

CLAIMS

1. A method of video processing, comprising:
 - performing a conversion between a video comprising one or more pictures and a bitstream of the video according to a format rule, and
 - wherein the format rule specifies that a first syntax element that indicates whether motion vector difference for a particular reference picture list (RPL) is indicated is conditionally included in the bitstream based on (i) whether a second syntax element indicating whether an RPL information is included in a picture header and/or (ii) a number of reference pictures in the particular RPL in case that the RPL information is present in the picture header.
2. The method of claim 1, wherein the first syntax element is a flag indicative of whether motion vector coding syntax structure of the particular RPL corresponding to reference picture list 1 is parsed or not parsed.
3. The method of claim 1 or 2, wherein the second syntax element corresponds to a flag indicative of whether the RPL information is included in the picture header.
4. The method of any of claims 1 to 3, wherein the number of reference pictures in the particular RPL is set equal to a value of a variable indicating a number of entries in a RPL syntax structure for the particular RPL corresponding to reference picture list 1.
5. The method of any of claims 1 to 4, wherein the format rule specifies whether to include the first syntax element depends on whether a condition, $\text{if}(\text{!pps_rpl_info_in_ph_flag} \mid \mid \text{num_ref_entries}[1][\text{RplsIdx}[1]] > 0)$, is met, wherein `pps_rpl_info_in_ph_flag` is the second syntax element and `num_ref_entries[1][RplsIdx[1]]` is the number of reference pictures in the particular RPL for reference list 1.
6. The method of claim 5, wherein the first syntax element is `ph_mvd_l1_zero_flag`.

7. The method of claim 5, wherein the format rule specifies to include the first syntax element in case that the condition is met.
8. The method of claim 5, wherein the format rule specifies to omit the first syntax element in case that the condition is not met.
9. The method of any of claims 1 to 4, wherein the format rule further specifies to infer a value of the first SE in case that the first syntax element is not included in the bitstream.
10. The method of claim 9, wherein the format rule further specifies to infer the value of the first syntax element to be equal to X, whereby X is an integer.
11. The method of claim 10, wherein X is 0, 1, or another syntax element.
12. The method of claim 10, wherein X is derived based on or conditioned by one or more another syntax elements.
13. A method of video processing, comprising:
 - performing a conversion between a video comprising one or more pictures and a bitstream of the video according to a rule, and
 - wherein the rule specifies which syntax elements in a general constraint information syntax structure that indicates one or more constraints applicable to the conversion are grouped together.
14. The method of claim 13, wherein the general constraint information syntax structure is `general_constraints_info( )`.
15. The method of claim 13, wherein the rule further specifies that general constraint syntax elements in a particular group are signalled together without interlacing with other general constraint syntax elements in another group.

16. The method of claim 13, wherein the rule specifies that inter-related syntax elements are grouped together, wherein the inter-related syntax elements include general constraint syntax elements about characteristics including at least one of reference picture resampling, resolution change in a coded layer video sequence, weighted prediction, reference wraparound, temporal motion vector prediction, subblock-based temporal motion vector prediction, adaptive motion vector prediction, bi-directional optical flow, symmetric motion vector difference, decoder-side motion vector derivation, merge based motion vector difference, affine motion prediction, prediction refinement with optical flow, bi-prediction with CU (coding unit) weights, combined inter-intra prediction CIIP, or geometric prediction mode.

17. The method of claim 13, wherein the rule specifies that intra-related syntax elements are grouped together, wherein the intra-related syntax elements include general constraint syntax elements about characteristics including at least one of a palette coding mode, intra block copy mode, intra sub-partitions (ISP), multi-reference line intra prediction, matrix-based intra prediction, or cross-component linear model.

18. The method of claim 13, wherein the rule specifies that syntax elements related to coding tools are grouped together.

19. The method of claim 13, wherein the rule specifies that syntax elements related to a functionality are grouped together, wherein the functionality-related syntax elements include at least one of general constraint syntax elements about intra only, all layers independent, or one access unit only.

20. The method of claim 13, wherein the rule specifies that network abstraction layer (NAL) unit type related syntax elements are grouped together, wherein the NAL unit type related syntax elements include at least one of general constraint syntax elements about a NAL unit type equal to TRAIL, STSA, RASL, RADL, IDR, CRA, GDR, APS, or other types.

21. The method of claim 13, wherein the rule specifies that partitioning-related syntax elements are grouped together, wherein the partitioning-related syntax elements are about partitioning of a tile, slice, or subpicture.
22. The method of claim 13, wherein the rule specifies that partitioning related syntax elements are grouped together, wherein the partitioning-related syntax elements are about partitioning of a coding tree unit or a block.
23. The method of claim 13, wherein the rule specifies that transform, quantization, residual coding related syntax elements are grouped together, wherein the transform, quantization, residual coding related syntax elements include general constraint syntax elements about characteristics including at least one of transform skip, sub-block transform, multiple transform selection, low frequency non-separable secondary transform, explicit scaling list, dependent quantization, CU (coding unit) QP (quantization parameter) delta, chroma QP offset, joint CbCr, adaptive colour transform, or sign data hiding.
24. The method of claim 13, wherein the rule specifies that loop filter related syntax elements are grouped together, wherein the loop filter related syntax elements include general constraint syntax elements about characteristics including at least one of adaptive loop filtering, cross-component adaptive loop filtering, sample adaptive offset, luma mapping with chroma scaling, or large-block adaptive deblocking filter.
25. A method of video processing, comprising:
performing a conversion between a video comprising one or more pictures and a bitstream of the video according to a format rule, and
wherein the format rule specifies that an indication that use of intra slices within a picture is enabled for a picture is selectively included based on (i) whether an inter slice is allowed in the picture and/or (ii) whether the picture is partitioned into more than one partitions.

26. The method of claim 25, wherein the format rule specifies to include the indication in case a condition, `ph_inter_slice_allowed_flag` is met, wherein `ph_inter_slice_allowed_flag` indicates whether the inter slice is allowed.
27. The method of claim 25, wherein the format rule specifies that in response to a value of a first syntax element specifies a presence of one or more coded slices in the picture that has a slice type equal to B or P slice, a second syntax element indicates whether the inter slice is allowed is included in the bitstream.
28. The method of claim 25, wherein the format rule specifies to include the indication in case a condition, `ph_inter_slice_allowed_flag && (!no_pic_partition_flag && !(rect_slice_flag && num_slices_in_pic_minus1 == 0)`, is met, wherein `ph_inter_slice_allowed_flag` indicates whether the inter slice is allowed and `no_pic_partition_flag` indicates whether the picture is partitioned into more than one tile or slice, `rect_slice_flag` indicates whether a rectangular slice mode is in use for the picture, and `num_slices_in_pic_minus1` indicates a number of rectangular slices in the picture.
29. The method of claim 28, wherein the format rule specifies to omit the indication in case that the condition is not met.
30. The method of claim 29, wherein the format rule specifies to infer a value of the indication in case that the indication is not present.
31. The method of claim 30, wherein the format rule specifies to infer the value of the indication to be equal to `(!ph_inter_slice_allowed_flag)` or `(1 - ph_inter_slice_allowed_flag)`.
32. A method of video processing, comprising:
performing a conversion between a video comprising one or more pictures and a bitstream of the video according to a format rule, and

wherein the format rule specifies that a first syntax element that indicates whether a decoder motion vector refinement (DMVR) tool is disabled is conditionally included in the bitstream based on (i) whether a second syntax element indicating whether a reference picture list (RPL) information is included in a picture header (PH), and/or (ii) a number of reference pictures in a RPL in case that the RPL information is present in the PH, and/or (iii) whether a flag indicative of applicability of the DMVR tool included at a sequence parameter set level in the bitstream is equal to a certain value.

33. The method of claim 32, wherein the first syntax element corresponds to a PH flag indicative of whether the DMVR tool is disabled.

34. The method of claim 32 or 33, wherein the second syntax element corresponds to a flag indicative of whether the RPL information is included in the picture header.

35. The method of any of claims 32 to 34, wherein the number of reference pictures in the RPL is set equal to a value of a syntax element indicating a number of entries in a RPL syntax structure.

36. The method of any of claims 32 to 35, wherein the format rule specifies whether to include the first syntax element depends on whether a condition, $\text{if}(\text{sps_dmvr_pic_present_flag} \ \&\& \ (!\text{rpl_info_in_ph_flag} \ || \ (\text{num_ref_entries}[1][\text{RplsIdx}[1]] > 0))$), is met, wherein $\text{rpl_info_in_ph_flag}$ is the second syntax element, $\text{num_ref_entries}[1][\text{RplsIdx}[1]]$ is the number of reference pictures in the RPL, and $\text{sps_dmvr_pic_present_flag}$ is the flag indicative of the applicability of the DMVR tool.

37. The method of claim 36, wherein the format rule specifies to include the first syntax element in case that the condition is met.

38. The method of claim 36, wherein the format rule specifies to omit the first syntax element in case that the condition is not met.

39. The method of any of claims 32 to 35, wherein the format rule further specifies to infer a value of the first syntax element in case that the first syntax element is not included in the bitstream.
40. The method of claim 39, wherein the format rule further specifies to infer the value of the first syntax element to be equal to X, whereby X is an integer.
41. The method of claim 40, wherein X is 0, 1, or another syntax element.
42. The method of claim 40, wherein X is derived based on or conditioned by one or more another syntax elements.
43. A method of video processing, comprising:
performing a conversion between a video comprising one or more pictures and a bitstream of the video according to a format rule, and
wherein the format rule specifies that a first syntax element that indicates whether to disable a bi-directional optical flow (BDOF) tool is conditionally included in the bitstream based on (i) whether a second syntax element indicating whether a reference picture list (RPL) information is included in a picture header (PH), and/or (ii) a number of reference pictures in a RPL in case that the RPL information is present in the PH, and/or (iii) a flag indicative of applicability of the BDOF tool at a sequence parameter set level.
44. The method of claim 43, wherein the first syntax element corresponds to a PH flag indicative of applicability of the BDOF tool.
45. The method of claim 43 or 44, wherein the second syntax element corresponds to a flag indicative of whether the RPL information is included in the picture header.
46. The method of any of claims 43 to 45, wherein the number of reference pictures in the RPL is set equal to a value of a syntax element indicating a number of entries in a RPL syntax structure.

47. The method of any of claims 43 to 46, wherein the format rule specifies whether to include the first syntax element depends on whether a condition, $\text{if}(\text{sps_bdof_pic_present_flag} \ \&\& \ (!\text{rpl_info_in_ph_flag} \ || \ (\text{num_ref_entries}[1][\text{RplsIdx}[1]] > 0 \)))$, is met, wherein $\text{rpl_info_in_ph_flag}$ is the second syntax element, $\text{num_ref_entries}[1][\text{RplsIdx}[1]]$ is the number of reference pictures in the RPL, and $\text{sps_bdof_pic_present_flag}$ is the flag indicative of the applicability of the BDOF tool.

48. The method of claim 47, wherein the format rule specifies to include the first syntax element in case that the condition is met.

49. The method of claim 47, wherein the format rule specifies to omit the first syntax element in case that the condition is not met.

50. The method of any of claims 43 to 46, wherein the format rule further specifies to infer a value of the first syntax element in case that the first syntax element is not included in the bitstream.

51. The method of claim 50, wherein the format rule further specifies to infer the value of the first syntax element to be equal to X, whereby X is an integer.

52. The method of claim 51, wherein X is 0, 1, or another syntax element.

53. The method of claim 51, wherein X is derived based on or conditioned by one or more another syntax elements.

54. A method of video processing, comprising:

performing a conversion between a video comprising one or more pictures and a bitstream of the video according to a format rule, and

wherein the format rule specifies that a first syntax element that indicates whether a collocated picture used for temporal motion vector prediction is derived from reference picture list 0 is conditionally included based on (i) a second syntax element indicating whether a reference picture

list (RPL) information is signaled in a picture header (PH), and/or (ii) a number of reference pictures in a RPL in case that the RPL information is present in the PH, and/or (iii) a flag indicative of an applicability of a temporal motion vector prediction (TMVP) tool for coding a current picture.

55. The method of claim 54, wherein the first syntax element corresponds to a flag indicative of whether the collocated picture used for the temporal motion vector prediction is derived from the reference picture list 0 or a reference picture list 1.

56. The method of claim 53 or 54, wherein the second syntax element corresponds to a flag indicative of whether the RPL information is included in the picture header.

57. The method of any of claims 54 to 56, wherein the number of reference pictures in the RPL is set equal to a value of a syntax element indicating a number of entries in a RPL syntax structure.

58. The method of any of claims 54 to 57, wherein the format rule specifies whether to include the first syntax element depends on whether a condition, $\text{if}(\text{ph_temporal_mvp_enabled_flag} \& \& (!\text{rpl_info_in_ph_flag} | \text{num_ref_entries}[1][\text{RplsIdx}[1]] > 0)$, is met, wherein $\text{rpl_info_in_ph_flag}$ is the second syntax element, $\text{num_ref_entries}[1][\text{RplsIdx}[1]]$ is the number of reference pictures in the RPL, and $\text{ph_temporal_mvp_enabled_flag}$ is the flag indicative of the applicability of the temporal motion vector prediction (TMVP) tool.

59. The method of any of claims 54 to 57, wherein the format rule specifies whether to include the first syntax element depends on whether a condition, $\text{if}(\text{ph_temporal_mvp_enabled_flag} \& \& \text{rpl_info_in_ph_flag} \& \& \text{num_ref_entries}[1][\text{RplsIdx}[1]] > 0)$, is met, wherein $\text{rpl_info_in_ph_flag}$ is the second syntax element, $\text{num_ref_entries}[1][\text{RplsIdx}[1]]$ is the number of reference pictures in the RPL, and $\text{ph_temporal_mvp_enabled_flag}$ is the flag indicative of the applicability of the temporal motion vector prediction (TMVP) tool.

60. The method of claim 58 or 59, wherein the format rule specifies to include the first syntax element in case that the condition is met.
61. The method of claim 58 or 59, wherein the format rule specifies to omit the first syntax element in case that the condition is not met.
62. The method of any of claims 54 to 57, wherein the format rule further specifies to infer a value of the first syntax element in case that the first syntax element is not included in the bitstream.
63. The method of claim 62, wherein the format rule further specifies to infer the value of the first syntax element to be equal to X, whereby X is an integer.
64. The method of claim 63, wherein X is 0, 1, or another syntax element.
65. The method of claim 63, wherein X is derived based on or conditioned by one or more another syntax elements.
66. A method of video processing, comprising:
performing a conversion between a video comprising one or more pictures and a bitstream of the video according to a format rule, and
wherein the format rule specifies whether a first syntax element indicating a table of prediction weights is conditionally included in the bitstream based on (i) a second syntax element indicating whether weighted prediction (WP) information is included in a picture header (PH), and/or (ii) a third syntax element indicating whether a reference picture list (RPL) information is included in the PH, and/or (iii) a number of reference pictures in a RPL in case that the RPL information is present in the PH, and/or (iv) a fourth syntax element indicating an applicability of weighted prediction and/or a fifth syntax element indicating an applicability of weighted bi-prediction that is included in a picture parameter set.

67. The method of claim 66, wherein the format rule specifies whether to include the first syntax element depends on whether a condition, `if( ( pps_weighted_pred_flag | | (pps_weighted_bipred_flag && (!rpl_info_in_ph_flag || num_ref_entries[ 1 ][ RplIdx[ 1 ] ] > 0) ) ) && wp_info_in_ph_flag )`, is met, and wherein `wp_info_in_ph_flag` is the second syntax element, `rpl_info_in_ph_flag` is the third syntax element, `num_ref_entries[ 1 ][ RplIdx[ 1 ] ]` is the number of reference pictures in the RPL, `pps_weighted_pred_flag` is the fourth syntax element, and `pps_weighted_bipred_flag` is the fifth syntax element.

68. The method of claim 67, wherein the format rule specifies to include the first syntax element in the picture header in case the condition is met.

69. The method of claim 67, wherein the format rule specifies to omit the first syntax element in case that the condition is not met.

70. The method of any of claims 1 to 69, wherein the conversion includes encoding the video into the bitstream.

71. The method of any of claims 1 to 69, wherein the conversion includes decoding the video from the bitstream.

72. The method of any of claims 1 to 69, wherein the conversion includes generating the bitstream from the video, and the method further comprises: storing the bitstream in a non-transitory computer-readable recording medium.

73. A video processing apparatus comprising a processor configured to implement a method recited in any one or more of claims 1 to 72.

74. A method of storing a bitstream of a video, comprising, a method recited in any one of claims 1 to 72, and further including storing the bitstream to a non-transitory computer-readable recording medium.

75. A computer readable medium storing program code that, when executed, causes a processor to implement a method recited in any one or more of claims 1 to 72.

76. A computer readable medium that stores a bitstream generated according to any of the above described methods.

77. A video processing apparatus for storing a bitstream, wherein the video processing apparatus is configured to implement a method recited in any one or more of claims 1 to 72.