get check-raised, we probably have to fold with no pair. But if we check, we might see a queen or an ace on the turn that should be great.

And another advantage of checking is, in some sense, when you bet in this spot, you're only called by hands that beat you. You're going to get king-jack to fold, which is still fine, because they have six outs. But you are ahead of them, so it's not the end of the world to just check him. If the turn comes like a deuce, you're still ahead.

And if it checks all the way to showdown, like all the way to the point where you have to flip over your cards, you're going to beat king-jack. Whereas when you bet, you're essentially getting all the hands you're ahead of to fold. Like if they have ace-7, which you're also ahead of, they're probably going to fold. And pretty much all the hands that beat you probably aren't going to fold.

Like, maybe someone will fold pocket 3's or something, but for the most part, you're going to get called by a 9. You're going to get called by an 8. So it's this idea sort of adverse selection. You're getting called only by hands that beat you, and you're just folding at everything else. So overall, I'd say these about balance out and you can-- I think betting or checking are both fine.

OK, so now let's suppose it's the same spot. And we had king-queen. We had king-queen instead of ace-queen. So pretend all the action was the same. All the preflop action, the flop action-- everything was same, except just our cards change. So in this case, if we do the same comparison again, we'll see that betting has a bigger advantage now, because we can get hands like ace-jack and ace-7 to fold.

Those hands previously we were beating with ace-queen. But now, we don't want to risk getting a situation where it's checked to showdown and everyone flips over their cards, and we lose to ace-jack or ace-7. So I'd say in this case, now with king-queen instead of ace-queen, betting has a lot more advantage because we're getting better hands to fold.

OK, and this is what you were talking about. Yeah, what if you have the nuts? So in this case, if-- so suppose now we change our king to a queen. So we actually have a really good hand. We have pocket queens, which is an overpair, a pair above any card on the flop. So now, let's

look at the advantages of betting versus checking.

So now, one advantage of betting that we never had before because we always had bad hands is, now we can get worse hands to call us. If they have 10-9 or ace-8 or pocket 5's, they're probably going to call. And we're beating them, so we're just going to win more money. And the advantages of checking is essentially none. So the correct play, I think, is clearly to bet in this situation.

So, essentially what I'm trying to get at is-- so I call this the Fundamental Theorem of Poker. It's sort of a made-up term. But essentially-- so one of the main things you should realize when you're betting postflop is that a bet basically accomplishes one of two things. So with your good hands, you want bet because you can get them to call with worse, but still good hands. And we call this value betting. So with the pocket queens, this is-- what you're doing is value betting when you bet.

And then with the bottom hands in your range, you should bet to get them to fold better but still pretty weak hands. So in this case, when we had king-queen, we would be betting to get them to fold ace-jack. So, this is called bluffing.

So essentially, the point of a bet should either be a value bet because you have a really good hand, or a bluff because you have a really bad hand. And you want to sort of think in terms of that way. And if you ever find yourself making a bet and you're not sure whether it's a value bet or a bluff, then chances are you maybe shouldn't be betting.

So with the middle hands in your range, you should check because if you bet, you fold out all the weaker hands and you keep in all the stronger hands. OK, does that make sense? So this is like the fundamental concept in poker, essentially, that we should try to realize.

OK, so I sort of made this diagram. So, the best hands are at the top of the rectangles. The worse cards-- the worst hands are at the bottom. So once again, we're thinking in terms of our entire range of possibilities. So postflop, we want it sort of-- so that's on the left. Postflop, we want to bet the best hands, bluff the worst hands, and then check things in the middle.

And then preflop, basically we fold all the bad hands and then we raise, or if someone's already raised, we re-raise the best hands and we just raise the pretty good hands. I'll talk more about preflop playing in a future lecture.

But I just wanted to contrast this because I don't want someone to think, you know, if I have 7-

2 offsuit preflop, I should be bluffing. Because it's a different scenario. Because preflop, you're choosing what percentage of hands to play. And it's strictly better to just choose the best 30% or the best 40% instead of choosing the best 10% and the worst 10%.

OK, so going back to this principle, with 7-7, so it's still the same situation. So I'm analyzing the same situation many, many times with different cards. With 7-7, the right play is definitely to check. Because so, with ace-queen, it's in a similar spot to ace-queen in that it's also you get called only by better hands and you mostly only fold out worse hands.

But with ace-queen, at least there was the advantage that if they called with like an 8 or 9, we could turn-- we have more chances to beat them. We could turn an ace or a queen and win more money, or alternatively, we could turn a jack which gives us a straight draw, and try to bluff them off [INAUDIBLE] or something. Whereas with pocket 7's, there's less room to play. So, I think with pocket 7's, you should definitely check on this flop.

So, OK, so some other stuff about continuation betting on flops. I wouldn't bluff super scary flops. By super scary, I essentially-- mathematically, it just means there's a lot of uncertainty because so many things are possible. And basically, this happens when there's three cards of the same suit and they're all connected. So whenever the board is like this, it looks scary. It looks very coordinated.

But mathematically speaking, it's essentially saying, anything can happen. And no one should fold if you have anything at all. Because you know, if you have any 10, you have a chance of making a straight. If you have a reasonable heart, you have a chance of making a flush. Just any hand is going to have a reasonable chance.

Same as, you know, even if you have like an ace, like I guess as we do, you have a chance of turning a higher pair. So I would just check, and basically give up on this flop. Or check, and hope you hit an ace or a queen, I guess.

And another thing is continuation betting into too many people, if you have nothing, it can be an advanced play in certain situations if everyone else also recognizes that if you're continuation betting into five people, you just have such a good hand that they're going to fold a hand as good as say, like, pocket 8's here.

But for the most part, in practice, I would say if the pot has like six or seven people, I wouldn't try to bet on the flop with overcards to try to get everyone to fold, because someone's going to

have two hearts, or someone's getting have a 7. Someone's going to have a pair.

OK, so I talked about sort of when you want to bet postflop. So now, I'll talk a bit more about when you want to call bets postflop. And I'm going to try to give a lot of different situations. So now, let's look at calling bets. And I think newer players especially tend to call with hands weaker than you need to.

So the general rule of thumb is, unless your opponent bets extremely small, which they should not do by what I explained, you should fold most of your hands to a half-pot bet. So in some sense, most hands miss most flops. And when you miss, there's really not a reason to do anything other than to fold.

There's a lot of tournaments. See I always play the next tournament and get dealt and new hand and try to have a good hand, so, OK. So now, I'm going to change this situation up a bit. But once again, I'm going to analyze the same betting situation over different hands. So now, it's everyone folds to-- is folds to the button. We're still 40 bets deep because the blinds are 2,550 and we have-- we have 2,000. And so the button makes it 125, and we decide to call with our hand.

OK, so let's say we have queen-9 suited in this case. And, OK, let's say the flop is 10-7-2. So, we check. We check as a form of respect to the preflop raiser. And then they bet half-pot. So here this is a situation where we've got no pair, no draw. I guess we have an overcard. We have an overcard in the queen, and we can turn a pair of queens to beat a tier of 10's, but that's only three cards that help us.

Basically, the correct play is just to fold. You essentially have nothing here. You know, you have some like, speculative straight draws where if you hit a jack and then an 8, like if you have two cards that come for you, then you get a straight. But for the most part, we've got nothing. We just fold.

Here are some other situations where you should just fold. So here, we have ace-high but the board has three pretty big cards. And there's a decent chance he's going to have one of them. And if he doesn't, he's going to have like queen-10, or 10-9, or something with straight [INAUDIBLE], or some kind of straight draw with a lot of outs.

So there's just no reason to play hands like these. So it's totally fine if you lose a lot of hands, as long as you win more chips on the hands that you do win. So, just fold this. Not much



reason to play.

Here, you have this. This board is a bit better for you. You have ace-9 high on a 6-high board, but there's a lot of straight draws, and there is a flush draw, a spade flush draw on this board, so I would still fold.

Here, we even have a pair, but this is an example where I think I'd fold even though you have a pair. So we have a pair of 9's here which is decent, but once again, there's three hearts. And it's easy for him to make a flush or make a straight. And even if he doesn't, we're going to be-- we're going to have to check to him on the turn, check to him on the river. And then they can bet, and then we have to decide whether we call it or not.

So, just overall, there's a lot of-- it's an [INAUDIBLE] play. And this is why what-- I'm talking about being out of position. So where we have to act first on every straight, so it's going to be tougher to make good decisions.

OK, so now, we're getting some better hands. But I think I would advocate still folding these. So here, our hand is-- it's not bad. We basically got a four-out straight draw, which is usually called a gutshot. You hit an 8 to turn a straight. And also we've got diamonds. If we get two diamonds in a row, we can make a flush.

But overall on this spot, I would still fold just because even though we've got four outs to our gutshot, we've got no combinations-- we've got no other combinations to help us. Like, a 9 is essentially useless when there's three higher cards on the board. Turning a 9 doesn't help us at all. Turning a 7 doesn't help us at all.

And furthermore, even if we turn an 8, it's possible. So if we turn an 8, then queen-9 makes a better straight than us. And also, king-queen, which already has a straight, is a better straight than us. So even when we hit an 8, it's not even-- we're not even 100% sure we're going to win the hand. And we could just put our chips in after hitting an 8 and lose all our chips. So, I would fold this as well. A four-out gutshot is bad unless you have other stuff to go with it.

OK, so in this case, we have a better straight draw. So in this case, we have an eight-out straight draw. Because an 8 gives us a straight-- 8 through king. But a king also gives us a straight. We have 9 through King. But in this case, I would still-- I would still recommend folding just because if a king comes then-- you know, we do have a straight, but we lose to an ace.

So, 10-jack-queen-king-ace is going to just be a higher straight than our 9 through king

straight, so even though we have a lot of outs, the outs aren't that good, and it's possible we just once again, we make a second-best hand, which is the worst possible situation in poker because you're going to put a lot of money in and you're going to lose.

OK, so this is another example I would fold. Pocket 5's on queen-jack-10. You have a small pair. You started with a small pair, but you didn't improve at all. The flop did not help your hand at all. And it most likely helped your opponent's hand.

OK, so, here's a question you can ask. So in all these spots, I say fold, but what if I think bluff-raising will work? You know, what if I think I can get him to fold if I raise? So what I want to say is, when you're bluffing on the flop, it's usually because you have some kind of draw or some kind of nice speculative hand that has a chance of turning into a good hand. In all the examples I showed, not only are our hands bad, there's not that many good cards for us, with the exception of maybe this 7-9 hand, where if you turn an 8, it's pretty good.

But yeah, even this-- even this hand, if you turn an 8, it's not that good, because the board is then going to be 8-10-jack-queen. So we're only playing with one-card straight, which is still fairly easy to put aside.

OK, so before we get to spots, or maybe we want to raise, potentially bluff-raise, let me just go-- let's go through some spots where I think calling is a pretty good play. So here, I think calling with ace-9 high on this board is reasonable. In the example where I said you should fold, the flop was 6-5-4, and there was a flush draw. So there were straight draws and flush draws.

In this case, the board is paired, which really helps us because there's just fewer combinations of pairs that he could make. And a 3 is a pretty small card, so it's pretty unlikely they have a 3. So ace-9-high is pretty good here. You have two overcards. You even have a diamond [? back your ?] flush draw. So I would call here.

OK, so we would get-- so getting better, here, this hand is even better. We have ace-3. We have bottom pair on this. Pretty safe flop. It is three different cards, and they could have a jack or a 5, but just overall against a range, we have tremendous equity here. So I would call. So note, when I say call, do not raise. I'll give you examples of how good, roughly speaking, our hand has to be to raise.

All right, so here, I would call. The board is very scary, but we have second pair. And I think

second pair is just-- second pair with the best kicker would be ace. So that's definitely good enough to call. With ace-9, I think this would be borderline, whether you call. I think calling is OK, but not mandatory.

OK, here's another example-- second pair on a safer board. This is a pretty good hand. I mean, if they've got an ace, we're not drawing to that many outs. But if they don't have an ace, they're not drawing with that many outs. So it's because whenever big cards come on the flop, like an ace and a king, in some sense, even if there's flush and straight draws, more of the-- more of who's going to win has been decided.

Because if you've got a big pair, like if you've got an ace or a king, then there's not like an even bigger card that can come in to try and beat you. And if you don't have it, then, you know, it's like if you have 10-9, even if you turn it's hand, you're not going to outdraw an ace-7. So here, I would just call.

Here, you have a pretty good pair, pocket 8's on 9-3-3. Obviously, you have a very good hand here, but I just think, in this case, where there's no flush draws-- no straight draws, there's not really that much reason to raise because it's not like you're going to get called by worse hands that often that I would still only call. Even though in some sense, your hand is very, very strong here. Like, I would expect you to have the better hand more than 80% of the time. But the problem is when you raise, they're only playing the 20% that beats you, which is hands 9's, hands with 3's, and pocket 10's plus.

So here, I would also recommend calling even though we have top pair. So top pair, the highest pair on the board. It's a pair of aces, which seems-- you know, it seems like we have a good hand we should raise. But once again, our other card, which is very relevant, is very small in this case. So we're going to lose to ace-queen-- any kind of big ace.

And furthermore, there's not that much reason to raise because we're not that scared of letting them see a turn card with, say, 10-9. Because even if he turns a 10 or a 9, he's not going to beat us. So, right-- so, the reason you raise is essentially to not let your opponent see more cards and give them outs. But they don't have that many outs if we're ahead of them.

So I would-- so this is, you can say this is like, a way-ahead, way-behind situation. That's some terminology that you might hear, which basically means you're either way ahead because they don't have an ace, or you are way behind because they've got ace-queen. And when you're way ahead or way behind, you don't really want to be raising because he's just going to call

you when you're way behind, and he's just going to fold when you're way ahead.

OK, so here we're getting some pretty good hands. Ace-jack and jack-10-9 with a flush draw. I think if you raise, it's not-- it wouldn't be the end of the world. The issue is I think 2,000 chips when the blinds are only 2,550 is still a bit much to put in your entire stack on this flop. And just because even though you have top pair with the best kicker, there is a lot of straights. And even if he's-- like even if let's say they have queen-9 of hearts-- I think that's behind of you currently because they only have a pair of 9's. There is just going to be so many straight and flush outs they're going to have that you're never really getting it in ahead of equity by that much. So I would just call and see what the turn is. But that's maybe the best-- one of the examples of the strongest hands you can have where I would still recommend calling.

In this case, we've got a small overpair. But I would still call even though, once again, we have the best hand probably 80% plus of the time. But once again, when you raise, you're only getting played back at by the 20% that beats you.

So, OK. Yeah, so, and notice there, when I went through these examples, the stack size was very important, right? So in the first class, the important things are position, stack size, and cards. In this case, the position was the button. The cards-- I've showed you what the cards are. But the stack size-- the fact that you're playing for potentially 2,000 chips, is very important. And if you're playing for fewer chips then you can risk gambling a lot more, as I'll show you later.

OK, so another note is you could argue for check-raising in some of these call situations especially the ones where your hand was more vulnerable to overcards. So let me just quickly run through them again. So, I'll describe what they are. So this is one of them, because here, you could argue, OK, I want to raise because if I call, what if he has jack-10? Then he has 6-7, right?

Here, this is another example. What if they have 10-9? They can turn a 10 or 9 and beat us. Here, this is not an example. Here, I think calling is clearly correct because the only bad cards are like a queen, because an ace gives you two-pair. So, there's just very few scary-- the board is already scary and there's not that many overcards that can come.

This is another example because in this case, there's actually no scary cards in subsets. No card is-- there's no card that you're afraid of giving him. This is an example where you could

argue for raising. You know, you don't want jack-10 to see another card. That's reasonable, yeah.

Here, there's no risk. It's completely safe, so I would never raise. Here, I guess there are some bad cards, but if you raise, they can just call with your draws anyway try to hit. So here, this is an example where you could argue for raising to not let them see a turn card.

OK, so, yeah. These are reasonable arguments and I think raising some of these call hands would not be a terrible play. But I think for most of these, the advantages of calling still outweigh the advantages of raising, especially if your opponent is also capable of bluffing. Because let's say you check-raise. So let's say they make it 150. You make it 400.

And then let's say they go all in. But they're going to go all in not only with hands that beat you, like pocket 7's plus. They'll also occasionally do this with hands like ace-3 or ace-4, hands that have an overcard in the ace, but also have a gutshot straight draw. Like ace-3 or ace-4 can make a straight.

Then you're just in a very tough spot. Basically if you call, you're not in a good situation because you're often behind. But if you fold, then you're also folding to a lot of weaker hands. So there's just a lot of ways for the hand to go badly if you raise because your hand sort of-- it's too-- it's not good enough to raise and call if they re-raise. Yet, it's too good to sort of waste as a check-raise bluff and just fold if they re-raise, right?

Like let's say my play here with pocket 6's is to check-raise and fold if they do anything else. But then you could argue, why am I doing this with a hand as good as pocket 6's? Why don't I do this with 10-9? Because it's going to be a similar result most of the time. They're going to either fold and I'm going to win the pot with 10-9, or they're going to raise and I'm going to have the fold with 10-9.

Occasionally, they'll call, but you could argue in that case, I would almost rather have 10-9 than pocket 6's because pocket 6's I'm going to always lose. And 10-9, who knows? I can turn a 10.

So, anyway, so the long story short is I would just recommend just calling with most of those hands although there's definitely lots of arguments you can make for raising. Yeah?

**AUDIENCE:**

I didn't get why we'd assume once-- should re-raise if you have the top pair, the top kicker of either because if you give them the draws, at least once you make the shorts bigger, then it

will turn out all right.

**WILL MA:** You're talking about this situation?

**AUDIENCE:** Yeah, it is.

**WILL MA:** Yeah, yeah. OK, yeah, that's a good point. So, yeah, I think that the main reason is just your overall equity against their range is pretty low on this board compared to an average situation if you have top pair or top kicker. Like if the board is jack-7-2, your equity against their range is probably something like 85%. Whereas on this board, your equity is just overall a lot less. There's a lot more hands that beat you. So there's a lot higher probability that if you raise and call and put all your money in, that you're behind, basically. So there's just a huge risk of that.

So, but yeah, I do agree. It does feel very unsatisfying to only call and let them see those cards. But I think it's sort of the lesser of two evils in this situation between putting all your money in with his hand versus letting them see some cards. Yeah. All right, cool.

OK, so just how good does my hand have to be to raise? And the question depends on the effective stack size. But when the effective stack size is fairly deep-- so let's say 40 big blinds, I think it's about the cut-- 40 big blinds or deeper. So, you know, you have a lot of chips. You're playing for a lot of chips relative to the blinds. You need a pretty good hand to want to put all your money in.

So a general rule of thumb is two-pair or bigger. And yeah, once again, this is only applicable when the effective stack size is large. And a lot of the online tournaments, especially the ones where the blinds go up quickly, the effective stack size can be around 10 or even lower pretty quickly. Yeah?

**AUDIENCE:** How much do all of these decisions depend on their position or your position?

**WILL MA:** OK, that's a very good question, actually. Right, so in this situation-- so the answer is essentially-- yeah, it depends a lot in this. The examples I gave are specifically for the button. Yeah, so, I would say if they were under the gun instead of the button, you need to play somewhat differently because they're going to have-- because on the button, they're going to have 55% of hands. And let's say, here, like 10-9 is a possibility.

But actually, maybe a better example is-- now, I think this is a board where it's really different. Because against a-- if they raise from the button, you know they could have 55% of hands.

And ace-3 is a pretty good hand here. But if they raise from under the gun and they're pretty tight and their range is-- pocket 8's are better and ace-queen, ace-jack, ace-king, then you're doing a lot worse. Yeah.

So yeah, so it definitely matters a lot. And yeah, I mean-- yeah, so I guess I can't go through every single possibility, right? Like this position, this stack size, with this [INAUDIBLE]. So yeah, so you do have to do a bit of extrapolation. Like if they're-- right now in these examples, they're the button. If they're the cut-off, their range is going to be a bit stronger. If they're the hijack, their range will be a bit stronger, yeah. Yeah, that's a very good question. Yeah, very, very good point.

Yeah, because in all the analysis I just did, I'm assuming their range includes hands as bad as like, 8-7 suited and stuff, which isn't going to be the case if they were an earlier position.

OK, so-- all right, so how good does my hand have to be to raise? So, two-pair or better, but by two-pair or better, I mean two-pair where both of your cards make a pair. Here, where one pair is on the flop, I wouldn't count this as two-pair. And this two-pair is complete trash because any card beats you. So I wouldn't go on here. This one is also pretty bad.

So, OK. So now, when would we raise? OK, so I think this is what-- this is basically the best thing that can happen to you in poker, pretty much-- almost this exact situation. So here, we've got three of a kind. And there's also a lot of draws. So we're going to get played back at a decent amount because you could have hearts. He'd have like queen-jack. There's just so much stuff that isn't going to fold, and we're always going to be way ahead of him. Pretty much always going to be way ahead.

So, it's sweet. I actually think this is very close to the dream situation. Does anyone have an idea of why this situation is almost, in some sense, even better than say, we had pocket 10's? Yeah?

**AUDIENCE:** If you have pocket 10s, that's why you tap a 10?

**WILL MA:** Exactly. OK, I'm going to give you a \$20 boost.

[CHUCKLING]

No more playoffs today. So you're going to see-- OK, right. So it's almost even better in some

sense you have pocket 5's because as Ben said, if you have pocket 5's, he could have a 10 and put in a lot of money. If you have pocket 10's even though you're crushing even harder, it's almost like you've taken all the good cards away and then he's just always going to fold.

So, OK, here's another situation where your hand's very good, although I think you can make a case for just calling here. Yeah, I don't want to say you have to raise because your hand is just so invulnerable. And even though the chances that he has that the remaining ace and a better card to go with it is pretty small, there is still a lot of, I guess, adverse selection in this case because there's no draws.

When you raise, he will fold a lot of stuff. And the stuff that he does play-- it's not going to only include the remaining ace. Like, he will call with pocket 7's almost certainly, but it does include-- it does significantly make his range more likely to be the ace that beats you. So, I think just calling is OK.

Here, obviously, you have the best possible hand. Although, once again, I think just calling as a sort of a trap is reasonable. Although I would advocate just raising. I think it's the simpler play. You know, a calling-- I think you'll see a lot of high stakes players do as a trap, but it's a very, very tricky play.

I think raising definitely has lots of merits because if they've got king-- like even ace-king, they're not going to fold. They just want to get all the money in. Because they're probably going to think you're more likely you have a single heart than two hearts. So if they had ace-king, especially when it's only 40 big blinds, they're probably just going to be happy putting all the money in, and before you can see a fourth heart.

So, like in this case, even though you don't need a fourth heart to make a flush, a fourth card is a really bad card for you, because that sort of kills all the action that you're getting from a king-- from a pair of kings or something.

Yeah, OK, so this is a similar situation. Although in this case, I would say a raise is mandatory. In the previous case, I think it's not mandatory because your hand is so safe. If you decide to try to trap your opponent, you'll never end up trapping yourself. Whereas here, if they just have any heart higher than a 6, if a fourth heart comes, they are beating you now. And worst of all is, let's say they have 10 of hearts, 9 of diamonds. If you raise, you could have easily gotten them to fold that 10 of hearts, probably.



Although, that 10 of hearts, 9 of diamonds is a bit good. Let's say like 9 of hearts, 8 of diamonds. They almost certainly would've folded their higher heart, and now you just lost an entire pot because you didn't raise. So here, I would raise. You have a straight. You are drawing dead if they have a flush. But with only 40 big blinds, I think the chances of a flush is unlikely enough that getting in is OK. With 100 big blinds, you could still raise, but probably not go all in. Two-pair-- the board is sort of scary, but two-pair is definitely good enough here. So--

All right, so, these are examples where you had really good hands. And I said you should just raise and get the money and then be happy about it. So do I need such a good hand? There's some other situations where a one-pair hand is sort of good enough. And so, coming back to the ace-jack example, you asked. So, we'll see some of that.

OK, so in this case, I think if you have pocket aces, that's definitely good enough to get it in. Although, you shouldn't have pocket aces that often here because most of the time, you should be re-raising preflop. But if you decide not to raise pocket aces preflop and you end up with it here, then I guess raising is good. You're going to be having the better hand. Although, if you were trapping them preflop, maybe you just want to trap them again and call again since there's not that many scary cards.

So here's an example of an ace-jack situation where I think getting in is fine just because there's still draws and there's still lots of worse hands that will give you action, but overall, your equity against their range is much, much higher on jack-7-deuce than jack-10-9. So I would just raise and be happy getting in 40 big blinds here. Here's a similar example-- king-jack. But we've also got the second best flush draw, so it's just very hard to get in back.

OK, so we'll see some examples where we have fewer chips. So in the last case, all the hands, we essentially had 40 big blinds-- essentially had a lot of chips. So, OK, so now, let's look at a situation where all the players-- so we only have 1,250 to start the hand, so that's 25 big blinds. And, OK, so in this case, even if you've got top pair with a mediocre kicker, I would just be prepared to go all in because we're risking a lot fewer chips. We're risking a lot fewer chips relative to the blinds. So here, I would just go all in.

So here are some-- yes, so I'm showing you some examples where if I'm 40 or more big blinds deep, I wouldn't be happy getting all my money in. But when I'm only 25 big blinds deep, I'm very happy to get all my money in. This is another example-- top pair, top kicker. It is a scary board in some sense, but you've just got to gamble for it when the pot is already so big on the

flop relative to your stack.

Same thing again here. So earlier, I had some examples of this on-- similar to this where I said, you just call it, but when you've only got-- when you've only got four to five times the flop-- I'm sorry, 45 times the pot on the flop, I would just go for it.

OK, I'll quickly run through this section. This is a slightly more advanced play where-- it's where you don't check to the preflop raisers. So this whole time, I've been talking about checking to preflop raiser as a form of respect-- respecting that the preflop raiser's range contains aces and yours probably doesn't.

So when do we want to lead? So from a theoretical point of view, so from a trying-to-play-optimally point of view, essentially we want to lead flops that hit our range better than his, even though his range contains aces, which is like a universal best hand. So they're rare, but they do exist. And I think it's OK if you never lead, but I'm going to run through this section showing some examples where I think leading is fun. But I think it's an advanced, unnecessary play.

So, OK, so here's an example. I hope this is visible. So we won't-- we're pretty shallow here. So most of the situations where leading is good, you're fairly shallow. So a cut-off two [INAUDIBLE]. So one from the button makes it 1,200 at 300, 600. And there's antes. So, we call with 9-deuce suited with 4 and 1/2 to 1 odds.

OK, so-- and so, here, we flop 2-5-6. And I lead a third of pot, planning essentially to get all my money in because we're so shallow. Like, I only started the hand with 10 big blinds. Essentially any pair is going to be good enough to get all my money in, although, maybe not if you raise from under the gun. But from cut-off, I'm happy to put all my money in against this.

So what's the rationale? So, our hand's good enough to put all our money in. And it's essentially a better flop for our range because we're short enough where the immediate equity preflop means so much to us what we're calling a very wide range of hands. Basically, a lot of hands that includes 2's, 3's, 4's, 5's, and 6's, whereas his range, he opened from button-- sorry, he opened from cut-off.

You know, even though it contains more monstrous hands than ours, like pocket aces, it also just contains a lot of hands like jack-10, queen-10-- basically, hands that don't connect with this board. Because if he had 6-5, he probably isn't going to open, at least, I don't think by my recommendations he should be opening 6-5. Whereas we could have hands like 6-5, we can

have hands like 4-3. So I'll lead here.

So it's basically essentially saying, you know, I'm no longer respecting you because the flop came in a very specific way where now my range of hands is actually better than your range of hands. So I'm essentially the preflop aggressor. I'm going to bet and try to make the pot big and force you into a tough situation with your weaker range. And yeah, and we can play like this with our good hands and with our bad hands, like 7-3. We have a gutshot, but we can bluff a bit.

So here's another example. So, under the gun raises. We call with ace-9 suited, which I think is a bit speculative, but whatever. We just had to call. And we lead a 10-7-5 flop where we have a flush draw. And once again, I think it's reasonable. So it's deep-- it's fairly deep, but we can have-- even though they can have aces, we can have more hands like-- we can have more pocket 5's, pocket 7's.

Tighter hands than him. He might not open those. And also, he almost certainly isn't ever going to have 9-8 of diamonds or jack-9 of diamonds-- hands that are basically monstrous draws, whereas we can. So once again, I'd bet because I don't really want him to check back ace-king or pocket 8's or something, which he probably will, because if they have ace-king, they're going to think the board is fairly scary. They're probably not going to fold that much because there's so many draws if I bet. So they're just going to check back ace-king.

And that essentially has-- that essentially has two problems, is we're not beating ace-king unless we improve, so by betting, we basically we just make the pot bigger against ace-king and 9's, and we can get them to fold. Whereas if we check, it might just checked down.

And yeah, so-- so yeah. One caveat about leading though is if your opponent knows leading is part of your strategy, then your range is significantly weaker when you actually check. So as a result, if your opponent knows you're the type of player who, let's say, on a-- you know, so this is really getting higher-- next and next level.

But if they know that you're the type of player you will lead a lot of your hands on a 2-5-6 flop in this specific situation, then when you check to them with a hand like jack-10, they can basically just bet and know you'll almost certainly fold, because you're leading a lot of your good hands.

So that's another caveat about leading. It's very tricky to balance correctly because you need

to-- you know, if you're leading bluffs, you need to also lead some good hands to balance it out. But then you also need to check some good hands occasionally to balance out all the bad hands you're checking so that your opponent can't just bet for free.

So it's a very tricky play. I wanted to quickly run through it to just say it's out there, and when you watch poker and you see people not automatically check to the preflop aggressor, just sort of giving you an idea of why. But it is a fairly advanced and tricky play. And it's easy to make mistakes leading, which is why I think-- you know, I think it's fine if throughout this course you never lead.

OK, so now we're going to talk get some implied odds and reverse implied odds. So, OK, so here's a situation. So note that-- so we have the worst hand in poker. We've got-- we've only got three big blinds, OK? And hijack raises to 2,400. So the question is, do we want to call in this situation? So we're putting in 1,600.

So we can do a quick equity calculation. So if we call, we're all in. So the only thing that matters is the equity of our hand against his range. That's essentially the only thing that matters because he has no more decisions. So optimal play doesn't even matter in this case. It's a strict mathematical expectation calculation. And we're actually-- so basically, we need a call two big blinds. So 1,600-- that's two big blinds. To win how much is already in the pot is 5 and 1/2, right? 5 and 1/2 big blinds.

So they made a big raise here. They made it 3x. So we need 2 over 7.5, which is 27% equity. And if we put him on a reasonable range for that position, we have 28% equity, which is enough to call. So I think calling is a fine play, OK? I'm not winning in front of this person who I think probably was me. So, yeah, calling's a fine play.

And so, now, but I want to emphasize, OK? So if calling is a good play because it's positive expectancy, why don't we call when we have more chips? So in this situation, if someone called, they would probably be ridiculed, right? Why are you calling with 2-7 offsuit against a hijack raise that isn't even giving you good odds, because they raised it 3x, which is a big raise. So why is it bad in this case, when you have more chips?

And the reason is essentially what's called reverse implied odds. So in the first situation, we called because we were all in, and the equity calculations said we could. But in the second situation, even though the equity calculation is the same and we do have the right odds to call preflop, the hand isn't over. There is still potentially 46,000 more chips to be put in postflop.

And with a hand like 7-deuce offsuit, not only is it a weak hand, it's very hard to play. When we hit a pair, we hit a small pair. We're often not going to be sure whether we have the better hand. We're going to have to decide whether to fold or call them down. And we're often going to be wrong. So, it's a very, very easy fold in this situation even though you have the odds, because these reverse implied odds hurt you so much when there is still potentially 46,000 to play for postflop.

OK, so here, let's say instead of 7-2 offsuit, I had ace-2 offsuit. I would still fold. So if you do the same equity calculation, we actually have 43% against his range, which is tremendous. But you only need 27% equity to all in, right? So, why would we fold when we have 43% equity and we only need 27% equity? That reason is because, once again, reverse implied odds.

So, there used to be actually be this way you could cheat in online poker. So they had this thing called disconnect protection which is someone disconnects-- this is really stupid. I got cheated by this so many times. Basically, if you disconnected, instead of your hand getting folded, essentially there's no more betting and all the cards are dealt. And the person who wins the hand just wins the pot.

OK, so essentially by disconnecting, you could say, OK, screw you. There's no more betting. We're just going to see until the river, and whoever wins the hand is going to win the whole pot. So basically, you could cheat in this situation even if you had 7-2 offsuit, by just calling and then disconnecting immediately. And then none of this reverse implied odds exist. But you can't cheat like this anymore, so don't try to make that play.

So yeah, so in this case, even though you have 43% equity, I would fold. Here, with 9-8 suited, it's a whole different story. We only have 37% equity, which is worse than 43%. But I would call. With 9-8 suited, you can make a flush and make a better hand than him. You can make a straight and get him to put in a lot of money with a good pair. And yeah, you're still out of position. You still have to act second. But overall, it's just a much better situation.

OK, so now, I want to talk about implied odds. So with the 9-8 suited, you know, I sort of talked about-- the implied odds, the fact that you still have to play for more chips after on the turn and river almost works in your favor because you can make straights and flushes and have a very good hand and be fairly certain you're winning, and get him to put in more money with a worse hand.

So implied odds is basically, yeah, it's when the odds are in your favor because you're playing a hand that plays well postflop. OK, so-- OK, so let's look at an example where implied odds, I think, are good. So this is called set mining. This is a play that's, I think-- so, I'm going to go through it even though it's a play that's sort of dying in poker. I think it's a play that no longer works that well in practice nowadays, at least at like, at fairly high stakes.

But it's in theory, I think it teaches you a very good thing about implied odds. So, in this case, under the gun raises to 3x-- 2,400 when the blinds are 400, 800. And we decide to call. So if you do the calculation, we don't have enough equity to call, but why do we call? So essentially, we're in a position because we have the button. And also, we can win essentially a huge pot when we hit a third deuce.

So now, this only happens a small percent of the time. And if you do the calculation, this happens roughly 1/8 of the time. You're going to hit a third deuce 1/8 of the time. And essentially when you don't hit a deuce, you're against an under-the-gun raise, so he's going to have a really strong range. You're going to lose the pot 7/8 of the time, essentially, roughly speaking.

So what this is essentially saying is if I'm only winning the pot 1/8 of the time, I need to win on average 8 times as much as I lose for it to be worth it, right? But the point is, at least back in the day in poker, you essentially do, because when you do hit the deuce, they just-- they're going to have pocket aces or pocket kings or, you know, the flop will come ace-6-2 and they'll have ace-king.

They'll just have a tremendously good hand that's still crushed by your hand so often that you definitely, essentially, 1/8 of the time, you lose 2,400 chips, and-- I'm sorry, 7/8 of the time, you lose 2,400 chips, and 1/8 of the time, you win their whole stack of 80,000 chips. Essentially, it's what the best situation is.

So, yeah, so you need a lot of chips for this to be a good play. You know, even if you have 40 big blinds which is, by our standards, fairly deep, it's still not that good because, once again, you only win 1/8 of the time. So, you really need to win a lot when you win.

And like when you hit a 2, it's not 100% sure that he's going to put in all his money. So the fact-- so basically, you're only winning a huge pot even less than 1/8. Like you need to hit a 2, and you need to have-- you have aces or kings. So you know, that's going to be like 1/20 or whatever. But the point is if the stack is so deep, then it's still worth it, essentially.

And the reason why it's sort of dying in poker is because I think nowadays, players are good enough where even if they have aces under the gun, they realize the optimal strategy isn't to always put all your money in on a 7-5-2 flop. But yeah, long story short, I think this is a fine play. I think it's fine if you do it in the current league. Because it's tough to fold aces on a 7-5-deuce flop. And yeah, I think it's a good play to know about at least.

So, here is another hand. So, cut-off raises to 2,000. We have jack-10 suited on the button. So once again, we don't have direct odds to call. But we have good implied odds because we're in position and we've got a suited connected hand.

OK, so I'm going to go through the whole hand because there's going to be more examples of implied odds here. So both blinds fold, and the preflop aggressor, the cut-off continuation-- that's about a bit less than half of pot. And we have a flush draw here. So, what is the effective stack size? Even though we started the hand with 80,000, they only have-- they only started the hand with 30,000. So the effective stack size is only 30,000.

So we're definitely not folding. We could call or we could raise. The problem with raising is when we raise and they go all in, we're sort in a really crappy situation where our hand's too good to really want to fold, but too weak to have the odds to call his all-in. So I think just calling is the right play. And yeah, and raising gives him the opportunity to re-raise on. If we call, he can't say, oh, because right now, I'm putting in more chips, right?

So, OK, so we miss on the turn, which kind of sucks. And they bet fairly big. They bet 8,000 into 12,000. So let's do an analysis. So, OK, so if I'm simplifying an assumption, let's assume they have it, OK? Let's assume we modeled them most fairly tight. When they're making this bet, they've got us beat. We're not going to win the hand by rivering a jack or a 10. We need to river a diamond.

So essentially, let's assume they just have ace-king, or they're going to have a pair of aces, at least. So we need to call 8,000 to win 20,000 in the pot, so we need 8 over 28, or 29% equity. And if you count, there's 9 diamonds out of 46 cards, so we only have 20% equity, and we need 29% equity. But I would still call.

So, because when we call and we hit our flush, we can actually-- we can bet on the river, and there's a decent chance that we're going to get called. Whereas if we call and we miss our flush, we can just happily fold. Does that make sense to everyone? So we don't really have the

odds to call here. But we call because if we hit our diamond, we can go all in on the river. And there's a decent chance they're going to call us, and we're going to win more money. So we actually do have the odds, essentially. We have the implied odds.

OK, so here's a similar scenario. So pretend the same thing happened, but this was the situation instead. In this case, I think we should definitely fold. So what changed was instead of having two diamonds on the board and two diamonds in our hand, now there's three diamonds on the board and one diamond in our hand. So it's worse for many, many reasons.

So one is when you only have one diamond in your hand and there's three diamonds on the board, if they have ace-king, it's going to be more obvious that we probably have a flush if we bet on the river and they have like ace-king. So they're probably just going to fold this king. So, we're not going to get paid off when we hit the diamond.

And even worse, we're not even drawing to the best hand. Like, what if they have ace-king with the king of diamonds? Then we're just crushed. We're drawing dead in this situation. There's no cards that can help us win. So that's just such a huge risk.

So, yeah, and also, a small thing, but the board is paired. So it's possible they have like pocket aces, or ace-5. They already have a full house. And even if we hit the best flush, we're not going to win.

OK, so-- OK, so, that was a good example, I think, of when you have the implied odds to call with your draw to try to hit. When you don't have the implied odds to try to hit. But we can also bluff with draws. So in all the examples I gave you before where you check-raised the flop, we had a good hand, right? But obviously, this is predictable. If they know that we only check-raise their flop that with two-pair or better, they can just fold whenever they have one-pair or worse, right?

So draws, not only are they good for implied odds purposes where you call and then only put in more money when you hit, they're also very good for bluffing in certain situations. So essentially, what you'll realize is bluffing sort of equivalent to having a draw, in some sense. Because the hands you want to bluff with are the hands that have some draw value.

So, here's an example. The button raises to 1,600. So we're 20 big blinds deep. And one of the big blind with 10-9, and we call with our 4.5 to 1 odds. OK, and the flop is jack-10-5. So we've got what I would consider a good draw. So a good draw, I would say, usually means



either an open-ended straight draw. So four-in-a-row do a straight. So there's eight potential cards that complete your straight, or a flush draw, which it usually has 9 outs.

OK, and then they bet 2,500. And then we go all in in this situation. Essentially, we're bluffing. We're hoping they fold. But why is this a good play? So, you know, it seems pretty sane to just call instead, right? Because we can call, we can have perfect information of when we hit, when we don't, and only risk more money if we do.

But it's actually also quite a good play to go all in because even though it looks like we have a bad hand to be risking all our chips because we only have 10-high. The point is the fact that we have 10-high doesn't matter because they're never calling our all-in with a naked queen-high or king-high, right? They're not to call with a random hand.

So what matters isn't how good our hand is, in this case, 10-high. What matters is how many outs we have against the hands that they called. So in this case, we're always going to have 8 outs. Even if they have the best possible hand, like pocket jacks, we're still going to have 8 outs. So, this is a great hand to bluff with because if we call, we might just lose the pot to queen-high by the river.

Whereas if we check-raise all in, it's essentially the opposite of what I was talking about before with like being averagely selected. Here, it's just essentially being beneficially selected because all the hands that barely beat you, he's going to fold. And if they have a hand as good as j-- ugh. When they have a hand as good as jack-jack, it's almost, like, wasted, you know? They haven't-- they got their jack-jack with-- if they had jack-jack, they're hoping we have like, pocket 8's that only has one out against them. But here, we have a much worse hand than pocket 8's with 8 outs against them.

You can contrast this with having, say, like 6-5 on this flop. 6-5 is a really bad hand to raise with. You just want to be calling because it's sort of the opposite. Any hand that beats you is going to be crushing you, and you're going to fold out the hands that are already using to your 6-5. But yeah, so 6-5, if you're against like ace-jack, you only have five outs. And you have close to 0% equity against flopping jacks.

So, right, so this is essentially the bluffing epiphany. So when you're bluffing, the-- when you're bluffing before the river, the thing that matters isn't how good our hand is, it's how many outs we have. OK, so-- right, OK, so this is essentially just me talking about the bluffing epiphany. So you want to always bluff with hands that have a high number of outs against the hands that

you get called by.

So, here's an example of something that's not bluffing, OK? So the cut-off raises to 90 and we call with 7-6 of diamonds on the big blind. And this happens randomly. You know, sometimes you'll see someone make a play like, what if ends-- You're going to-- so someone will make a play like this. And it's going to work. And they're going to look like a genius.

So, we check to the preflop raiser. We've got nothing, but we have a read that they, like, scratch their ear or something. So, we check-raise hoping that they fold. So we get called. And, you know, we still got absolutely nothing here. And we bet on the turn because that's the only way we could potentially win the hand. And they call. And then we still have nothing. And then as a last resort, we go all in on the river.

And, you know, a good percent of the time, they're going to fold. And we're going to look like a genius for making this bluff, right? So basically this is not-- so yeah, this is not bluffing. This is essentially opening your wallet and giving your money to your opponent. So when you're check-raising, you're essentially-- the reason why you were check-raising in the first place as a bluff is because you had some chance of making a good hand.

And essentially, a bluff is because your-- the hand that you could have potentially made, the flush that you potentially could have made, didn't get there. It's not because you started with a hand that could never make anything on this board and it didn't get there.

So, OK, so here's a similar situation where I think it makes a lot more sense. So it's going to be a similar board, but we have 10-9 of hearts. And here, we check-raise their flop bet. So this situation's a bit different than the jack-10 diamond situation from a while ago, where we only called with a flush draw. The reason why raising here is better is because the stack sizes is deeper.

So with the jack-10 of diamonds hand, the problem with check-raising was there's a risk they would go all in. And we would fold because we don't have good enough odds, yet our hand is so good. Here, our hand is similarly good, but because it's so deep. So, we actually started the hand with, I think, 100 big blinds instead of 40 big blinds. They're pretty unlikely to go all in. So here, check-raising 10-9 of hearts has a lot lower chance of getting blown off the hand.

OK, and we get a called. And we turn a 15-out draw. So we had 9 outs here, right? But the jack now essentially gives us 15 outs because it gives us the 8 open-ended straight outs, plus

the 9 flush outs, minus the 2 from double counting-- so 15 outs. And we bet 650 here. So it's the same hand as a 7-6 suited. It's the same hand as the stupid play.

We're betting here. And we get called. So, some notes. Here, our hand was good enough where even though when bet 650 into the pot on this turn, they could go all in. If they have like ace-jack, they're probably going to go all in. And you know it's going to suck. But we have good enough odds in this case, because we have so many outs, that we can even call an all-in. So it's fine. We can just call.

And yeah, so, note that by check-raising the flop, betting turn-- so the good thing about playing draws like this is that now, if we play draws like this, we can also play our good hands, like ace-8 or pocket deuces like this, and get paid off a lot more.

So, OK, so we get called. And then the river is a king. It's not the scariest card, but we can have queen-10 of hearts. We could easily get a queen-10 of hearts. So we go all in here. And even if the king wasn't scary at all, like even if the king was like a 3 or a deuce, I'm fine with just going all in because that's the only way we can win the hand.

But it's a fine excuse here to go all in with 10-high on the river, and say that's the only way I could've won the hand because there was a reason I was check-raising and representing all the strength on the flop at turn, right? It's because I had a heart draw. My heart draw didn't get there, so now, I need to desperately, to have a chance of winning the hand, go all in.

But it's reasonable. The reason why I got to this situation, this bad situation, is because essentially I got unlucky, right? I had a chance of hitting a flush, and I didn't. It's not like the 7-6 case where I knew I was going to get it in this situation, which is not a good situation. But here, I got a bit unlucky to get in this situation.

OK, so-- all right, so I think this is the last example. So, last example of when you give up on a bluff. So sometimes, you're bluffing. You don't have a great hand. But sometimes, you just give up because you figured out your opponent's not folding, or the board comes out in a way where it's not theoretically a good idea for you planning to fold.

So hijack minus 1 makes it 90. Cut-off calls. And we're 100 bets deep. We call with jack-9 of hearts from the big blind. OK, so the flop is a 10-7-deuce. And so we have a-- we get a decent flop. So once again, you know, we have a reasonable draw here. We have some reason to be bluffing. We don't have nothing.

We have some reason to be bluffing because even though-- essentially, we're hoping to turn 8, even though the chances that is only 4 out of 47, which is low. But it's still something. And it's much better to bluff with a 4 out of 47 chance of making a monster hand than a 0 out of 47 chance.

So, OK, so here, this was interesting. The preflop aggressor checked, which is fine. As the preflop aggressor, you're not forced to grant the flop. So, but this-- but note that the preflop aggressor is not the guy who got the flop. So the cut-off bets the flop, but the cut-off was not the preflop aggressor. OK, so the cut-off shouldn't have pocket aces. They could occasionally, but it's less likely than usual that they have pocket aces.

So they bet, and we decide to check-raise here. And yeah, I think this is a very reasonable play. So what are the reasons? One-- so yeah, we have something. We can try to turn an 8. And also, turning a jack is fine. We also turn a heart. And so we had lots of backdoor draws. We can turn a heart. That will give us four hearts. And we could turn even like a queen will give us an open-ended straight draw. A king will also give us an open-ended straight draw.

So that's the weird case where-- so if the turn is a king, then the board will be king-10-7. And we'll have the jack-9. And then an 8 or a queen will give us a straight. It's one of the rare cases. It's called-- it's called a double gutshot, or a double gutter. So it's one of the weird-- it's one of the strange cases to watch out for. It's possible that you have an 8-out straight draw, even though you don't have four to a straight.

So one example is where you have like-- it's like this one, where you have a king and then jack-10-9, and then 7. And another example is where, let's say you have like, king-jack on an ace-10-7-6 board. Then essentially the board-- essentially, it's ace-king-blank, jack-10-blank, 8-7. So then you have it hit a 9 or a queen. So there's a couple of weird straight draws you can have.

But anyways, the point is-- so yeah, I think this is a good play, not only because we have a crappy hand that's basically-- so basically, a crappy draw is a really good hand to bluff with, but also the fact that their range isn't particularly strong here. Because they can't really have aces. So, I mean, they can have pocket 7's or pocket deuces, I guess, but also we're attacking the fact that he's not the preflop raiser. So their range isn't that strong.

OK, so, so, hijack minus 1, the preflop aggressor, gets out of the way. And then cut-off calls

us. And then the turn is a 7, which is basically the worst card in the deck for us. I'd say the 7 of clubs. Even if it was like the 7 of spades, it would've been better. So, why is this the worst card? So first of all, it doesn't help us at all, right? It doesn't give us any kind of better straight draw or better flush draw or a pair.

And furthermore, it's fairly safe. You know, even if the turn was an ace, we could at least pretend we have an ace. The 7 is a fairly safe card. If they have a pair 10's, they're not jeopardized because of ace-king.

Furthermore, the main issue is his range is going to be a lot more likely to contain a 7 than our range. Because, remember what I said earlier, you don't really want to be raising-- check-raising the flop with your middle-of-the-road hands. Because your middle-of-the-road hands, you want to just call. Because when you raise, you're getting called by worse-- sorry, you're getting called by better and you're folding out worse.

So, probably if I had a 7 on the flop here, I'm never check-raising. So basically, I can't have a 7 here. And furthermore, they're a lot more likely to have a 7. So this just really hurts us. Essentially, it's just a bad situation where their range is a lot stronger than our range. And basically the best thing we can do is just fold our hand. There's no point-- you know, there's no point to try to continue bluffing.

Like, it's sort of like playing the "who's taller" game where you don't get to see my height, but you know that I was like malnourished as a kid. Like you just know, on average, there's no way I'm going to be taller than you. So the right thing to do here is just stop our bluff. And it was like the worst card that came, but we just give up the hand, which is fine. And then they take down the pot.

Right, so, bluffing epiphany 2 is basically, other than counting how many outs we have, it's important to analyze what we're representing. What else is in our range? You know, we're bluffing. We don't have a good hand. But what's the good hand that we could potentially have in some other parallel universes that we're representing? And in this case, there just really isn't anything.

So yeah, so like an ace-turn would've been fine. Even a 6-turn would have been OK, because we could have represented 9-8. So, one of the best times to bluff is when your draw missed, but a different draw completed. So like if you had a straight draw and you were bluffing the flop, and then the turn completes the flush, it's reasonable to bet.

I mean, you do run into the risk that they have the flush, but also it's just they're going to be more scared of the flush. And similarly, yeah, like if you have a flush draw and the straight completes, you can also bet.

OK, so, yeah, so I'm running through a lot of poker concepts today. So that's the end. I'll give a quick summary. So hopefully, this will give people more ideas on how to play online. I know I sort of left you guys in the dark last time. I mean, I ran through things pretty quickly this [AUDIO OUT], but hopefully, as you play more, it's OK if you didn't understand everything immediately. But hopefully, as you play more, you'll be like, ah, implied odds, or you'll be reminded of examples from this class.

So yeah, so we covered continuation betting, the preflop aggressor getting the respect, being able to bet, the Fundamental Theorem of Poker about how you bet your good hands and bluff your bad hands. We analyzed different flops, and I tried to give you a general idea of what sorts of-- how good your hand needs to be on certain kinds of flops.

And yeah, so when I showed you the different flops, you know, what I told you-- I didn't like mathematically prove that calling is good or raising is good. It's basically just like from experience and from doing calculations, I know roughly your equity is good enough. But I didn't like, mathematically prove it. So you essentially just have to trust me in that sense for the example flops that I showed you, because I didn't show any calculations.

Yeah, we talked about when to lead. We talked about implied odds, reverse implied odds, set mining, bluffing with draws, and then the two bluffing epiphanies. And yeah, so it's important to-- so basically, it's much easier to play good hands than bad hands in poker in some sense, because when you have a good hand, you just bet and hope everyone calls.

But it's important to know how to play bad hands, a.k.a bluff, so that your opponent also might call you when you have a good hand. Because if you're the type of player who never bluffs, then the game is uninteresting, right? So, because then, your opponent just always folds whenever you do anything. So that's why it's important to think about the bluffing epiphanies.

OK, cool. Yeah, thanks. And hope you continue to play online.