

Skiing Simplified: Extension and Movement

Extension and Movement

The purpose of this document is to define when to extend the legs in a ski turn. This strategic understanding of the points that can be used for extension should make the dynamic movement and rhythm required for efficient skiing more natural. Previous [“Skiing Simplified”](#) documents have defined other strategic (static and relational) elements of skiing. Besides the shape and technology of the skis themselves, they have described: the forces of [“Momentum, Gravity and Terrain”](#); the [“L-Shaped Tool”](#) or lever called a ski boot; and how [“Arm Positions”](#) indicate the quality of balance or position on the skis. Again (as in all my “Skiing Simplified” documents) my theme is the relationship between slowing down and speeding up. They are both required, they are opposites, and learning to do one efficiently will help in learning the other. With these documents and their relationships as a foundation, this understanding of extension and movement could be the key to more natural skiing for all skiers.

When to Extend

There are two potential places in a turn to extend. In other words, there are only two places where all three forces (Momentum, Terrain and Gravity) are lined up to help the skier move over his (his/her) skis. They are both on the intersection of gravity and terrain rising above and falling below the gate. The purpose of this document is to understand these two points and how they are used in the two types of turns (accelerating and decelerating).

Changing Momentum with the Ankles

We extend to change the direction of our momentum. But, we also change the direction of our momentum just by steering with our ankles; and we steer with our ankles to get into position to extend. We mention steering with the ankles first because we want to use them as much as possible and limit the amount of direction change during the extension to only 45 degrees. That means all the other direction change (in a turn of up to 180 degrees) is done with the ankles (during the contraction and the transition).

Changing Momentum with an Extension

We either extend 45 degrees into a turn or 45 degrees out of a turn. We will call the extension into a turn “Going Upside Down”, and we will call the extension out of a turn a “Pivot”. The Pivot rotates around the upper leg of the “L” Shaped Tool (while un-weighted), but when “Going Upside Down” for 45 degrees there is no rotation. In other words, either pivot out of the fall line with a twist, or roll into the fall line without a twist. Without any twist, chest is in and you are weighted (on the front of the feet). When twisting we un-weight with a pivot to change momentum up to 45 degrees using the outside and heel of the feet, while keeping the skis pointed down the fall line (the intersection of the lines of terrain and gravity).

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Changing Momentum out of a Turn

Using extension out of a turn means passing the gate heading down the hill. In other words, using the ankles to roll down and into the gate, and extending no more than 45 degrees out of the gate across the fall line into the transition before the next turn. The objective is to get the skis on edge tracking and weighted well in the fall line or just prior to the fall line to provide a good base for the extension. This is the same basic pivot move we make when slowing down across the hill as a beginner or going right at the gate on the steep using drifting as a racer. As a racer if the pivot is un-weighted it does not slow us down much and we can be very exacting on where the extension starts right at the gate. For example: here are a [whole series of pivot turns](#) by thirteen of the best World Cup racers of 2011. Notice the backward sideslip drifting used to stay forward on the skis. Pivot turns are identified by the position of the skis in the fall line as they go by the gate. With an arcing Upside Down Turn, the skis will go by the gate up to 45 degrees up from the fall line. Here is a Super G with [many slight pivot turns](#), with slight extending pivots right after the gate. There are some upside down turns at the beginning also. The difference is the direction of the skis at the gate (never more than 45 degrees with mostly ankle steering).

Changing Momentum into a Turn

Using extension into a turn means passing the gate heading across the hill (no more than 45 degrees up from the fall line). In other words, using the ankles to roll down to the 45 degree extension entry point above the gate, and extending for no more than 45 degrees of turn before we begin rolling down and out for no more than 45 degrees below the gate. It is important to cover no more than 90 degrees of turn between the rise line above the gate and the fall line below the gate. Extension into a turn also puts us upside down. That upside down feeling begins with the ankles and continues with the extension at the 45 degree entry point.

Angulation when Extending (and Contracting)

It is also important when extending (in any type turn) to angulate the body to keep the weight centered over the skis. That means moving up and in and then down and out. In other words that means leading with the inside of the body up and in to the turn, which pinches the outside of the body, which leads down and out. Angulation will improve balance, simplify movement over the skis, keep the arms in place, and allow for greater edge angle for faster turns.

Summary: Extension and Movement

The purpose of this document is to define when to extend the legs in a ski turn. This strategic understanding of the points that can be used for extension should make the dynamic movement and rhythm required for efficient skiing more natural. Again, my theme is the relationship between slowing down and speeding up. They are both required, and they are opposites. This understanding of extension and movement could be the key to more natural skiing for all skiers.