G.8.5.2.1.5 Derivation process for luma motion vector prediction

Inputs to this process are:

* a luma location ( xC, yC ) of the top-left sample of the current luma coding block relative to the top-left luma sample of the current picture,

– a luma location ( xP, yP ) specifying the top-left luma sample of the current prediction unit relative to the top-left sample of the current picture,

* a variable nCS specifying the size of the current luma coding block,
* variables specifying the width and the height of the luma prediction block, nPbW and nPbH,

– the reference index refIdxLX (with X being equal to 0 or 1) specifying a reference picture in the reference picture list RefPicListLX.

* a variable partIdx specifying the index of the current prediction unit within the current coding unit.
* Output of this process is
* the motion vector predictor mvpLX (with X being equal to 0 or 1).

The reference view identifier refViewIdx is set equal to 0.

The motion vector predictor mvpLX is derived as specified by the following ordered steps:

1. The variable maxNumMVPCand is set equal to 2 + multi\_view\_mv\_pred\_flag.
2. The derivation process for motion vector predictor candidates from neighbouring prediction unit partitions as specified in subclause 8.5.2.1.6 is invoked with the luma location ( xC, yC ), the width and the height of the luma prediction block nPbW and nPbH, the reference index refIdxLX (with X being 0 or 1, respectively), and the partition index partIdx as the inputs and the outputs are the availability flags availableFlagLXN and the motion vectors mvLXN with N being replaced by A and B.
3. Depending on multi\_view\_mv\_pred\_flag, the following applies:

– If multi\_view\_mv\_pred\_flag is equal to 0, the variable availableFlagLXInterView is set equal to 0.

– Otherwise (multi\_view\_mv\_pred\_flag is equal to 1), the derivation process for the inter-view motion vector predictor candidate as specified in subclause is invoked with the luma location ( xP, yP ), the variables nPbW and nPbH, the reference index refIdxLX and the reference view identifier refViewIdx as the inputs and the outputs are the flag availableFlagLXInterView and the motion vector candidate mvLXInterView.

1. The variable numAvail is set equal to availableFlagLXA + availableFlagLXB + availableFlagLXInterView.
2. Depending on the value of numAvail and the motion vectors mvLXA and mvLXB, the following applies:

– If numAvail is equal to maxNumMVPCand and any two of available mvLXA, mvLXB and mvLXInterView, are different, availableFlagLXCol is set equal to 0.

– Otherwise (numAvail is less than maxNumMVPCand or mvLXA is equal to mvLXB), the derivation process for temporal luma motion vector prediction as specified in subclause 8.5.2.1.7 is invoked with the luma location ( xP, yP ), the width and the height of the prediction unit nPSW and nPSH, and the reference index refIdxLX (with X being 0 or 1, respectively) as the inputs and the outputs are the availability flag availableFlagLXCol and the temporal motion vector predictor mvLXCol.

1. The motion vector predictor candidate list, mvpListLX, is constructed as specified by the following ordered steps:
   1. The variable numMVPCandLX is set equal to 0. When availableFlagLXA + availableFlagLXB + availableFlagLXInterView is larger than 1.
      * + - When both availableFlagLXA and availableFlagLXB are both equal to 1 and mvLXA is equal to mvLXB, availableFlagLXB is set equal to 0.
          - ~~When both availableFlagLXB and availableFlagLXInterView are both equal to 1 and mvLXInterView is equal to mvLXB, availableFlagLXInterView is set equal to 0.~~
          - When both availableFlagLXA and availableFlagLXInterView are both equal to 1 and mvLXInterView is equal to mvLXA, availableFlagLXInterView is set equal to 0.
   2. When availableFlagLXA is equal to 1, mvpListLX[ numMVPCandLX ] is set equal to mvLXA and numMVPCandLX is incremented by 1.
   3. When availableFlagLXB is equal to 1, mvpListLX[ numMVPCandLX ] is set equal to mvLXB and numMVPCandLX is incremented by 1.
   4. When availableFlagLXInterView is equal to 1, mvpListLX[ numMVPCandLX ] is set equal to mvLXInterView and numMVPCandLX is incremented by 1.
   5. When availableFlagLXCol is equal to 1, mvpListLX[ numMVPCandLX ] is set equal to mvLXCol and numMVPCandLX is incremented by 1.
2. The motion vector predictor mvpaLX is derived as follows
   * + If mvp\_lX\_flag[ xP, yP ] is less than numMVPCandLX, the motion vector predictor mvpLX is set equal to mvpListLX[ mvp\_lX\_idx[ xP, yP ] ]
     + Otherwise (mvp\_lX\_idx[ xP, yP ] is greater than or equal to numMVPCandLX), both components of mvpLX are set equal to 0.
3. The inter-view predicted motion vector flag IvpMvFlagLX[ xC, yC ] is set equal to 0.