Skiing Simplified – Ski Racing

The purpose of this document is to record my personal and I believe simplified view of skiing. Because it is more serious than just skiing, I also call it ski racing. Because it helps me be more efficient in my skiing, I would like to share it with my friends.

Be able to slow down

One of my first coaches (Gary Batistella) was for ten years generally known as Canada's best down-hill racer. He taught me: "Before you can go fast you must be able to slow down." I believe the more efficiently one can slow down, the more control, and the faster one can go. Brakes are important on a racecar. The brakes on a ski are the edges. Friction caused by the edges against the snow will slow the skier the same way brakes slow a car.

Example: Tokyo Drift Racing

Brakes are important on a racecar, and drifting a car with braking is the quickest way to get around a sharp corner. For a good example: watch Japanese drift racers. Drift racing is where people drive cars fast sideways, but notice the backslip.

Japanese Mountain Drifting Example
Drifting in the Abstract - A Cartoon
Drifting - How to Pivot

Notice how they move inside out (opposite of a carved turn) before finishing the turn. Notice the angular shape of their turn and how accurately they can place the rear of their car before finishing the turn.

Lateral Movement: Working Hard: Drifting

Like drifting a race car, slow down or speed up with lateral (side to side) movement. Like drift racing, work hard before you get to the pressure part of the turn. Working hard means: using max edge and max extension with max compression to no edge dead center at the start of each turn. In other words, working hard with extension and compression applies to both fast turns and turns where you want to slow down. Since the compression end of the turn is the same for both, knowing how to slow down efficiently and effectively will teach you how to make fast or slow turns. The key point, the apex of a turn is easy because there are fewer forces (gravity or momentum) to fight. You want to work hard from side to side before you have to fight pressure at the compression end of a turn. The compression end of a turn is the same whether slowing down or going fast. Slow down or speed up and be heading in the right direction ahead of the pressure of gravity. Working hard means: to extend aggressively laterally at the easy turn apex and to aggressively pull yourself back together laterally at turn middle, ahead of the pressure. Both at the beginning of the turn, this lateral extension movement is similar whether you are carving to speed up or drifting to slow down. Carving produces an arc shaped turn, and drifting produces an "L" shaped turn. Whether drifting or carving, work hard at the easy part of the turn. Working hard means: using max edge and max extension with max

compression to no edge dead center at the start of each turn.

Slow down with a backward sideslip – a backslip

The smoothest way to apply ski friction is with a slightly backward (uphill) sideslip. Several reasons combine to make a backslip the most stable, quickest and most efficient way to slow down.

For Stability

For stability, a slightly backward (uphill) sideslip forms a more stable triangle between the skis. It is more stable because it forces the skier into a more athletic balanced position on the skis with butt down knees bent and weight balanced forward over the balls of the feet. Because of this position, the triangle between the skis is more stable, with both the tendency to close rather than open and the force of the balanced position to keeping the skis from crossing. In contrast, a perfectly sideways sideslip is centered on the middle of the feet with no triangle for support, plus a slightly forward sideslip is centered between the feet with the tendency to open and requires extreme twisting for stability.

For Tendency to Turn

For tendency to turn back to center, a slightly backward (uphill) sideslip naturally helps you control direction while slowing down. In fact if allowed to continue this tendency will turn a corner while slowing down, slowing down while in the turn. In many situations however, we just use this tendency slow down in a relatively straight line. Like tapping the breaks, the turn tendency helps us hop back to the other foot to continue to slow down in a relatively straight line. So, this tendency to turn lets us both control and direct our deceleration. In contrast, the tendency of a slightly forward sideslip is to turn away from center, and a sideways sideslip causes chatter. So, they both are harder to direct than a backslip.

For Tendency to Chatter

The tendency of a sideways sideslip is to continue sideways, but a sideways sideslip has a tendency to bounce and chatter. Chatter is caused by pressure build-up in the middle of the ski, and a slight backward or forward sideslip allows that pressure to escape.

Know when to sideslip backward - backslip

– know when to get on the edges.

Terrain or Line

Sometimes the terrain or line dictates a backward sideslip.

Bumps

The line through a field of bumps will be angular like drift racing. You may be able to throw in a few fun curves, but the general line in a field of moguls will be angular with straight lines being made by the skier between the platforms he is using to change

direction. In other words, while the skis are un-weighted the line of the skier's momentum is straight or even slightly bowed away from the fall line rather than towards the fall line. Because of stability and turn tendency, this slightly backwards sideslip will tend to keep the skier coming right down the fall line in a stable position that can turn in any direction. These kind of turns are either instant hops into the fall line off an edge set, or they are just the result of holding an edge set until the turn tendency does its thing.

Transitions Flat to Steep

When the terrain changes from flat to steep, or in a fall-away turn where position and ability to maneuver is more important that maintaining speed, a slightly backward sideslip is helpful. The transition is only temporary. If you need to do something in that temporary transition (like look at what is on the other side) and you do not want to jump over it, then you need a slightly backward sideslip or two.

Know when to sideslip sideways

Know when to carve or keep an edge. Carve when you want to follow a curved line and accelerate or at least maintain speed. To carve is to hold an edge around the corner. In a carved turn, direction change is accomplished by the shape of the ski, and that ski shape is caused by the force (weight) on the inside center of the ski. A ski designed to sideslip perfectly sideways would be the same width front, center and back. Most skis are designed to carve. They are designed to bend when they slip sideways. They are designed to carve in a specific radius of turn. The shape and length of ski determine that turn radius. When carving, the skis work together in parallel with both feet on the same radii of the turn. In other words, neither foot is ahead of the other. For balance and stability, stay slightly forward on the outside ski. For balance and speed, stay slightly back on the inside ski. Carving requires balance on the center of the skis.

Know when to sideslip forward

Know when to get off the edges. The most common use of a forward sideslip is getting off a lift. When people are sitting together, there is no room for everyone to snowplow, and there is also a requirement to be able to quickly slow down. The forward sideslip is characterized by one side being ahead of the other. In Telemark, the outside is ahead of the inside. When the heels are clamped down (Arlburg) the outside arm and inside leg are ahead. When one leg is ahead of the other, the two skis are from an extended arc that causes the turn. Getting off the lift putting one arm out front will automatically cause the skis to form that arc. If it is the wrong one, quickly switch arms. Once on the hill, use this same technique whenever you do not need edges because you see the kind of bank you see when getting off the lift.

Types of Direction Change

The type of direction change depends on the type of sideslip, and when slowing down efficiently they can be used in combination.

Hold a backward sideslip

See tendency to turn section above.

Hop from a backward sideslip

Hop into the fall line. When changing direction off a backward sideslip, just hop into the fall line. The backward sideslip brings balance to the front of the skis and to the balls of the feet, so the hop will be directed forward and into the fall line. With any speed when one is hopping off a backward sideslip, there is really only one result of a hop. Once the skis are un-weighted, they can be turned in any direction and used for any purpose, but the result of the hop is a straight line into the fall line.

Carve – hold a sideward sideslip

See carving section above.

Bank - Hold a forward sideslip

If you can, bank off a snow rim or roll into a snow bank. Now is the time to mention the amount of effort exerted in each type of turn. Sometimes saving energy equals going fast. Sometimes it is easier and faster to stand flat on two feet. Edges are the brakes, and sometimes you want to stay off the brakes even at the expense of a little slippage.

Skiing Simplified Summary

The purpose of this document is to record my personal and I believe simplified view of skiing. Because it is more serious than just skiing, I also call it ski racing. I have been skiing since 1952, and I have been reading about and modeling skiing for almost that long. I am writing about this lateral and aggressive backward sideslip because when I watch people ski or race it is the thing that I see done most efficiently by the great skiers and the thing I see missing in most skiers. Because it helps me be more efficient in my skiing, I would like to share it with my friends.