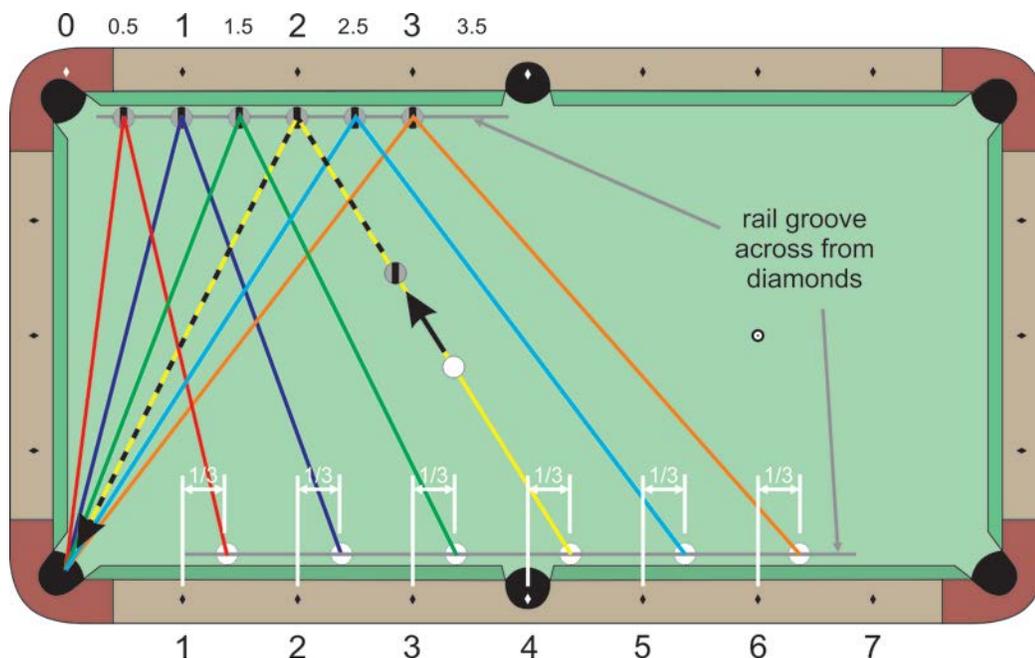


Supporting narrated video (NV) demonstrations, high-speed video (HSV) clips, technical proofs (TP), and all of my past articles can be accessed and viewed online at [billiards.colostate.edu](http://billiards.colostate.edu). The reference numbers used in the articles help you locate the resources on the website. If you have a slow or inconvenient Internet connection, you might want to view the resources from a CD-ROM or DVD. Details can be found online at: [dr-dave-billiards.com](http://dr-dave-billiards.com).

This is the eighth and final article in a series dealing with “[How to Aim Pool Shots \(HAPS\)](#),” a three-disc instructional-DVD set I recently created with fellow *Billiards Digest* columnist Bob Jewett. HAPS covers cut-shot aiming systems, how to adjust for cut-induced throw, how to aim without guessing when using sidespin (english), and how to aim specialty shots including caroms, kisses, combos, rail cut shots, and elevated-cue shots. Also included are numerous simplified and effective systems for aiming kick and bank shots. An outline of the entire HAPS series along with video excerpts from each DVD can be viewed online at: [dr-dave-billiards.com/aiming](http://dr-dave-billiards.com/aiming).

This month, we will look at a simple but effective system for aiming bank shots, where the cue ball (CB) hits an object ball (OB) off a cushion into a pocket. In my [July '13 article](#) (available at [billiards.colostate.edu](http://billiards.colostate.edu)) I covered various fast-speed bank-shot aiming systems. **Diagram 1** illustrates a good general-purpose system that works over a wide range of angles. I call it the 1/3-more-than-twice system. The diagram shows several reference tracks that illustrate how the system works. The aim points for the reference lines are measured in the rail grooves across from diamond locations. Remember, the “rail groove” is where the base of a ball sits when it is frozen to the cushion. With each reference line, the point at which the line of aim crosses the near-rail groove is 1/3 of a diamond above the 2-times distance point predicted by a true mirror aim. The reference tracks are 1/3 more than 1 to 1/2, 1/3 more than 2 to 1, 1/3 more than 3 to 1 1/2, 1/3 more than 4 to 2, and so on. I know this might sound and look a little complicated at first; but once you get the hang of it, it is fairly easy to remember and visualize. The only thing you really need to remember is “1/3 more than twice.”

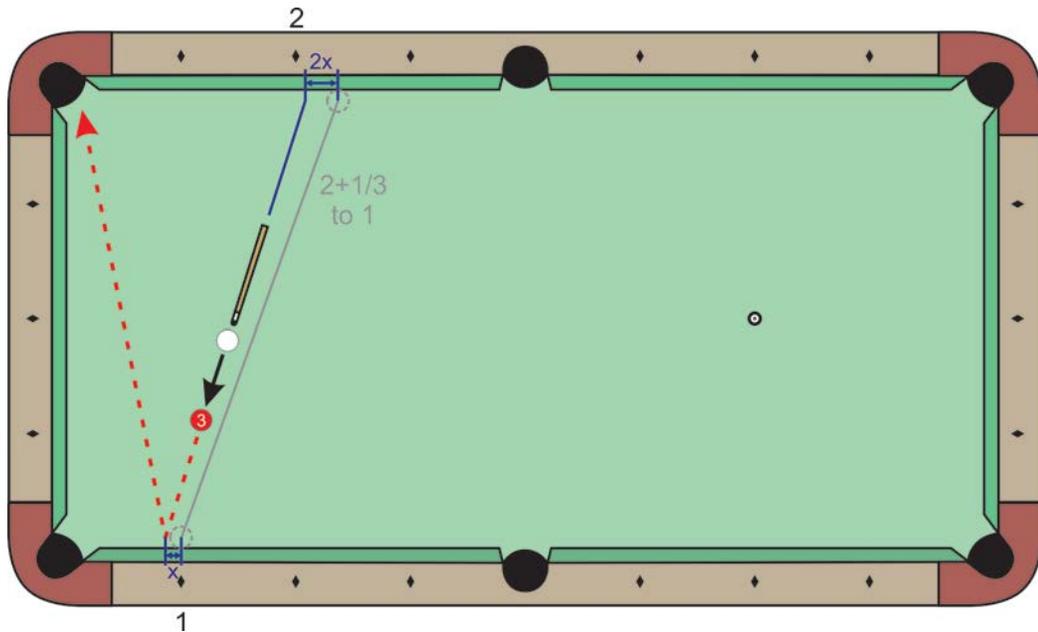


**Diagram 1** 1/3-more-than-twice system reference lines

The 1/3-more-than-twice system requires that the OB be sliding into the cushion with close to stun. When the OB is far from the rail, fast speed is required to have this occur. When the OB is close to the rail, fast speed is not required since the OB doesn't have time or distance to develop roll, and it will automatically be sliding into the

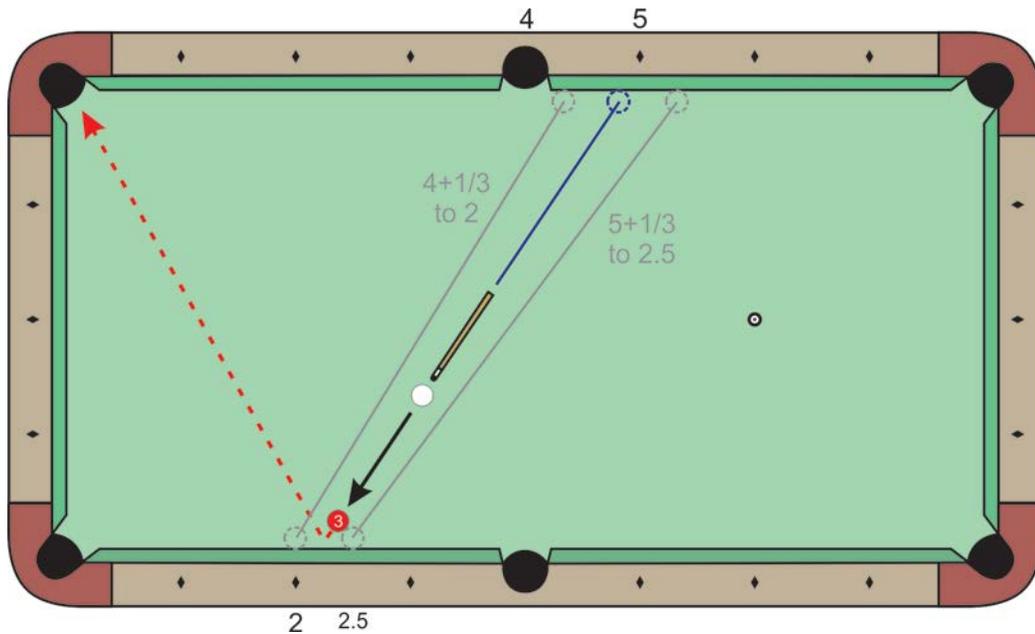
cushion regardless of the shot speed. It can be useful to practice banks on the reference tracks to get a feel for the speed required, and to practice visualizing the tracks. To do this, first place a ball on the cushion at the 1st diamond. Then place a ball on the opposite cushion a 1/3 of a diamond above the 2nd diamond. Then place the CB and OB along this line. Then remove the ball on the banking cushion and set up for the shot with the cue directly over the ball on the near cushion aimed squarely at the OB. **NV E.8** demonstrates how this can be done for all of the reference tracks. First try out all of these tracks before attempting to use the system on actual shots. Remember, for each track, the crossing point in the groove of the near rail is at 1/3 more than twice the distance in the banking-rail groove.

For an arbitrary bank shot, one way to apply the system is to see which track the OB is closest to and adjust between the tracks as necessary. **Diagram 2** illustrates an example. Here, the OB is fairly close to the 1/3-more-than-2-to-1 track, so we just need to make a small adjustment relative to the reference track. When adjusting, the line of aim should be shifted twice as much in the near-rail groove as in the far-rail groove, per the blue “2x” and “x” in the diagram. You can easily judge this with your cue, as demonstrated in **NV E.8**. Since the 3 ball is not very close to the rail, fast speed must be used on this shot to ensure the 3 ball slides into the cushion.



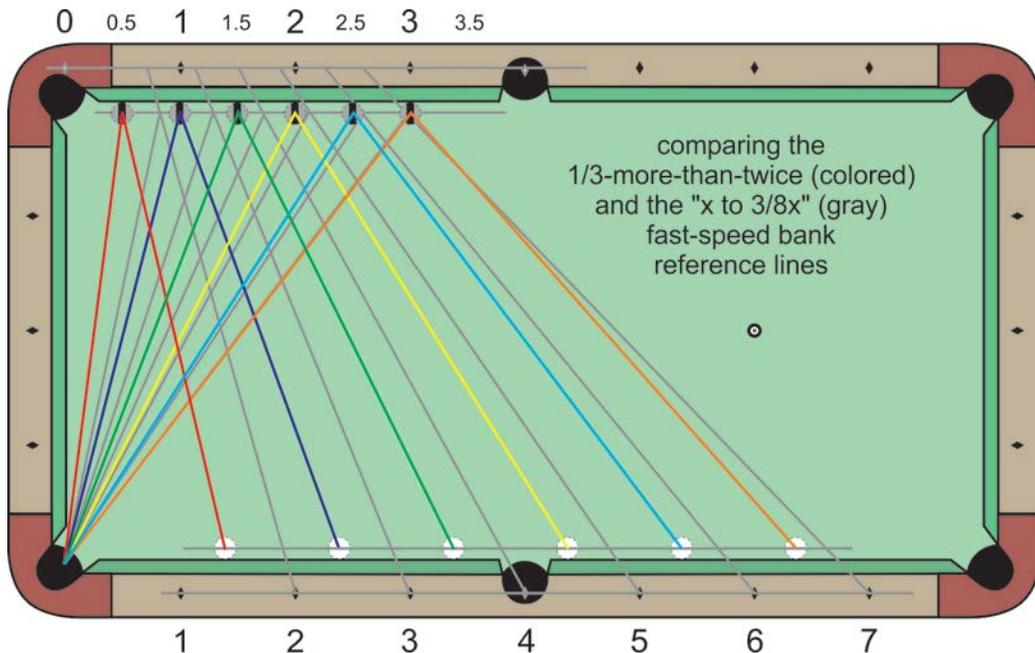
**Diagram 2 Example 1**

**Diagram 3** illustrates another example. As demonstrated in **NV E.8**, when visualizing a track, it can help to first put the cue tip in the rail groove across from a diamond, and then pivot to the 1/3 more than twice point in the opposite rail groove. In this example, the OB is in between the 1/3-more-than-4-to-2 and 1/3-more-than-5-to-2.5 tracks. So in this case, you can just use the rail groove point in between the two track crossings to find the necessary line of aim for the OB (see the blue dashed circle and line in the diagram). Since the 3 ball is very close to the cushion, almost any speed will work since the 3 ball doesn't have time or distance to develop forward roll before hitting the cushion.



**Diagram 3 Example 2**

An alternative to the rail-groove 1/3-more-than-twice system is a through-diamond system presented in my [July '13 article](#). It can be described concisely as the "x to 3/8x" through-diamond system, as opposed to the "(2x+1/3)-to-x" rail-groove system described above. With this alternative system, the aim point on the banking rail (3/8x) is between 25% (1/4) and 50% (1/2) of the distance from the target pocket as the distance on the adjacent rail (x). **Diagram 4** compares the two systems, showing the reference tracks for both. As an example of an "x to 3/8x" reference track, look at the gray line through diamond 4 on the bottom rail. The corresponding required line of aim heads through the 1.5 (3/8 \* 4 = 3/2) diamond point on the top rail. As is clear in the diagram, the two systems provide very close to the same lines of aim for small-to-medium-angle banks. At larger bank angles, above the (5+1/3)-to-2.5 line, the "1/3-more than twice" system aim will tend to make the ball bank a little short of target (in which case you can make a small adjustment, based on practice with the system).



**Diagram 4 Comparison of "1/3-more-than-twice" and the "x to 3/8x" systems**

In addition to being able to use the aiming systems described above, there are advantages to using fast speed with bank shots. For more info, see: "[advantages of fast speed](#)" on the "[bank and kick shots](#)" resource page in the FAQ section at [billiards.colostate.edu](http://billiards.colostate.edu).

Demonstrations of all of the shots in this article can be viewed in online video **NV E.8**. The HAPS-III DVD also includes numerous game-situation examples showing how the system is applied effectively at the table. As always, you should check out the videos and try the shots yourself the next time you are at a table. Reading is good, and watching is better, but trying is best. If you want more information or want to learn about other bank shot aiming systems, see the "[bank and kick shots](#)" resource page in the FAQ section at [billiards.colostate.edu](http://billiards.colostate.edu).

I hope you have enjoyed my series of articles dealing with the "How to Aim Pool Shots (HAPS)" DVD collection. If you want to view video excerpts from the entire DVD set, check out online videos **NV E.1** through **NV E.8** online. Enjoy!

Good luck with your game,  
Dr. Dave



- [NV E.1](#) – Fractional-Ball Aiming, from HAPS I
- [NV E.2](#) – Back-Hand (BHE) and Front-Hand English (FHE), from HAPS I
- [NV E.3](#) – Using "Gearing" Outside English to Eliminate Throw, from HAPS I
- [NV E.4](#) – Carom-Shot Trisect-Draw System, from HAPS II
- [NV E.5](#) – Combination Shot Throw Adjustment, from HAPS II
- [NV E.6](#) – Rail Cut Shot Aiming, w/ and w/o Sidespin, from HAPS II
- [NV E.7](#) – Mirror Kick-Shot Aiming System, from HAPS III
- [NV E.8](#) – 1/3-More-Than-Twice Bank-Shot Aiming System, from HAPS III

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 don't fully understand, please refer to the [online glossary](#) at [billiards.colostate.edu](http://billiards.colostate.edu).

*Dr. Dave is author of "[The Illustrated Principles of Pool and Billiards](#)" book and DVD, and co-author of the "[Video Encyclopedia of Pool Shots \(VEPS\)](#)," "[Video Encyclopedia of Pool Practice \(VEPP\)](#)," "[How to Aim Pool Shots \(HAPS\)](#)," and "[Billiard University \(BU\)](#)" instructional DVD series.*