##### Derivation process for collocated motion vectors

Inputs to this process are:

* a variable currPb specifying the current prediction block,
* a variable colPb specifying the collocated prediction block inside the collocated picture specified by ColPic,
* a luma location ( xColPb, yColPb ) specifying the top-left sample of the collocated luma prediction block specified by colPb relative to the top-left luma sample of the collocated picture specified by ColPic,
* a reference index refIdxLX, with X being 0 or 1.

Outputs of this process are:

* the motion vector prediction mvLXCol,
* the availability flag availableFlagLXCol.
* a reference index refIdxLX, with X being 0 or 1.

The variable currPic specifies the current picture.

The arrays predFlagL0Col[ x ][ y ], mvL0Col[ x ][ y ], and refIdxL0Col[ x ][ y ] are set equal to PredFlagL0[ x ][ y ], MvL0[ x ][ y ], and RefIdxL0[ x ][ y ], respectively, of the collocated picture specified by ColPic, and the arrays predFlagL1Col[ x ][ y ], mvL1Col[ x ][ y ], and refIdxL1Col[ x ][ y ] are set equal to PredFlagL1[ x ][ y ], MvL1[ x ][ y ], and RefIdxL1[ x ][ y ], respectively, of the collocated picture specified by ColPic.

The variables mvLXCol and availableFlagLXCol are derived as follows:

* If colPb is coded in an intra prediction mode, both components of mvLXCol are set equal to 0 and availableFlagLXCol is set equal to 0.
* Otherwise, the motion vector mvCol, the reference index refIdxCol, and the reference list identifier listCol are derived as follows:
  + If predFlagL0Col[ xColPb ][ yColPb ] is equal to 0, mvCol, refIdxCol, and listCol are set equal to mvL1Col[ xColPb ][ yColPb ], refIdxL1Col[ xColPb ][ yColPb ], and L1, respectively.
  + Otherwise, if predFlagL0Col[ xColPb ][ yColPb ] is equal to 1 and predFlagL1Col[ xColPb ][ yColPb ] is equal to 0, mvCol, refIdxCol, and listCol are set equal to mvL0Col[ xColPb ][ yColPb ], refIdxL0Col[ xColPb ][ yColPb ], and L0, respectively.
  + Otherwise (predFlagL0Col[ xColPb ][ yColPb ] is equal to 1 and predFlagL1Col[ xColPb ][ yColPb ] is equal to 1), the following assignments are made:
  + If NoBackwardPredFlag is equal to 1, mvCol, refIdxCol, and listCol are set equal to mvLXCol[ xColPb ][ yColPb ], refIdxLXCol[ xColPb ][ yColPb ], and LX, respectively.
    - * Otherwise, mvCol, refIdxCol, and listCol are set equal to mvLNCol[ xColPb ][ yColPb ], refIdxLNCol[ xColPb ][ yColPb ], and LN, respectively, with N being the value of collocated\_from\_l0\_flag.

and mvLXCol and availableFlagLXCol are derived as follows:

* + If curr\_pic\_as\_ref\_enabled\_flag is 1 and colPocDiff is equal to 0, mvLXCol is set equal to mvCol and refIdxLX is set equal to the the current picture.
  + Otherwise if LongTermRefPic( currPic, currPb, refIdxLX, LX ) is not equal to LongTermRefPic( ColPic, colPb, refIdxCol, listCol ), both components of mvLXCol are set equal to 0 and availableFlagLXCol is set equal to 0.
  + Otherwise, the variable availableFlagLXCol is set equal to 1, refPicListCol[ refIdxCol ] is set to be the picture with reference index refIdxCol in the reference picture list listCol of the slice containing prediction block currPb in the collocated picture specified by ColPic, and the following applies:

colPocDiff = DiffPicOrderCnt( ColPic, refPicListCol[ refIdxCol ] ) (8‑174)

currPocDiff = DiffPicOrderCnt( currPic, RefPicListX[ refIdxLX ] ) (8‑175)

* + - * If RefPicListX[ refIdxLX ] is a long-term reference picture, or colPocDiff is equal to currPocDiff, mvLXCol is derived as follows:

mvLXCol = mvCol (8‑176)

* + - * Otherwise, mvLXCol is derived as a scaled version of the motion vector mvCol as follows:

tx = ( 16384 + ( Abs( td )  >>  1 ) ) / td (8‑177)

distScaleFactor = Clip3( −4096, 4095, ( tb \* tx + 32 )  >>  6 ) (8‑178)

mvLXCol =  Clip3( −32768, 32767, Sign( distScaleFactor \* mvCol ) \*   
 ( ( Abs( distScaleFactor \* mvCol ) + 127 )  >>  8 ) ) (8‑179)

where td and tb are derived as follows:

td = Clip3( −128, 127, colPocDiff ) (8‑180)

tb = Clip3( −128, 127, currPocDiff ) (8‑181)