CLAIMS

1. A method of efficient bit use, the method comprising:

obtaining a bitstream comprising a compressed version of a spatial component of a sound field, the spatial component of the sound field being represented by a vector representative of an orthogonal spatial axis in a spherical harmonics domain, wherein the bitstream further comprises an indicator for whether to reuse, from a previous frame, a syntax element indicative of a prediction mode indicative of whether prediction was performed with respect to the vector.

2. The method of claim 1, wherein the syntax element is a first syntax element and the indicator comprises one or more bits of a second syntax element, the second syntax element indicating a quantization mode used when compressing the vector.

3. The method of claim 2, wherein the one or more bits of the second syntax element, when set to a zero value, indicates to reuse the first syntax element from the previous frame.

4. The method of claim 2, wherein the quantization mode comprises a vector quantization mode.

5. The method of claim 2, wherein the quantization mode comprises a scalar quantization mode without Huffman coding.

6. The method of claim 2, wherein the quantization mode comprises a scalar quantization mode with Huffman coding.

7. The method of claim 2, wherein the indicator includes a most significant bit of the second syntax element and a second most significant bit of the second syntax element.

8. The method of claim 1, wherein the syntax element is a first syntax element and the indicator indicates whether to reuse, from the previous frame, a second syntax element, the second syntax element indicative of a Huffman table used when compressing the vector.

9. The method of claim 1, wherein the syntax element is a first syntax element and the indicator indicates whether to reuse, from the previous frame, a second syntax element, the second syntax element indicative of a category identifier that identifies a compression category to which the vector corresponds.

10. The method of claim 1, wherein the syntax element is a first syntax element and the indicator indicates whether to reuse, from the previous frame, a second syntax element, the second syntax element indicative of whether an element of the vector is a positive value or a negative value.

11. The method of claim 1, wherein the syntax element is a first syntax element and the indicator indicates whether to reuse, from the previous frame, a second syntax element, the second syntax element indicative of a number of code vectors used when compressing the vector.

12. The method of claim 1, wherein the syntax element is a first syntax element and the indicator indicates whether to reuse, from the previous frame, a second syntax element, the second syntax element indicative of a vector quantization codebook used when compressing the vector.

13. The method of claim 1, wherein a compressed version of the vector is represented in the bitstream using, at least in part, a Huffman code to represent a residual value of an element of the vector.

14. The method of claim 1, further comprising:
decomposing higher-order ambisonic audio data to obtain the vector; and
specifying the vector in the bitstream to obtain the bitstream.

15. The method of claim 1, further comprising:
obtaining, from the bitstream, an audio object that corresponds to the vector; and

combining the audio object with the vector to reconstruct higher-order ambisonic audio data.

16. The method of claim 1, wherein the compression of the vector includes quantization of the vector.

17. A device configured to perform efficient bit use, the device comprising:

one or more processors configured to obtain a bitstream comprising a compressed version of a spatial component of a sound field, the spatial component of the sound field being represented by a vector representative of an orthogonal spatial axis in a spherical harmonics domain, wherein the bitstream further comprises an indicator for whether to reuse, from a previous frame, a syntax element indicative of a prediction mode indicative of whether prediction was performed with respect to the vector; and

a memory configured to store the bitstream.

18. The device of claim 17, wherein the syntax element is a first syntax element and the indicator comprises one or more bits of a second syntax element, the second syntax element indicating a quantization mode used when compressing the vector.

19. The device of claim 18, wherein the one or more bits of the second syntax element, when set to a zero value, indicates to reuse the first syntax element from the previous frame.

20. The device of claim 18, wherein the quantization mode comprises a vector quantization mode.

21. The device of claim 18, wherein the quantization mode comprises a scalar quantization mode without Huffman coding.

22. The device of claim 18, wherein the quantization mode comprises a scalar quantization mode with Huffman coding.

23. The device of claim 18, wherein the indicator includes a most significant bit of the second syntax element and a second most significant bit of the second syntax element.

24. The device of claim 17, wherein the syntax element is a first syntax element and the indicator indicates whether to reuse, from the previous frame, a second syntax element, the second syntax element indicative of a Huffman table used when compressing the vector.

25. The device of claim 17, wherein the syntax element is a first syntax element and the indicator indicates whether to reuse, from the previous frame, a second syntax element, the second syntax element indicative of a category identifier that identifies a compression category to which the vector corresponds.

26. The device of claim 17, wherein the syntax element is a first syntax element and the indicator indicates whether to reuse, from the previous frame, a second syntax element, the second syntax element indicative of whether an element of the vector is a positive value or a negative value.

27. The device of claim 17, wherein the syntax element is a first syntax element and the indicator indicates whether to reuse, from the previous frame, a second syntax element, the second syntax element indicative of a number of code vectors used when compressing the vector.

28. The device of claim 17, wherein the syntax element is a first syntax element and the indicator indicates whether to reuse, from the previous frame, a second syntax element, the second syntax element indicative of a vector quantization codebook used when compressing the vector.

29. The device of claim 17, wherein a compressed version of the vector is represented in the bitstream using, at least in part, a Huffman code to represent a residual value of an element of the vector.

30. The device of claim 17, wherein the one or more processors are further configured to decompose higher-order ambisonic audio data to obtain the vector, and specify the vector in the bitstream to obtain the bitstream.

31. The device of claim 17, wherein the one or more processors are further configured to obtain, from the bitstream, an audio object that corresponds to the vector, and combine the audio object with the vector to reconstruct higher-order ambisonic audio data.

32. The device of claim 17, wherein the compression of the vector includes quantization of the vector.

33. A device configured to perform efficient bit use, the device comprising:

means for obtaining a bitstream comprising a compressed version of a spatial component of a sound field, the spatial component of the sound field being represented by a vector representative of an orthogonal spatial axis in a spherical harmonics domain, wherein the bitstream further comprises an indicator for whether to reuse, from a previous frame, a syntax element indicative of a prediction mode indicative of whether prediction was performed with respect to the vector; and

means for storing the indicator.

34. The device of claim 33, wherein the syntax element is a first syntax element and the indicator comprises one or more bits of a second syntax element, the second syntax element indicating a quantization mode used when compressing the vector.

35. The device of claim 34, wherein the one or more bits of the second syntax element, when set to a zero value, indicates to reuse first syntax element from the previous frame.

36. The device of claim 34, wherein the quantization mode comprises a vector quantization mode.

37. The device of claim 34, wherein the quantization mode comprises a scalar quantization mode without Huffman coding.

38. The device of claim 34, wherein the quantization mode comprises a scalar quantization mode with Huffman coding.

39. The device of claim 34, wherein the indicator includes a most significant bit of the second syntax element and a second most significant bit of the second syntax element.

40. The device of claim 33, wherein the syntax element is a first syntax element and the indicator indicates whether to reuse, from the previous frame, a second syntax element, the second syntax element indicative of a Huffman table used when compressing the vector.

41. The device of claim 33, wherein the syntax element is a first syntax element and the indicator indicates whether to reuse, from the previous frame, a second syntax element, the second syntax element indicative of a category identifier that identifies a compression category to which the vector corresponds.

42. The device of claim 33, wherein the syntax element is a first syntax element and the indicator indicates whether to reuse, from the previous frame, a second syntax element, the second syntax element indicative of whether an element of the vector is a positive value or a negative value.

43. The device of claim 33, wherein the syntax element is a first syntax element and the indicator indicates whether to reuse, from the previous frame, a second syntax element, the second syntax element indicative of a number of code vectors used when compressing the vector.

44. The device of claim 33, wherein the syntax element is a first syntax element and the indicator indicates whether to reuse, from the previous frame, a second syntax element, the second syntax element indicative of a vector quantization codebook used when compressing the vector.

45. The device of claim 33, wherein a compressed version of the vector is represented in the bitstream using, at least in part, a Huffman code to represent a residual value of an element of the vector.

46. The device of claim 33, further comprising:

means for decomposing higher-order ambisonic audio data to obtain the vector; and

means for specifying the vector in the bitstream to obtain the bitstream.

47. The device of claim 33, further comprising:

means for obtaining, from the bitstream, an audio object that corresponds to the vector; and

means for combining the audio object with the vector to reconstruct higher-order ambisonic audio data.

48. The device of claim 33, wherein the compression of the vector includes quantization of the vector.

49. A non-transitory computer-readable storage medium having stored thereon instructions that when executed cause one or more processors to:

obtain a bitstream comprising a compressed version of a spatial component of a sound field, the spatial component of the sound field being represented by a vector representative of an orthogonal spatial axis in a spherical harmonics domain, wherein the bitstream further comprises an indicator for whether to reuse, from a previous frame, at least one syntax element indicative of a prediction mode indicative of whether prediction was performed with respect to the vector.

50. A device configured to perform efficient bit use, the device comprising:

one or more processors configured to obtain a bitstream comprising a compressed version of a spatial component of a sound field, the spatial component of the sound field being represented by a vector representative of an orthogonal spatial axis in a spherical harmonics domain, wherein the bitstream further comprises an indicator for whether to reuse, from a

previous frame, a syntax element indicative of a Huffman table used when compressing the vector; and

a memory configured to store the bitstream.

51. A device configured to perform efficient bit use, the device comprising:

one or more processors configured to obtain a bitstream comprising a compressed version of a spatial component of a sound field, the spatial component of the sound field being represented by a vector representative of an orthogonal spatial axis in a spherical harmonics domain, wherein the bitstream further comprises an indicator for whether to reuse, from a previous frame, a syntax element indicative of a vector quantization codebook used when compressing the vector; and

a memory configured to store the bitstream.

52. A device configured to perform efficient bit use, the device comprising:

one or more processors configured to obtain a bitstream comprising a compressed version of a spatial component of a sound field, the spatial component of the sound field being represented by a vector representative of an orthogonal spatial axis in a spherical harmonics domain, wherein the bitstream further comprises an indicator for whether to reuse, from a previous frame, a syntax element indicating a quantization mode used when compressing the vector, the indicator comprising one or more bits of the syntax element; and

a memory configured to store the bitstream.