Claims

1. Decoder configured to

receive raw byte sequence payload describing a picture in WPP substreams with one WPP substream per LCU row of the picture and coded using CABAC from an encoder in tranches into which the WPP substreams are segmented thereby having tranche boundaries introduced therein;

entropy decoding the tranches with continuing CABAC probability adaptation across the tranche boundaries introduced within the WPP substreams; and

decode the raw byte sequence payload to obtain the picture.

2. Decoder according to any of the previous claims, wherein the tranches are packetized using slice headers, and the decoder is configured to, in receiving the tranches, be responsive, upon receiving a new slice, to a flag in the slice header of the new slice, a slice_type of the new slice or a NAL unit type of a NAL unit containing the new slice so as to either interrupt the CABAC probability adaptation by resetting CABAC probabilities or to continue the CABAC probability adaptation.

3. Decoder according to claim 1 or 2, wherein the decoder is configured to, in receiving the tranches, deinterleave the tranches by identifying, for each tranche, as to which WPP substream the respective tranche belongs to.

4. Decoder according to any of the previous claims, wherein the tranches are packetized into packets in manner so that each packet comprises one tranche of each WPP substream of the picture, or a subset of the WPP substreams of the picture, arranged in an order defined among the WPP substreams, each packet comprising a header comprising revealing the positions and/or lengths of the tranches packed into the respective packet, or markers separating the tranches within the respective packet from each other, wherein the decoder is configured to, in receiving the raw byte sequence payload, use the information comprised by the headers or the markers so as to access the tranches within the packets.

5. Decoder according to claim 4, wherein packets comprising first in accordance with the order defined among the WPP substreams or tiles tranches of the WPP

substreams or tiles of the picture, comprise a low delay feature indicator, and packets comprising second or subsequent in accordance with the order defined among the WPP substreams or tiles tranches of the WPP substreams or tiles of the picture, comprise a continuation indicator.

6. Decoder according to claim 4 or 5, wherein the packets are NAL units or slices.

7. Decoder configured to

receive raw byte sequence payload describing a picture in WPP substreams and coded using CABAC from an encoder in tranches into which the WPP substreams are segmented thereby having tranche boundaries introduced therein;

entropy decoding the tranches with continuing CABAC probability adaptation across the tranche boundaries introduced within the WPP substreams by adopting, in starting entropy decoding one tranche of the WPP substream, the CABAC probabilities at the end of entropy decoding another tranche of the WPP substream; and

decode the raw byte sequence payload to obtain the picture.

8. Encoder configured to

forming, by encoding a picture, a raw byte sequence payload so as to describe the picture in WPP substreams with one WPP substream per LCU row of the picture with entropy encoding the raw byte sequence using CABAC, transmitting the raw byte sequence in tranches into which the WPP substreams are segmented thereby having tranche boundaries introduced therein, and continuing CABAC probability adaptation in the entropy encoding across the tranche boundaries introduced within the WPP substreams.

9. Encoder according to claim 8, wherein the encoder is configured to from the raw byte sequence such that the tranches match a maximum transfer unit size.

10. Video bitstream comprising raw byte sequence payload describing a picture in WPP substreams with one WPP substream per LCU row of the picture and coded using CABAC, the video bitstream being decomposed into tranches of the WPP substreams into which the WPP substreams are segmented thereby having tranche

boundaries introduced therein, with continuing CABAC probability adaptation across the tranche boundaries introduced within the WPP substreams, wherein each tranche includes an explicit indication of its rank among the tranches into which the WPP substream the respective tranche belongs to, is sequentially decomposed.

11. Video bitstream according to claim 10, wherein the tranches are packetized into packets in manner so that each packet comprises one tranche of each WPP substream or tile of the picture, or a subset of the WPP substreams or tiles of the picture, arranged in an order defined among the WPP substreams or tiles, each packet comprising a header comprising revealing the positions and/or lengths of the tranches packed into the respective packet, or markers separating the tranches within the respective packet from each other.

12. Video bitstream according to claim 10 or 11, wherein packets comprising first in accordance with the order defined among the WPP substreams or tiles tranches of the WPP substreams or tiles of the picture, comprise a low delay feature indicator, and packets comprising second or subsequent in accordance with the order defined among the WPP substreams or tiles tranches of the WPP substreams or tiles of the picture, comprise a continuation indicator.

13. Video bitstream according to any of claims 10 to 12, wherein the packets are NAL units or slices.

14. Method for decoding comprising

receiving raw byte sequence payload describing a picture in WPP substreams with one WPP substream per LCU row of the picture and coded using CABAC from an encoder in tranches of the WPP substreams into which the WPP substreams are segmented thereby having tranche boundaries introduced therein;

entropy decoding the tranches with continuing CABAC probability adaptation across the tranche boundaries introduced within the WPP substreams; and

decoding the raw byte sequence payload to obtain the picture.

15. Method for transport demultiplexing comprising receiving a video bitstream comprising raw byte sequence payload describing a picture in WPP substreams with one WPP substream per LCU row of the picture and coded using CABAC, the

video bitstream being decomposed into tranches of the WPP substreams into which the WPP substreams are segmented thereby having tranche boundaries introduced therein with continuing CABAC probability adaptation across the tranche boundaries introduced within the WPP substreams, wherein the each tranche comprises information identifying, for each tranche, as to which WPP substream or tile, the respective tranche belongs to, and associating the tranches to the slices, WPP substreams or tiles using the information.

16. Method for encoding comprising

forming, by encoding a picture, a raw byte sequence payload so as to describe the picture in WPP substreams with one WPP substream per LCU row of the picture with entropy encoding the raw byte sequence using CABAC, transmitting the raw byte sequence in tranches into which the WPP substreams are segmented thereby having tranche boundaries introduced therein, and continuing CABAC probability adaptation in the entropy encoding across the tranche boundaries introduced within the WPP substreams.

17. A computer program having a program code for performing, when running on a computer, a method according to any of claims 13 to 16.

18. Transport demultiplexer configured to receive a video bitstream comprising raw byte sequence payload describing a picture in slices, WPP substreams or tiles and coded using CABAC, the video bitstream being decomposed into tranches of the slices, WPP substreams or tiles with continuing CABAC probability adaptation across tranche boundaries, wherein the each tranche comprises information identifying, for each tranche, as to which WPP substream or tile, the respective tranche belongs to, and to associate the tranches to the slices, WPP substreams or tiles using the information.

19. Transport demultiplexer according to claim 18, wherein, for each tranche, the information comprised by the respective tranche comprises an address of a starting position within the picture, starting from which the respective tranche continuously covers a portion of the slice, WPP substream or tile which the respective tranche belongs to.

20. Transport demultiplexer according to claim 18 or 19, wherein the transport demultiplexer is configured to sort, for each slice, WPP substream or tile, the

~~tranches thereof using a decoding order number in packet headers of packets into which the tranches are packed.~~

~~21. System comprising a transport demultiplexer according to any of claims 18 to 20, and the multi-threaded decoder, wherein the multi-threaded decoder is embodied according to claim 5.~~

CLAIMS:

1. Decoder configured to

receive raw byte sequence payload describing a picture in WPP substreams with one WPP substream per LCU row of the picture and coded using CABAC from an encoder in tranches into which the WPP substreams are segmented thereby having tranche boundaries introduced therein;

entropy decoding the tranches with continuing CABAC probability adaptation across the tranche boundaries introduced within the WPP substreams; and

decode the raw byte sequence payload to obtain the picture.

2. Decoder according to any of the previous claims, wherein the tranches are packetized using slice headers, and the decoder is configured to, in receiving the tranches, be responsive, upon receiving a new slice, to a flag in the slice header of the new slice, a slice type of the new slice or a NAL unit type of a NAL unit containing the new slice so as to either interrupt the CABAC probability adaptation by resetting CABAC probabilities or to continue the CABAC probability adaptation.

3. Decoder according to claim 1 or 2, wherein the decoder is configured to, in receiving the tranches, deinterleave the tranches by identifying, for each tranche, as to which WPP substream the respective tranche belongs to.

4. Decoder according to any of the previous claims, wherein the tranches are packetized into packets in manner so that each packet comprises one tranche of each WPP substream of the picture, or a subset of the WPP substreams of the picture, arranged in an order defined among the WPP substreams, each packet comprising a header comprising revealing the positions and/or lengths of the tranches packed into the respective packet, or markers separating the tranches within the respective packet from each other, wherein the decoder is configured to, in receiving the raw byte sequence payload, use the information comprised by the headers or the markers so as to access the tranches within the packets.

5. Decoder according to claim 4, wherein packets comprising first – in accordance with the order defined among the WPP substreams or tiles - tranches of the WPP

substreams or tiles of the picture, comprise a low delay feature indicator, and packets comprising second or subsequent – in accordance with the order defined among the WPP substreams or tiles - tranches of the WPP substreams or tiles of the picture, comprise a continuation indicator.

6. Decoder according to claim 4 or 5, wherein the packets are NAL units or slices.

7. Decoder configured to

receive raw byte sequence payload describing a picture in WPP substreams and coded using CABAC from an encoder in tranches into which the WPP substreams are segmented thereby having tranche boundaries introduced therein;

entropy decoding the tranches with continuing CABAC probability adaptation across the tranche boundaries introduced within the WPP substreams by adopting, in starting entropy decoding one tranche of the WPP substream, the CABAC probabilities at the end of entropy decoding another tranche of the WPP substream; and

decode the raw byte sequence payload to obtain the picture.

8. Encoder configured to

forming, by encoding a picture, a raw byte sequence payload so as to describe the picture in WPP substreams with one WPP substream per LCU row of the picture with entropy encoding the raw byte sequence using CABAC, transmitting the raw byte sequence in tranches into which the WPP substreams are segmented thereby having tranche boundaries introduced therein, and continuing CABAC probability adaptation in the entropy encoding across the tranche boundaries introduced within the WPP substreams.

9. Encoder according to claim 8, wherein the encoder is configured to from the raw byte sequence such that the tranches match a maximum transfer unit size.

10. Video bitstream comprising raw byte sequence payload describing a picture in WPP substreams with one WPP substream per LCU row of the picture and coded using CABAC, the video bitstream being decomposed into tranches of the WPP substreams into which the WPP substreams are segmented thereby having tranche

boundaries introduced therein, with continuing CABAC probability adaptation across the tranche boundaries introduced within the WPP substreams, wherein each tranche includes an explicit indication of its rank among the tranches into which the WPP substream the respective tranche belongs to, is sequentially decomposed.

11. Video bitstream according to claim 10, wherein the tranches are packetized into packets in manner so that each packet comprises one tranche of each WPP substream or tile of the picture, or a subset of the WPP substreams or tiles of the picture, arranged in an order defined among the WPP substreams or tiles, each packet comprising a header comprising revealing the positions and/or lengths of the tranches packed into the respective packet, or markers separating the tranches within the respective packet from each other.

12. Video bitstream according to claim 10 or 11, wherein packets comprising first – in accordance with the order defined among the WPP substreams or tiles - tranches of the WPP substreams or tiles of the picture, comprise a low delay feature indicator, and packets comprising second or subsequent – in accordance with the order defined among the WPP substreams or tiles - tranches of the WPP substreams or tiles of the picture, comprise a continuation indicator.

13. Video bitstream according to any of claims 10 to 12, wherein the packets are NAL units or slices.

14. Method for decoding comprising

receiving raw byte sequence payload describing a picture in WPP substreams with one WPP substream per LCU row of the picture and coded using CABAC from an encoder in tranches of the WPP substreams into which the WPP substreams are segmented thereby having tranche boundaries introduced therein;

entropy decoding the tranches with continuing CABAC probability adaptation across the tranche boundaries introduced within the WPP substreams; and

decoding the raw byte sequence payload to obtain the picture.

15. Method for transport demultiplexing comprising receiving a video bitstream comprising raw byte sequence payload describing a picture in WPP substreams with one WPP substream per LCU row of the picture and coded using CABAC, the

video bitstream being decomposed into tranches of the WPP substreams into which the WPP substreams are segmented thereby having tranche boundaries introduced therein with continuing CABAC probability adaptation across the tranche boundaries introduced within the WPP substreams, wherein the each tranche comprises information identifying, for each tranche, as to which WPP substream or tile, the respective tranche belongs to, and associating the tranches to the slices, WPP substreams or tiles using the information.

16. Method for encoding comprising

forming, by encoding a picture, a raw byte sequence payload so as to describe the picture in WPP substreams with one WPP substream per LCU row of the picture with entropy encoding the raw byte sequence using CABAC, transmitting the raw byte sequence in tranches into which the WPP substreams are segmented thereby having tranche boundaries introduced therein, and continuing CABAC probability adaptation in the entropy encoding across the tranche boundaries introduced within the WPP substreams.

17. A computer program having a program code for performing, when running on a computer, a method according to any of claims 13 to 16.

18. Transport demultiplexer configured to receive a video bitstream comprising raw byte sequence payload describing a picture in slices, WPP substreams or tiles and coded using CABAC, the video bitstream being decomposed into tranches of the slices, WPP substreams or tiles with continuing CABAC probability adaptation across tranche boundaries, wherein the each tranche comprises information identifying, for each tranche, as to which WPP substream or tile, the respective tranche belongs to, and to associate the tranches to the slices, WPP substreams or tiles using the information.

19. Transport demultiplexer according to claim 18, wherein, for each tranche, the information comprised by the respective tranche comprises an address of a starting position within the picture, starting from which the respective tranche continuously covers a portion of the slice, WPP substream or tile which the respective tranche belongs to.

20. Transport demultiplexer according to claim 18 or 19, wherein the transport demultiplexer is configured to sort, for each slice, WPP substream or tile, the

tranches thereof using a decoding order number in packet headers of packets into which the tranches are packed.

21. System comprising a transport demultiplexer according to any of claims 18 to 20, and the multi-threaded decoder, wherein the multi-threaded decoder is embodied according to claim 5.