I claim:

1. In a computing system that implements a video decoder, a method comprising:

receiving and parsing a syntax element that indicates a maximum size of frame memory for reordering, wherein the maximum size of frame memory for reordering is expressed in terms of a maximum count of frames that can precede any frame of a video sequence in coded order but follow that frame in output order;

receiving and parsing one or more different syntax elements that indicate a constraint on frame reordering latency, wherein the constraint on frame reordering latency is expressed in terms of a maximum count of frames that can precede any frame of the video sequence in output order but follow that frame in coded order;

receiving encoded data for plural frames of thea video sequence;

with the video decoder, decoding at least some of the encoded data to reconstruct one of the plural frames; and

outputting the reconstructed frame.

2. The method of claim 1 ~~wherein the constraint on latency is a constraint on frame reordering latency, the method~~ further comprising:

~~parsing the one or more syntax elements;~~

determining the constraint on frame reordering latency based upon the one or more different syntax elements; and

using the constraint on frame reordering latency to determine when the reconstructed frame is ready for output in terms of output order of the plural frames of the video sequence.

3. The method of claim 2 wherein the plural frames of the video sequence are organized according to a temporal hierarchy, wherein different ones of the one or more different syntax elements indicate different constraints on frame reordering latencies for different temporal layers of the temporal hierarchy, the method further comprising selecting one of the different constraints on frame reordering latencies depending on temporal resolution of the output.

4. The method of claim 1 wherein the constraint on ~~latency is a constraint on frame reordering latency, and wherein the constraint on~~ frame reordering latency defines a maximum difference between coded order and output order ~~is a reordering latency allowed~~ for any frame in the video sequence.

5. The method of claim 1 wherein the one or more different syntax elements and the encoded data are signaled as part of syntax for a coded video bitstream, the method further comprising:

receiving and parsing a buffer size syntax element that indicates maximum size of a decoded picture buffer ~~and a frame memory syntax element that indicates maximum size of frame memory for reordering~~, wherein the buffer size syntax element is ~~and the frame memory syntax element are~~ different than the one or more different syntax elements that indicate the constraint on frame reordering latency.

6. The method of claim 1 wherein the one or more different syntax elements are signaled as part of a sequence parameter set, a picture parameter set, syntax for a media storage file that also includes the encoded data, syntax for a media transmission stream that also includes the encoded data, a media properties negotiation protocol, media system information multiplexed with the encoded data or media metadata relating to the encoded data.

7. The method of claim 1 further comprising:

receiving a flag that indicates presence or absence of the one or more different syntax elements, wherein if the flag indicates the one or more different syntax elements are absent then the constraint on frame reordering latency is undefined or has a default value.

8~~7~~. The method of claim 1 wherein ~~:~~

one possible value of the one or more different syntax elements indicates the constraint on frame reordering latency is undefined or has a default value, and wherein other possible values of the one or more different syntax elements indicate an integer count for the constraint on frame reordering latency.~~; or~~

9. The method of claim 1 wherein a value of the one or more different syntax elements indicates an integer count for the constraint on frame reordering latency relative to the~~a~~ maximum size of frame memory for reordering~~, the maximum size frame memory for reordering being indicated with a different syntax element~~.

10. The method of claim 9 wherein the constraint on frame reordering latency can be determined as the maximum count for the maximum size of frame memory for reordering plus the integer count for the constraint on frame reordering latency minus 1.

11~~8~~. In a computing system, a method comprising:

setting a syntax element that indicates a maximum size of frame memory for reordering wherein the maximum size of frame memory for reordering is expressed in terms of a maximum count of frames that can precede any frame of a video sequence in coded order but follow that frame in output order;

setting one or more different syntax elements that indicate a constraint on frame reordering latency consistent with inter-frame dependencies between plural frames of thea video sequence, wherein the constraint on frame reordering latency is expressed in terms of a maximum count of frames that can precede any frame of the video sequence in output order but follow that frame in coded order; and

outputting the one or more different syntax elements, thereby facilitating determination of when reconstructed frames are ready for output in terms of output order of the plural frames.

129. The method of claim 118 ~~wherein the constraint on latency is a constraint on frame reordering latency, and~~ wherein the computing system implements a video encoder, the method further comprising:

receiving the plural frames of the video sequence;

with the video encoder, encoding the plural frames to produce encoded data, wherein the encoding uses the inter-frame dependencies that are consistent with the constraint on frame reordering latency; and

outputting the encoded data for storage or transmission.

13. The method of claim 11 wherein the one or more different syntax elements and encoded data are output as part of syntax for a coded video bitstream, the method further comprising:

outputting a buffer size syntax element that indicates maximum size of a decoded picture buffer, wherein the buffer size syntax element is different than the one or more different syntax elements that indicate the constraint on frame reordering latency.

14. The method of claim 11 wherein the one or more different syntax elements are output as part of a sequence parameter set, a picture parameter set, syntax for a media storage file that also includes encoded data for the plural frames, syntax for a media transmission stream that also includes encoded data for the plural frames, a media properties negotiation protocol, media system information multiplexed with encoded data for the plural frames or media metadata relating to encoded data for the plural frames.

15. The method of claim 11 wherein the method further comprises:

outputting a flag that indicates presence or absence of the one or more different syntax elements, wherein if the flag indicates the one or more different syntax elements are absent then the constraint on frame reordering latency is undefined or has a default value.

16. The method of claim 11 wherein one possible value of the one or more different syntax elements indicates the constraint on frame reordering latency is undefined or has a default value, and wherein other possible values of the one or more different syntax elements indicate an integer count for the constraint on frame reordering latency.

17. The method of claim 11 wherein a value of the one or more different syntax elements indicates an integer count for the constraint on frame reordering latency relative to the maximum size of frame memory for reordering.

18. The method of claim 17 wherein the constraint on frame reordering latency can be determined as the maximum count for the maximum size of frame memory for reordering plus the integer count for the constraint on frame reordering latency minus 1.

19~~10~~. A computing system comprising a processor, memory and storage that implement a video decoder, ~~the computing system being~~ adapted to perform a method comprising:

receiving and parsing a syntax element that indicates a maximum size of frame memory for reordering, wherein the maximum size of frame memory for reordering is expressed in terms of a maximum count of frames that can precede any frame of a video sequence in coded order but follow that frame in output order;

receiving and parsing one or more different syntax elements that indicate a constraint on frame reordering latency;

determining the constraint on frame reordering latency based upon the one or more different syntax elements, wherein the constraint on frame reordering latency is expressed in terms of a maximum count of frames that can precede any ~~a given~~ frame of the video sequence in output order but follow that ~~the given~~ frame in coded order;

receiving encoded data for plural frames of the~~a~~ video sequence;

with the video decoder, decoding at least some of the encoded data to reconstruct one of the plural frames; and

outputting the reconstructed frame, including using the constraint on frame reordering latency to determine when the reconstructed frame is ready for output in terms of output order of the plural frames of the video sequence.

20. The computing system of claim 19 wherein the one or more different syntax elements are signaled as part of a sequence parameter set or media metadata relating to the encoded data for the plural frames.

21. The computing system of claim 19 wherein a value of the one or more different syntax elements indicates an integer count for the constraint on frame reordering latency relative to a maximum size of frame memory for reordering.

22. The computing system of claim 21 wherein the constraint on frame reordering latency can be determined as the maximum count for the maximum size of frame memory for reordering plus the integer count for the constraint on frame reordering latency minus 1.

23. One or more computer-readable media storing computer-executable instructions for causing a computing system programmed thereby to perform a method, the one or more computer-readable media being selected only from the group consisting of non-volatile memory and storage device, the method comprising:

receiving and parsing a syntax element that indicates a maximum size of frame memory for reordering, wherein the maximum size of frame memory for reordering is expressed in terms of a maximum count of frames that can precede any frame of a video sequence in coded order but follow that frame in output order;

receiving and parsing one or more different syntax elements that indicate a constraint on frame reordering latency, wherein the constraint on frame reordering latency is expressed in terms of a maximum count of frames that can precede any frame of the video sequence in output order but follow that frame in coded order;

receiving encoded data for plural frames of the video sequence;

with the video decoder, decoding at least some of the encoded data to reconstruct one of the plural frames; and

outputting the reconstructed frame.

24. The one or more computer-readable media of claim 23 wherein the method further comprises:

determining the constraint on frame reordering latency based upon the one or more different syntax elements; and

using the constraint on frame reordering latency to determine when the reconstructed frame is ready for output in terms of output order of the plural frames of the video sequence.

25. The one or more computer-readable media of claim 23 wherein the plural frames of the video sequence are organized according to a temporal hierarchy, wherein different ones of the one or more different syntax elements indicate different constraints on frame reordering latencies for different temporal layers of the temporal hierarchy, the method further comprising selecting one of the different constraints on frame reordering latencies depending on temporal resolution of the output.

26. The one or more computer-readable media of claim 23 wherein a value of the one or more different syntax elements indicates an integer count for the constraint on frame reordering latency relative to the maximum size of frame memory for reordering.

27. The one or more computer-readable media of claim 26 wherein the constraint on frame reordering latency can be determined as the maximum count for the maximum size of frame memory for reordering plus the integer count for the constraint on frame reordering latency minus 1.

28. One or more computer-readable media storing computer-executable instructions for causing a computing system programmed thereby to perform a method, the one or more computer-readable media being selected only from the group consisting of non-volatile memory and storage device, the method comprising:

setting a syntax element that indicates a maximum size of frame memory for reordering, wherein the maximum size of frame memory for reordering is expressed in terms of a maximum count of frames that precede any frame of a video sequence in coded order but follow that frame in output order;

setting one or more syntax different elements that indicate a constraint on frame reordering latency consistent with inter-frame dependencies between plural frames of the video sequence, wherein the constraint on frame reordering latency is expressed in terms of a maximum count of frames that can precede any frame of the video sequence in output order but follow that frame in coded order; and

outputting the one or more different syntax elements, thereby facilitating determination of when reconstructed frames are ready for output in terms of output order of the plural frames.

29. The one or more computer-readable media of claim 28 wherein a value of the one or more different syntax elements indicates an integer count for the constraint on frame reordering latency relative to the maximum size of frame memory for reordering.

30. The one or more computer-readable media of claim 29 wherein the constraint on frame reordering latency can be determined as the maximum count for the maximum size of frame memory for reordering plus the integer count for the constraint on frame reordering latency minus 1.

31. A computing system comprising a processor, memory and storage that implement a video encoder adapted to perform a method comprising:

setting a syntax element that indicates a maximum size of frame memory for reordering, wherein the maximum size of frame memory for reordering is expressed in terms of a maximum count of frames that can precede any frame of a video sequence in coded order but follow that frame in output order;

setting one or more different syntax elements that indicate a constraint on frame reordering latency consistent with inter-frame dependencies between plural frames of the video sequence, wherein the constraint on frame reordering latency is expressed in terms of a maximum count of frames that can precede any frame of the video sequence in output order but follow that frame in coded order;

receiving the plural frames of the video sequence;

with the video encoder, encoding the plural frames to produce encoded data, wherein the encoding uses the inter-frame dependencies that are consistent with the constraint on frame reordering latency;

outputting the one or more different syntax elements, thereby facilitating determination of when reconstructed frames are ready for output in terms of output order of the plural frames; and

outputting the encoded data for storage or transmission.

32. The computing system of claim 31 wherein a value of the one or more syntax elements indicates an integer count for the constraint on frame reordering latency relative to the maximum size of frame memory for reordering.

33. The computing system of claim 32 wherein the constraint on frame reordering latency can be determined as the maximum count for the maximum size of frame memory for reordering plus the integer count for the constraint on frame reordering latency minus 1.