Claims

1. Decoder (40) configured to decode spectral coefficients (14) of a spectrum (12) of an audio signal (18), the spectral coefficients belonging to the same time instant, the decoder being configured to sequentially, from low to high frequency, decode the spectral coefficients and decode a currently to be decoded spectral coefficient (x) of the spectral coefficients by entropy decoding depending, in a context-adaptive manner, on a previously decoded spectral coefficient (o) of the spectral coefficients, with adjusting a relative spectral distance (28) between the previously decoded spectral coefficient (o) and the currently to be decoded spectral coefficient (x) depending on an information concerning a shape of the spectrum.

2. Decoder according to claim 1, wherein the information concerning a shape of the spectrum comprises at least one of

a measure (60) of a pitch or periodicity of the audio signal (18);

a measure of an inter-harmonic distance of the audio signal's spectrum (12);

relative locations of formants (70) and/or valleys (72) of a spectral envelope of the spectrum.

3. Decoder according to claim 1 or 2, wherein the decoder (40) is configured to derive the information concerning the shape of the spectrum from explicit signalization.

4. Decoder according to claim 1 or 2, wherein the decoder (40) is configured to derive the information concerning the shape of the spectrum from previously decoded spectral coefficients (o) or the previously decoded LPC-based spectral envelope of the spectrum.

5. Decoder according to any of the previous claims, wherein the decoder (40) is configured such that the dependence of the entropy decoding involves a plurality of previously decoded spectral coefficients (o), a spectral spread of spectral positions of which is adjusted depending on the information concerning the shape of the spectrum.

6. Decoder according to any of the previous claims, wherein the decoder (40) is configured such that

the information concerning the shape of the spectrum is a measure (60) of a pitch of the audio signal and the decoder is configured to adjust the relative spectral distance (28) between the previously decoded spectral coefficient (o) and the currently to be decoded spectral coefficient (x) depending on the measure of the pitch such that the relative spectral distance increases with increasing pitch, or

the information concerning the shape of the spectrum is a measure (60) of a periodicity of the audio signal and the decoder is configured to adjust the relative spectral distance (28) between the previously decoded spectral coefficient (o) and the currently to be decoded spectral coefficient (x) depending on the measure of periodicity such that the relative spectral distance decreases with increasing periodicity, or

the information concerning the shape of the spectrum is a measure of an inter-harmonic distance of the audio signal's spectrum (12), and the decoder (40) is configured to adjust the relative spectral distance between the previously decoded spectral coefficient (o) and the currently to be decoded spectral coefficient (x) depending on the measure of the inter-harmonic distance such that the relative spectral distance increases with increasing inter-harmonic distance, or

the information concerning the shape of the spectrum comprises relative locations of formants (70) and/or valleys (72) of a spectral envelope of the spectrum, and the decoder is configured to adjust the relative spectral distance between the previously decoded spectral coefficient and the currently to be decoded spectral coefficient depending on the location such that the relative spectral distance increases with increasing spectral distance (74) between the valleys in the spectral envelope and/or between the formants in the spectral envelope.

7. Decoder according to any of the previous claims, wherein the decoder is configured to, in decoding the currently to be decoded spectral coefficient by entropy decoding, derive a probability distribution estimation (56) for the currently to be decoded spectral coefficient by subjecting the previously decoded spectral

coefficient to a scalar function ~~(82)~~ and use the probability distribution estimation for the entropy decoding.

8. Decoder according to any of the previous claims, wherein the decoder is configured to use arithmetic decoding as entropy decoding.

9. Decoder according to any of the previous claims, wherein the decoder is configured to decode the currently to be decoded spectral coefficient by spectrally and/or temporally predicting the currently to be decoded spectral coefficient and correcting the spectral and/or temporal prediction by a prediction residual obtained via the entropy decoding.

10. Transform-based audio decoder comprising a decoder configured to decode spectral coefficients of a spectrum of an audio signal according to any of the previous claims.

11. Transform-based audio decoder according to claim 10, wherein the decoder is configured to spectrally shape the spectrum by scaling the spectrum using scale factors ~~(114)~~.

12. Transform-based audio decoder according to claim 11, configured to determine the scale factors ~~(114)~~ based on linear prediction coefficient information so that the scale factors represent a transfer function depending on a linear prediction synthesis filter defined by the linear prediction coefficient information.

13. Transform-based audio decoder according to claim 12, wherein the transfer function's dependency on the linear prediction synthesis filter defined by the linear prediction coefficient information is such that the transfer function is perceptually weighted.

14. Transform-based audio decoder according to claim 13, wherein the transfer function's dependency on the linear prediction synthesis filter, 1/A(z), defined by the linear prediction information, is such that the transfer function is a transfer function of $1/A(k \cdot z)$, where k is a constant.

15. Transform-based audio decoder according to any of claims 10 to 14, wherein the transform-based audio decoder supports long term prediction harmonic or post filtering controlled via explicitly signaled long term prediction parameters, wherein the transform-based audio decoder is configured to derive the information concerning the shape of the spectrum from the explicitly signaled long term prediction parameters.

16. Encoder ~~(10)~~ configured to encode spectral coefficients ~~(14)~~ of a spectrum ~~(12)~~ of an audio signal ~~(18)~~, the spectral coefficients belonging to the same time instant, the encoder being configured to sequentially, from low to high frequency, encode the spectral coefficients and encode a currently to be encoded spectral coefficient ~~(x)~~of the spectral coefficients by entropy encoding depending, in a context-adaptive manner, on a previously encoded spectral coefficient ~~(o)~~ of the spectral coefficients, with adjusting a relative spectral distance ~~(28)~~ between the previously encoded spectral coefficient and the currently encoded spectral coefficient depending on an information concerning a shape of the spectrum.

17. Method for decoding spectral coefficients ~~(14)~~ of a spectrum ~~(12)~~ of an audio signal ~~(18)~~, the spectral coefficients belonging to the same time instant, the method comprising sequentially, from low to high frequency, decoding the spectral coefficients and decoding a currently to be decoded spectral coefficient ~~(x)~~of the spectral coefficients by entropy decoding depending, in a context-adaptive manner, on a previously decoded spectral coefficient ~~(o)~~ of the spectral coefficients, with adjusting a relative spectral distance ~~(28)~~ between the previously decoded spectral coefficient ~~(o)~~ and the currently to be decoded spectral coefficient ~~(x)~~ depending on an information concerning a shape of the spectrum.

18. Method for encoding spectral coefficients ~~(14)~~ of a spectrum ~~(12)~~ of an audio signal ~~(18)~~, the spectral coefficients belonging to the same time instant, the method comprising sequentially, from low to high frequency, encoding the spectral coefficients and encoding a currently to be encoded spectral coefficient ~~(x)~~of the spectral coefficients by entropy encoding depending, in a context-adaptive manner, on a previously encoded spectral coefficient ~~(o)~~ of the spectral coefficients, with adjusting a relative spectral distance ~~(28)~~ between the previously encoded spectral coefficient and the currently encoded spectral coefficient depending on an information concerning a shape of the spectrum.

19. Computer program having a program code for performing, when running on a computer, a method according to claim 17 or 18.

20. Decoder configured to decode spectral coefficients of a spectrogram of an audio signal, composed of a sequence of a spectra, the decoder being configured to decode the spectral coefficients along a spectrotemporal path which scans the spectral coefficients spectrally from low to high frequency within one spectrum and then proceeds with spectral coefficients of a temporally succeeding spectrum with decoding, by entropy decoding, a currently to be decoded spectral coefficient of a current spectrum depending, in a context-adaptive manner, on a template of previously decoded spectral coefficients including a spectral coefficient belonging to the current spectrum, the template being positioned at a location of the currently to be decoded spectral coefficient, with adjusting a relative spectral distance between the spectral coefficient belonging to the current spectrum and the currently to be decoded spectral coefficient depending on an information concerning a shape of the spectrum.

21. Decoder according to claim 20, wherein the decoder is configured such that the relative spectral distance increases with increase of the information concerning the shape of the spectrum wherein the information concerning a shape of the spectrum comprises is a measure of a pitch or periodicity of the audio signal.