

# Skiing Simplified: The L Shaped Tool (Version 2)

## The L Shaped Tool

The purpose of this document is to define a very important “L” shaped skiing tool. It is the ski boot, but I want to focus on its shape; and the use of that shape as a tool where turning power is important, right at the beginning of the turn. Because of the irregular curves found in [terrain](#), it can't be too stiff, too heavy or too powerful. But, with subtle movements of the lower body right at the beginning of a turn you want the boot to powerfully influence the ski. In other words, at that point you want the boot to leverage or multiply your effort. Plus, here at this point we twist this “L” shaped lever one way to go faster and another way to go slower. The twist point is important, and most skiers need to improve its definition. This version emphasizes the power from the lower body.

## Examples of visible levers

If you look at this tool, the leverage can be seen. In other words, leverage is understood by looking at a tool's shape and imagining how it can be used. A screw is an example of a common lever. Twist it one way and it goes up, the other way it goes down, but it multiplies or leverages power both ways. Another example is a crowbar. Lean it on a point for power and move that point to adjust that power. Like a ski boot, if you look at these two tools then you can see how they work.

## Skiing for the first time

Before you will want to go fast, you need confidence you can slow down. The problem with learning skiing: you cannot see someone else putting on the brakes properly. Plus, to put on the brakes properly one has to point the skis more down the hill. That is counter intuitive. In other words, it is unnatural to point your skis down the hill to slow down. It has to be learned from the first day forward and sometimes even relearned or perfected in racing.

## *Knees to the Skis requires Twisting*

To keep knees to the skis (femur bones pointed in the same direction as the skis) requires twisting throughout the turn. We twist because we want to generate power with the big muscles on the inside of the body, instead of the small muscles on the outside of the body. Twisting is a pulling motion and the other way to generate power “extension” is a pushing motion. When using the bigger muscles and bones, the smaller ones are available for balance. To keep the weight centered in the center of the ski, that twisting must be focused on the upper line of the “L” shaped boot, the line of the heel and ankle. In other words, we keep the knees to the skis with the hips and torso beginning around the upper line of the “L” shaped tool, around the heels and ankles. Whether speeding up or slowing down, keep knees to the skis with twisting so you can relax the other parts for balance.

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## **Seeing the lever**

By closely looking at its shape, we can see how the ski boot is used. In the abstract there are simply two connected lines in the shape of an “L”. We can twist either line or leg of the “L” like a screwdriver. When we twist the bottom line of the “L” we use the inside or front part of our foot rotating around the big toe. However, using this bottom line takes the knees away from the skis. It also uses the small bones and muscles for power when you want to save them for balance. When we twist the top line of the “L” we use the back part of our foot rotating around the heel. This way is preferred because it uses the big interior bones and muscles of the hip and torso to put the skis on edge while keeping the knees to the skis. Just like we can twist it from both lines, we can lean that connection between the lines using heel pressure so we pivot and balance on the center of the ski. The boots are centered on the skis, and the skier balances his weight over that centerline. So, the “L” tool is centered on the ski fore and aft, left and right. In other words, if we use our heel we can use the leaning power of the “L” shaped tool to ride and balance on the skis’ center-point, with pressure on the boot tongue being transferred from the upper line through the heel to the lower line. Like a teeter-totter, we need a fulcrum to balance. With your heel and the boot tongue of the upper line, the center point under your arch on the lower line becomes your fulcrum. When we understand this balance of the “L” shaped tool, then we understand how too much weight on the ball of the foot makes it impossible to balance on the center point under your arch without having your hands back. The rest of this document describes when to apply each type of leverage. I believe this understanding starts with understanding how to use terrain, the key to both speeding up and slowing down in the turn. Using the big bones and muscles and terrain takes fore and aft movement.

## **Fore and Aft Movement**

See how the “L” shaped tool responds to fore and aft movement. Moving our feet forward causes the boot to apply pressure to the back of the ski. Moving the boot backward we apply pressure to the front of the ski. Moving one ski back causes that ski to go on edge or arc in the radius cut in the side of the ski. Moving our heel forward keeps us on the tails of the ski. Moving a heel back puts us on the front of the ski. With the design of our boot, we can start a ski to arc by moving it fore or aft, but aft is better because we are in a better position to use the terrain behind us. The steeper the hill, the more the terrain in front of us falls away and the more useful the terrain behind us becomes. The key to initiating that arc when we move the ski back is keeping the heel down so the knees stay on the skis. In other words, with our heel down we are initiating the turn pulling with the hips. If the heel is not down we are initiating the turn by pushing, and extending without the torque power of the hips. Whether speeding up or slowing down, that fore and aft movement should take advantage of the terrain. It is easier to pull your heel back into the terrain than to push forward away from the terrain from the ball of your foot. For one thing, we can begin pulling the inside foot as soon as we feel the terrain as we finish the turn.

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## Slowing down in Racing

Like brakes on a racecar, sometimes going fast means slowing down in a turn. I like the example of [drift racers](#) in Japan. Drifting is slowing down up into the terrain before the turn. With drifting (a decelerating inside out “L” shaped turn) drift racers can use terrain and momentum to go up and down their narrow mountain roads much faster than cars using an arcing (carving) technique. Arching works best to a point, but to take advantage of terrain, momentum and gravity at times we need to decelerate. If we do, we want an efficient deceleration using (stacking up on) only one lever. Drift racers slow down the same way skiers slow down, using terrain to help and twisting the rear of the car into that terrain and away from the corner of the turn. On the flat without terrain, drift racers twist the rear of the car to cross the momentum. Skiers do the same thing. Skiers slow down by twisting around the heel into the terrain or to drift uphill from the momentum, and when they want to go down the hill they change twist heels in the fall line, accelerating by pulling that heel into the terrain putting the body forward on the skis, [and away from the terrain, into the gravity and with the momentum.](#)

## Finishing the turn

After slowing down or speeding up at the beginning of a turn, the end of the turn is the same for both. Because we do not want to fight gravity while we are slowing down; we slow down up into the terrain away from gravity, instead of down and away from the terrain into gravity. Plus, if we want to go slow, the quicker we get to a place where we can again twist heels into the terrain the slower we will go. So, in both types of turns we finish fast. In other words, we do not want to fight gravity to slow down we want to use it. So, finishing the turn is just balancing by preparing for the next turn. To finish a turn we begin pulling the inside heel back into the terrain so we will complete our rotation and turn. The turn starts and ends with our feet together fore and aft in the middle of the transition between turns, but the hip effort initiated by the heels and ankles changes in the middle of the turn in the fall line. That’s when we end pulling on one heel and begin pulling on the other (inside heel). Some people like to ski back up the hill to slow down, but to me that is way too much work and boring. By the way, as soon as we begin hitting the terrain going back across the hill we can use it to either slow down or speed up by depending on how we twist our heels into the terrain. Whether the next turn will be accelerating or decelerating, the finish of a turn is the same, right balanced over the right foot and left over the left. That means we are always twisting or rotating over the inside heel in reaction to the terrain. Doing this rotational work correctly (knees to the skis), we will more weight over both edges, and on the down-hill ski.

## Transitions

At all times we are either going [right, left or down](#). Down is the turn, left and right are the transitions. Like a drift racer, transitions for decelerating turns go straight at the gate and decelerate inside-out. Transitions before arching turns arc around the gate from the outside of the transition path in to the gate. We transition right over the right foot

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and left over the left. To do this we begin pulling the inside heel into the terrain behind us as we finish our rotation.

### The twist point

The twist is critical to the efficiency of a turn. We always twist the way we would to put the skis pointed down the hill, but we slow down by twisting to drift into the terrain on the up side of our momentum away from gravity. We speed up by twisting in the same direction as above, moving our heel away from our body like above, causing that leg to get long like above, but pushing away from the terrain on the down side of momentum into gravity. To use the torque of the big inner bones and muscles, we always twist on the upper line of the “L” shaped tool. We always balance the twist with fore and aft movement. We are always twisting, and we always change the heels we are twisting over in the fall line. Slowing down or speeding up in the turn is just a matter of edge control at the top. When slowing down you allow your edges to oppose your momentum without causing a turn, in fact drifting up and away from the front of your skis. We come out of a drift the same way we come out of a fast turn, using our hips by pulling out inside heel into the terrain at the exact point we want to come out of the drift and change directions. That pulling move would be a twist point where we change the foot we are using to initiate the hip torque. Another twist point would be when we initiate a fast turn by using the terrain behind us to get the ski on edge quickly. Moving our up-hill heel back quickly moves us forward on that ski quickly and if we keep our heel down that movement and the shape of the ski will put the ski on edge quickly. In that case the twisting is caused by the shape of the ski and the shape of the “L” shaped tool. Another twist point (just like the first twist point) would be when we begin pulling the up-hill heel into the terrain as we come out of the down part of the fast turn. Again, changing heels will keep our knees to the skis and get us into transition quicker where we can either slow down or speed up.

### Summary: The L Shaped Tool

The purpose of this document is to define a very important “L” shaped skiing tool. It is the ski boot, but I want to focus on its shape; and the use of that shape as a tool where turning power is important, right at the beginning of the turn. Because of the irregular curves found in [terrain](#), it can't be too stiff, too heavy or too powerful. But, with subtle movements of the lower body right at the beginning of a turn you want the boot to powerfully influence the ski. In other words, at that point you want the boot to leverage or multiply your effort. Plus, here at this point we twist this “L” shaped lever one way to go faster and another way to go slower. The twist point is important, and most skiers need to improve its definition. This version emphasizes the power from the lower body.