CLAIMS

1. A method of processing video data, the method comprising: determining a value of a syntax element of a temporal motion constrained tile sets (MCTS) supplemental enhancement information (SEI) message of an access unit of a bitstream including video data, wherein the value of the syntax element represents whether all tiles of one or more corresponding pictures are included in separate MCTSs; and when the value of the syntax element indicates that each tile of the one or more corresponding pictures is not included in the separate MCTS, processing a value of an MCTS identifier syntax element of an MCTS extraction information set (MCTS-EIS) SEI message, the MCTS-EIS SEI message including information used to extract one or more sub-bitstreams from the bitstream, the information used to extract the one or more sub-bitstreams including extraction information sets and identifiers of MCTSs to which the respective extraction information sets apply, the extraction information sets including respective replacement parameter sets to be used during a sub-bitstream extraction process, the value of the MCTS identifier syntax element being equal to a value of an index of one of the MCTSs of a current picture of the access unit, the value of the index of the one of the MCTSs equaling a value for a variable i in a loop of num_sets_in_message_minus1+1 sets of MCTS information specified in the temporal MCTS SEI message of the access unit for the one of the MCTSs, the current picture being one of the one or more corresponding pictures.

2. The method of claim 1, further comprising, when the value of the syntax element indicates that all of the tiles of the corresponding pictures are included in the separate MCTSs, processing the value of the MCTS identifier syntax element, the value of the MCTS identifier syntax element being equal to a tile position of a corresponding tile in the MCTS in tile raster scan order.

3. The method of claim 1, wherein the syntax element comprises each_tile_one_tile_set_flag, wherein a value of one for the each_tile_one_tile_set_flag indicates that all of the tiles of the one or more corresponding pictures are included in the separate MCTSs, and wherein a value of zero for the each_tile_one_tile_set_flag indicates that two or more tiles of the one or more corresponding pictures are included in a common MCTS.

4. The method of claim 1, further comprising: extracting a sub-bitstream from the video data according to the MCTS SEI message and the MCTS-EIS SEI message; and passing the extracted sub-bitstream to a video decoder.

5. A device for processing video data, the device comprising: a memory configured to store video data; and one or more processors implemented in circuitry and configured to: determine a value of a syntax element of a temporal motion constrained tile sets (MCTS) supplemental enhancement information (SEI) message of an access unit of a bitstream including video data, wherein the value of the syntax element represents whether all tiles of one or more corresponding pictures are included in separate MCTSs; and when the value of the syntax element indicates that the tiles of the corresponding pictures are not included in the separate MCTSs, process a value of an MCTS identifier syntax element of an MCTS extraction information set (MCTS-EIS) SEI message, the MCTS-EIS SEI message including information used to extract one or more sub-bitstreams from the bitstream, the information used to extract the one or more sub-bitstreams including a number of extraction information sets and identifiers of MCTSs to which the respective extraction information sets apply, the extraction information sets including respective replacement parameter sets to be used during a sub-bitstream extraction process, the value of the MCTS identifier syntax element being equal to a value of an index of one of the MCTSs of a current picture of the access unit, the value of the index of the one of the MCTSs equaling a value for a variable i in a loop of num_sets_in_message_minus1+1 sets of MCTS information specified in the temporal MCTS SEI message of the access unit for the one of the MCTSs, the current picture being one of the corresponding pictures.

6. The device of claim 5, wherein the one or more processors are further configured to, when the value of the syntax element indicates all of the tiles of the corresponding pictures are included in the separate MCTSs, process the value of the MCTS identifier syntax element, the value of the MCTS identifier syntax element being equal to a tile position of a corresponding tile in the MCTS in tile raster scan order.

7. The device of claim 5, wherein the syntax element comprises each_tile_one_tile_set_flag, wherein a value of one for the each_tile_one_tile_set_flag

indicates that all of the tiles of the one or more corresponding pictures are included in the separate MCTSs, and wherein a value of zero for the each_tile_one_tile_set_flag indicates that two or more tiles of the one or more corresponding pictures are included in a common MCTS.

8. The device of claim 5, wherein the one or more processors are further configured to: extract a sub-bitstream from the video data according to the MCTS SEI message and the MCTS-EIS SEI message; and pass the extracted sub-bitstream to a video decoder.

9. The device of claim 5, further comprising a display configured to display the video data.

10. The device of claim 5, wherein the device comprises one or more of a camera, a computer, a mobile device, a broadcast receiver device, or a set-top box.

11. A device for processing video data, the device comprising: means for determining a value of a syntax element of a temporal motion constrained tile sets (MCTS) supplemental enhancement information (SEI) message of an access unit of a bitstream including video data, wherein the value of the syntax element represents whether all tiles of one or more corresponding pictures are included in separate MCTSs; and means for processing a value of an MCTS identifier syntax element of an MCTS extraction information set (MCTS-EIS) SEI message, the MCTS-EIS SEI message including information used to extract one or more sub-bitstreams from the bitstream, the information used to extract the one or more sub-bitstreams including a number of extraction information sets and identifiers of MCTSs to which the respective extraction information sets apply, the extraction information sets including respective replacement parameter sets to be used during a sub-bitstream extraction process, the value of the MCTS identifier syntax element being equal to a value of an index of one of the MCTSs of a current picture of the access unit, the value of the index of the one of the MCTSs equaling a value for a variable i in a loop of num_sets_in_message_minus1+1 sets of MCTS information specified in the temporal MCTS SEI message of the access unit for the one of the MCTSs when the value of the syntax element indicates that the tiles of the corresponding pictures are not included in the separate MCTSs, the current picture being one of the corresponding pictures.

12. The device of claim 11, further comprising means for processing the value of the MCTS identifier syntax element, the value of the MCTS identifier syntax element being equal to a tile position of a corresponding tile in the MCTS in tile raster scan order when the value of the syntax element indicates that all of the tile of the corresponding pictures are included in the separate MCTSs.

13. The device of claim 11, wherein the syntax element comprises each_tile_one_tile_set_flag, wherein a value of one for the each_tile_one_tile_set_flag indicates that all of the tiles of the one or more corresponding pictures are included in the separate MCTSs, and wherein a value of zero for the each_tile_one_tile_set_flag indicates that two or more tiles of the one or more corresponding pictures are included in a common MCTS.

14. The device of claim 11, further comprising: means for extracting a sub-bitstream from the video data according to the MCTS SEI message and the MCTS-EIS SEI message; and means for passing the extracted sub-bitstream to a video decoder.

15. A computer-readable storage medium having stored thereon instructions that, when executed, cause a processor to: determine a value of a syntax element of a temporal motion constrained tile sets (MCTS) supplemental enhancement information (SEI) message of an access unit of a bitstream including video data, wherein the value of the syntax element represents whether all tiles of one or more corresponding pictures are included in separate MCTSs; and when the value of the syntax element indicates that the tiles of the corresponding pictures are not included in the separate MCTSs, process a value of an MCTS identifier syntax element of an MCTS extraction information set (MCTS-EIS) SEI message, the MCTS-EIS SEI message including information used to extract one or more sub-bitstreams from the bitstream, the information used to extract the one or more sub-bitstreams including a number of extraction information sets and identifiers of MCTSs to which the respective extraction information sets apply, the extraction information sets including respective replacement parameter sets to be used during a sub-bitstream extraction process, the value of the MCTS identifier syntax element being equal to a value of an index of one of the MCTSs of a current picture of the access unit, the value of the index of the one of the MCTSs equaling a value for a

variable i in a loop of num_sets_in_message_minus1+1 sets of MCTS information specified in the temporal MCTS SEI message of the access unit for the one of the MCTSs, the current picture being one of the corresponding pictures.

16. The computer-readable storage medium of claim 15, further comprising instructions that cause the processor to, when the value of the syntax element indicates that all of the tiles of the corresponding pictures are included in the separate MCTSs, process the value of the MCTS identifier syntax element, the value of the MCTS identifier syntax element being equal to a tile position of a corresponding tile in the MCTS in tile raster scan order.

17. The computer-readable storage medium of claim 15, wherein the syntax element comprises each_tile_one_tile_set_flag, wherein a value of one for the each_tile_one_tile_set_flag indicates that all of the tiles of the one or more corresponding pictures are included in the separate MCTSs, and wherein a value of zero for the each_tile_one_tile_set_flag indicates that two or more tiles of the one or more corresponding pictures are included in a common MCTS.

18. The computer-readable storage medium of claim 15, further comprising instructions that cause the processor to: extract a sub-bitstream from the video data according to the MCTS-EIS SEI message and the MCTS-EIS SEI message; and pass the extracted sub-bitstream to a video decoder.

19. The method of claim 1, further comprising determining values of one or more mcts_id syntax elements of the MCTS SEI message, the values of the MCTS_id syntax elements representing purposes of the corresponding MCTSs, the one or more mcts_id syntax elements being different than the MCTS identifier.

20. The device of claim 5, wherein the one or more processors are further configured to determine values of one or more mcts_id syntax elements of the MCTS SEI message, the values of the MCTS_id syntax elements representing purposes of the corresponding MCTSs, the one or more mcts_id syntax elements being different than the MCTS identifier.

21. The device of claim 11, further comprising means for determining values of one or more mcts_id syntax elements of the MCTS SEI message, the values of the MCTS_id syntax elements representing purposes of the corresponding MCTSs, the one or more mcts_id syntax elements being different than the MCTS identifier.

22. The computer-readable storage medium of claim 15, further comprising instructions that cause the processor to determine values of one or more mcts_id syntax elements of the MCTS SEI message, the values of the MCTS_id syntax elements representing purposes of the corresponding MCTSs, the one or more mcts_id syntax elements being different than the MCTS identifier.