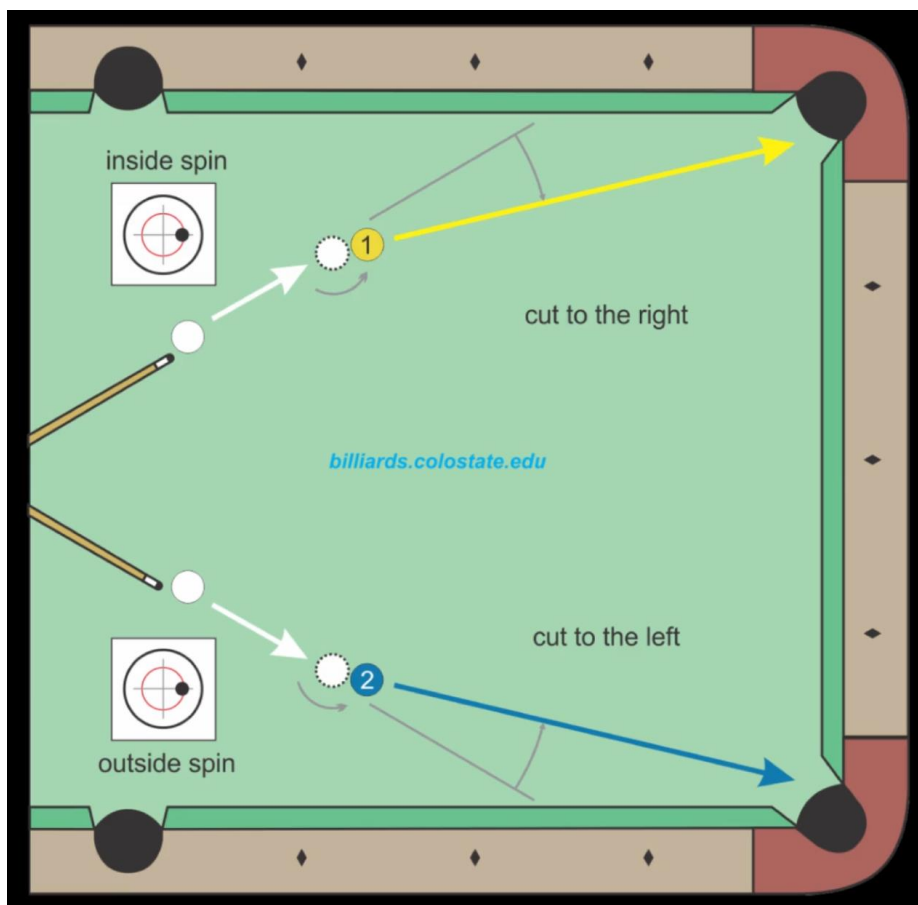


Supporting narrated video (NV) demonstrations, high-speed video (HSV) clips, technical proofs (TP), and all past articles are available online at [billiards.colostate.edu](http://billiards.colostate.edu). Reference numbers used in the articles help you locate the resources on the website.

Do you know the best ways to use outside and inside spin to change cue ball (CB) carom direction off an object ball (OB) with draw and follow shots? I covered this topic in detail in a recent online video ([NV L.70](#)), and I'll summarize all the important points below. As shown in **Image 1**, inside spin refers to hitting the CB on the inside of the cut direction. With the 1-ball shot, the cut is to the right, so the right spin is called inside spin in this situation. With the 2-ball shot, the cut is to the left, so the right spin is called outside spin in this situation. The choice usually depends on the direction you want the CB to head off a rail.



**Image 1 Terminology**

Inside spin can be used to narrow carom angle with follow shots. **Image 2** shows an example where I need to pocket the 11 and break out the 10-13 cluster. As demonstrated in the video, the [30° rule peace sign](#) predicts that a rolling CB will go wide of the target. Some people might think using more speed will impart more topspin to the CB, allowing it to go more forward, but these people would be wrong. Instead, the extra speed sends the CB “peeling out” farther down the tangent line before it curves forward, making the CB go wider. You could attempt to cheat the pocket with a fuller hit to narrow the carom angle some, but it is still not enough to get the breakout. But adding inside spin gets the job done easily. Inside spin causes slight swerve into the CB, narrowing the cut angle some, and there are also changes in topspin with the inside. For more information, see

the “[inside spin](#)” resource page at [billiards.colostate.edu](http://billiards.colostate.edu). The page also describes other advantages offered by using inside spin.



**Image 2** Inside follow

Elevated-cue “quick draw” is a good approach for narrowing draw angle. **Image 3** shows an example where I need to pocket the 11 and break out the 1-13 cluster to be able to run out. The [3-times-the-angle system](#) predicts that a good-action level-cue draw shot will go well wide of the cluster. If you push the miscue limit, you can get slightly more draw than this, but you will still come up short. You might think that less speed might help the CB curve sooner, but backspin is lost on the way to the OB, resulting in less draw. Using more speed instead will impart more backspin and result in less backspin loss, but it delays the curve action. You can cheat the pocket with a fuller hit to narrow the draw angle, but there is a limit to how much angle change you can get. In the video, using a very low tip with just the right speed and almost maximum pocket cheat, I was able to brush the cluster, but cheating the pocket so much and pushing the miscue limit is a little risky. By elevating the cue instead, you can get quicker draw at a narrower angle. Cue elevation allows you to impart the same backspin with less forward CB speed resulting in a tighter angle. Although, you need careful to use enough speed, because driving the CB down into the table like this causes some backspin loss; but with a low-enough tip and the right speed, you can easily get the break-out without any pocket cheat.



**Image 3** Quick draw

**Image 4** shows a good shot to test whether outside or inside draw is better than straight draw. I need to pocket the 11 and draw back for shape on the 8. Sometimes cue elevation is not a good choice due to less accuracy and reach limitations. But a near-level cue with straight draw does not work here at fast speed, due to a scratch in the side. However, if you instead use just enough speed to retain enough backspin, but not too much to scratch in the side, you can get the shot to work. But is it better to add outside or inside spin? I have heard top players try to justify either as a better approach than straight draw. Outside spin allows for a fuller hit, which might help narrow the draw angle. And inside spin causes swerve into the CB, creating a more favorable angle. But plain bottom allows a lower tip, resulting in slightly more backspin. Which approach do you think is best? Try all three to see for yourself. That's what I did in online video [NV L.70](#).

I was careful to cheat the pocket as much as possible to make the hit as full as possible, to narrow the draw angle. Outside spin allowed me to aim even fuller than no spin or inside spin since the left spin throws the ball to the right. Outside spin also allowed me to use slower speed. Outside spin is running spin when it hits the cushion helping to maintain CB motion up table. Slower speed also results in more spin-induced throw which allows for an even fuller hit. Slower speed also allows the draw to occur sooner.

With inside spin, you can't hit the ball as full as with outside spin, but the CB should swerve into the OB some, straightening the angle a little. Also, some people think that since inside or right spin imparts some left spin to the OB, this "helping spin" might make it easier for the ball enter the pocket off the far facing. I didn't notice this effect during any of my attempts.

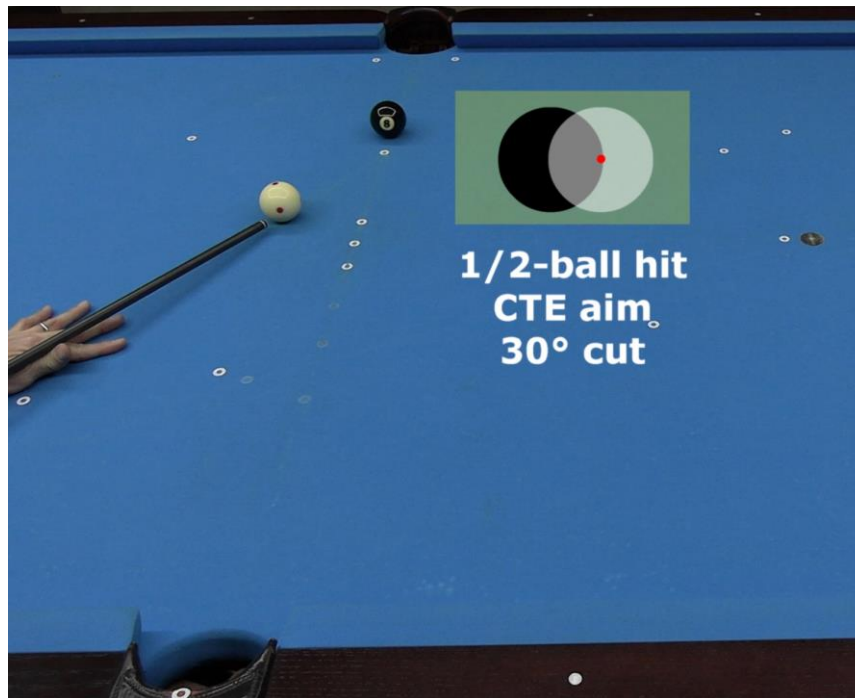
For me, straight draw was best. The lower tip imparts more backspin, and the shot is easier to aim since there is no CB deflection. The inside spin approach seemed the least effective; but, overall, all three approaches yielded similar results.



**Image 4** Tightest draw

**Image 5** shows a fun challenge shot you can try to compare the three approaches more methodically. The 8 is a diamond in front of the side pocket, and the CB is about a foot away setup for a ½-ball hit, so a center-to-edge aim pockets the ball cleanly. The cut angle for a ½-ball hit is 30°. The 3-times-the-angle system predicts that a "good action" draw shot would head perpendicular to the CB's initial direction, since three times 30 is 90. With the tip even lower, you can beat the good action prediction. And if you hit the 8 fuller, aiming for the right side of the pocket, you can narrow the draw angle significantly. So the question is: Can you narrow the draw angle more with outside spin, inside spin, or straight draw, cheating the pocket the same amount with each?

It is important to use the “Goldilocks” speed on all shots. If the speed is too slow, backspin is lost on the way to the OB. And if the speed is too fast, the CB slides down the tangent line too long before curving. I tried each approach in online video [NV L.70](#) until I got 10 good shots each with no miscue. I varied the speed a little during the trials to try to get the narrowest draw angle possible. Be aware that it’s more difficult to aim accurately for extreme pocket cheat when using sidespin. The amount of CB deflection and throw vary with shot speed and distance, the amount of spin, and ball and cloth conditions. In my experience, the straight draw shots were generally better and more consistent. Apparently, the slight extra backspin is more important than the inside and outside spin effects. The outside draw shots were generally the least effective at narrowing the draw angle.



[Image 5](#) Draw challenge

Be sure to watch online video [NV L.70](#) and give everything a try. I am confident that you will find that with a level cue, it is best to keep things simple and just use straight draw when you are trying to come back at the narrowest draw angle.

Good luck with your game,  
Dr. Dave



[NV L.70](#) –OUTSIDE VS. INSIDE – The Best Way to Narrow the Carom Angle

PS:

- I know other authors and I tend to use lots of terminology, and I know not all readers are totally familiar with these terms. If you ever come across a word or phrase you do not fully understand, please refer to the [online glossary](#) at [billiards.colostate.edu](#).

*Dr. Dave is a PBI Master Instructor, Dean of the Billiard University, and author of the book: [The Illustrated Principles of Pool and Billiards](#) and numerous instructional DVD series, all available at: [DrDaveBilliards.com](#).*