

Precision passing and shooting for hockey video games

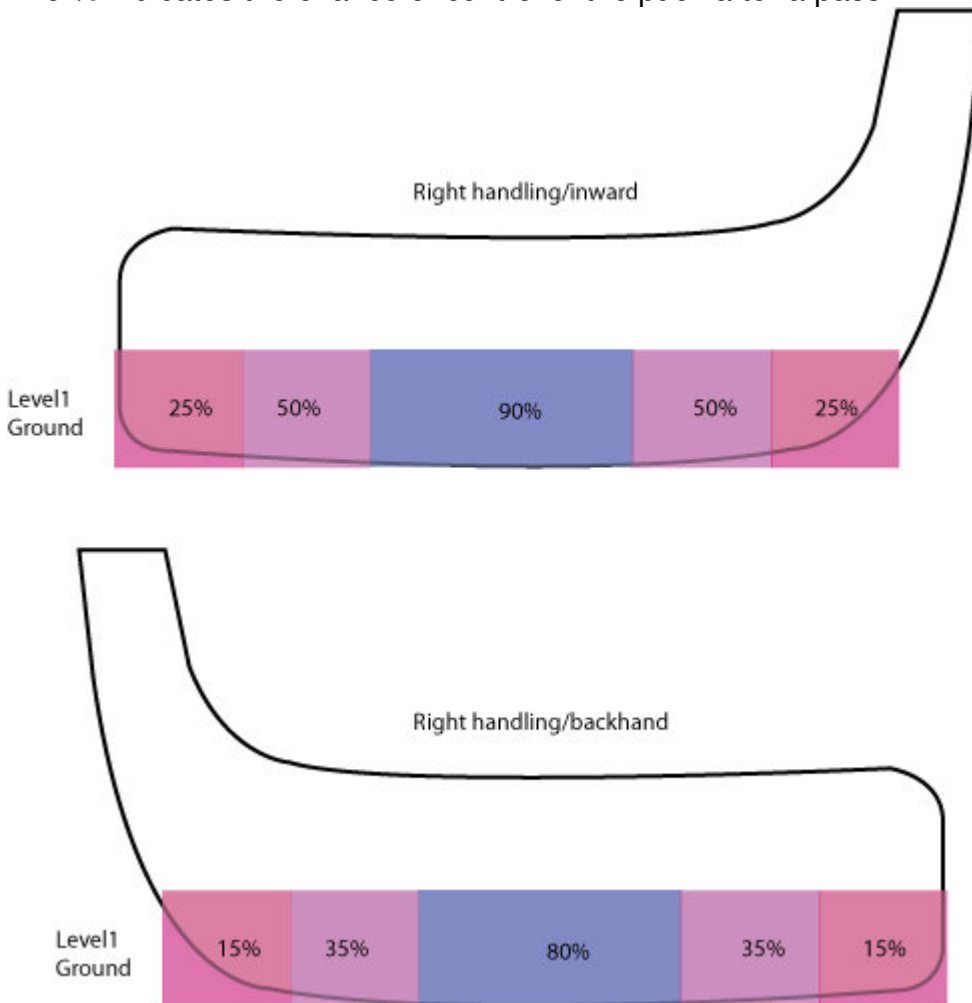
One of the problems of realism in hockey game is often the lack of a real system of precision in passing and shooting. To obtain such level of precision you need several factors into play. They can be categorized in a couple of areas of implementation.

The first area would be the hockey stick surface. When you receive a puck on a hockey stick, it often determines the control and the precision of the pass.

As such, if you receive it on the tip of the palette, the puck will roll away and you will need to retrieve it. It would produce a long deviation for fast velocity and a small one for slow velocity. If you receive a puck inward the palette, depending on the angle of the palette the puck can roll and get out of the palette, or deviate toward the player between its legs. Again the velocity plays a role in the control aspect of the pass.

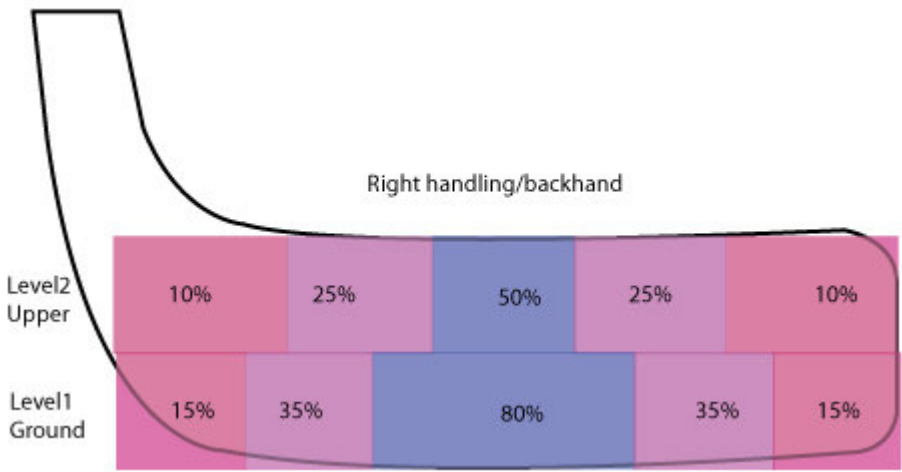
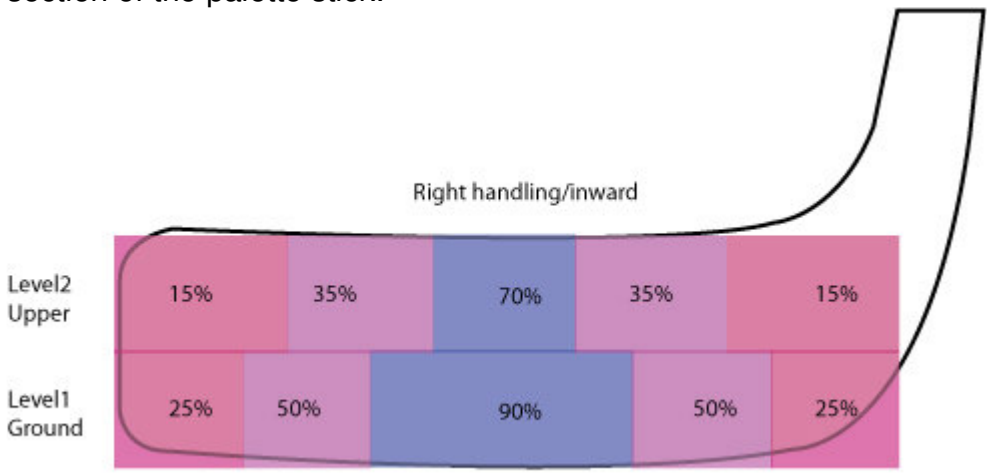
Here is a graphic of a **level 1 pass precision system**:

The % indicates the chance of control of the puck after a pass.



A **second level of precision** can also be made. For this, the game needs to implement the fact that a puck doesn't always stay flat on the ice. In fact, most of the time a puck doesn't stay flat on the ice. It rolls, bounce and spin. And it gets worse with the condition of the ice. Here is

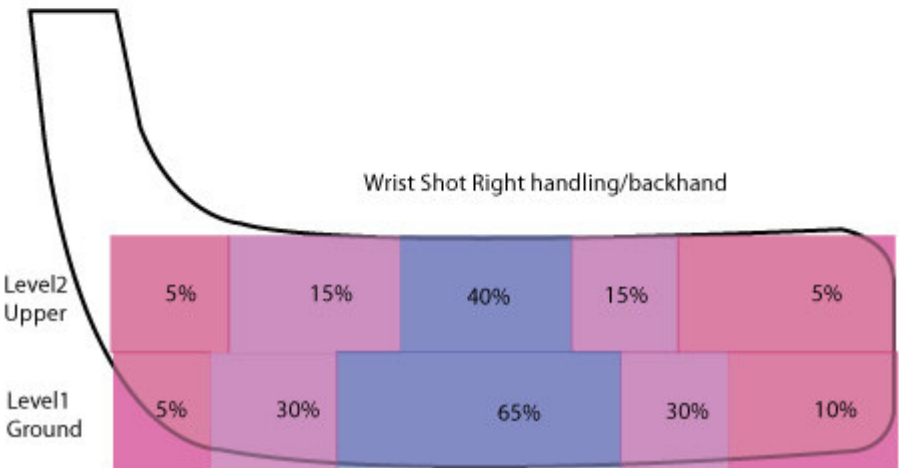
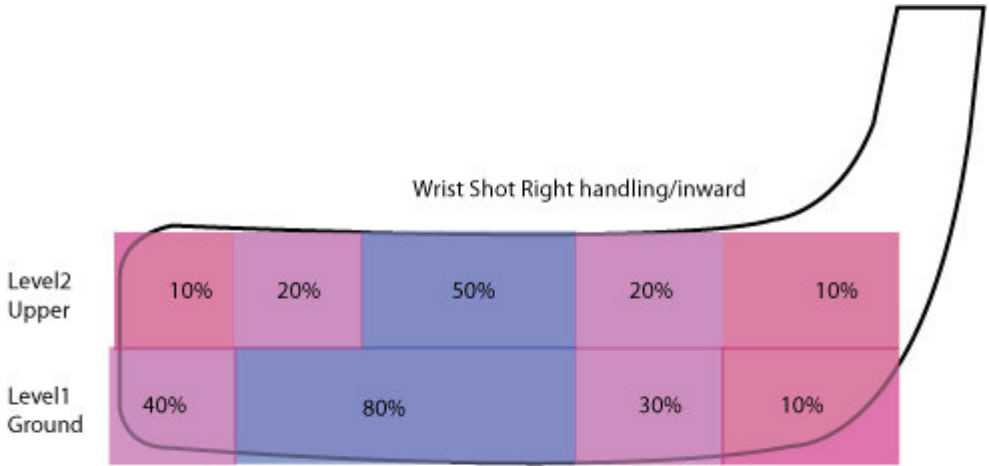
a graphic representing the second level, which is basically the pass reception in the upper section of the palette stick:



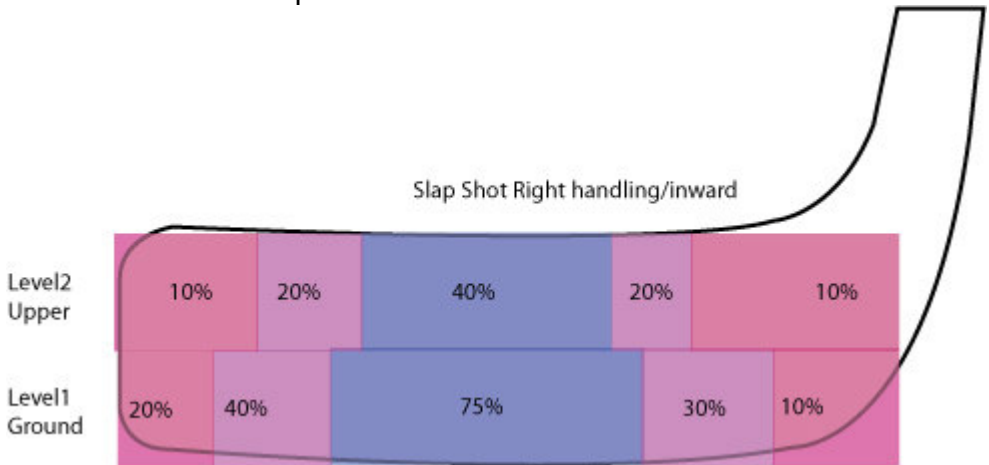
Shooting Precision

When it comes to shooting you get a complete set of different zones regarding precision and those zones varies depending on the shot type. Because strength and velocity are involved, a wrist shot is more precise on the front part of the palette, when a slap shot is more efficient in the middle. A back hand wrist shot would be more precise in the middle/inside part.

Here are the zones for wrist shot:



And here what a Slap shot would look like:



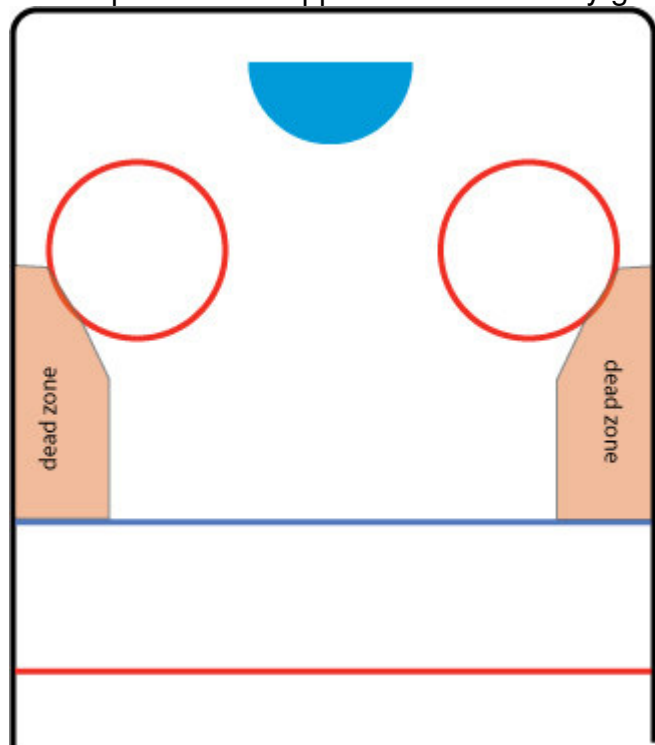
Of course, the more you try to put strength and velocity behind a slap shot, the precision would be lessened.

Because of the limitation in computers and consoles physics calculation, such an implementation should be taken by steps. I think the level 1 is attainable in actual hockey video games. The level 2 would demand a more complex physics behavior regarding the puck and require more calculations regarding the stick's zones.

Things that are often missed in hockey video games

These are a couple of things that often miss from video game of hockey, and that would add more realism to the game play.

- 1- When a player skates without the puck, **90% of the time his stick is not on the ice.** This is why pass and "shoot at once" are missed sometimes. The time you get your stick back on the ice to receive a pass or shoot, is a factor in its precision. Sadly most hockey video games magnetized the stick on the ice all the time.
- 2- When a player is without the puck and near the one in possession of the puck, he will try to hit the opponent stick or lift the opponent stick, to gain back the puck. A hockey stick is a defensive tool in hockey, as much an offensive one. That why you get high sticking penalties sometimes, because you move your hockey against the one of your opponent.
- 3- When a player is in possession of the puck and try to enter the zone, the defensive player will try to bring you back and squeeze you to the board. In general, whenever you are near the board the defense will try that, unless you are good player. Then he will be more prudent and will leave a bit more space. Some teams also block the center instead of pushing the attackers on the boards, but even they have to prevent you from entering the zone.
- 4- When an offensive team has the puck there are two dead zones where players often loose the puck. This happens a lot in hockey games.



Most of the time, only very skilled and talented players are able to retrieve or keep the puck in those zones. Why ? Maybe because it's hard to body check a player in that area and the defense team can attack a player on a variety of angles. Maybe because the offensive defense man can't always compromise himself and take the chance of creating a turnover. Basically it's a risk area.

Conclusion: Surely there are many other details we can add to make hockey video games more realistic. Limitation in physic calculation and processor power certainly plays a role on what can be achieved. I don't pretend to have a vast knowledge of hockey but I am a fan of both worlds. Now that the hockey games are very near of putting the gamer in a first person perspective, it would be nice if a more prevalent realism would be included.

Thank you

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