CLAIMS

1. A method of decoding video data, the method comprising:

determining a context, from a plurality of contexts, for decoding a sign prediction syntax element for a transform coefficient of a block of video data based on a position of the transform coefficient in the block of video data, wherein the sign prediction syntax element indicates whether a sign prediction hypothesis is correct for the transform coefficient;

decoding the sign prediction syntax element using the context;

determining the sign prediction hypothesis for the transform coefficient;

determining a sign of the transform coefficient based on the sign prediction hypothesis and the sign prediction syntax element; and

decoding the block of video data based on the sign of the transform coefficient.

2. The method of claim 1, wherein determining the context, from the plurality of contexts, for decoding the sign prediction syntax element for the transform coefficient based on the position of the transform coefficient in the block of video data comprises: determining the context, from the plurality of contexts, for decoding the sign prediction syntax element for the transform coefficient based on whether the transform coefficient is a DC coefficient.

3. The method of claim 1, wherein determining the context, from the plurality of contexts, for decoding the sign prediction syntax element for the transform coefficient based on the position of the transform coefficient in the block of video data comprises:

determining a first context, from the plurality of contexts, for decoding the sign prediction syntax element based on the transform coefficient being a DC coefficient; and

determining a second context, from the plurality of contexts, for decoding the sign prediction syntax element based on the transform coefficient not being the DC coefficient.

4. The method of claim 1, wherein determining the context, from the plurality of contexts, for decoding the sign prediction syntax element for the transform coefficient based on the position of the transform coefficient in the block of video data comprises:

determining the context, from the plurality of contexts, for decoding the sign prediction syntax element based on a sign prediction order in the block of video data, wherein the position of the transform coefficient in the block of video data is based on the sign prediction order, and wherein the sign prediction order is a scanning order within the block**.**

5. The method of claim 1, further comprising:

determining the context, from the plurality of contexts, for decoding the sign prediction syntax element for the transform coefficient further based on a coding mode used to encode the block.

6. The method of claim 5, wherein determining the context, from the plurality of contexts, for decoding the sign prediction syntax element for the transform coefficient further based on the coding mode comprises:

determining the context, from the plurality of contexts, for decoding the sign prediction syntax element further based on whether the coding mode used to code the block of video data is an inter prediction coding mode or an intra prediction coding mode.

7. The method of claim 1, further comprising:

determining the context, from the plurality of contexts, for decoding the sign prediction syntax element for the transform coefficient further based on an intra prediction direction.

8. The method of claim 1, wherein determining the sign prediction hypothesis for the transform coefficient comprises:

minimizing a cost function that includes combined template values.

9. The method of claim 1, further comprising:

displaying a picture that includes the block of video data.

10. An apparatus configured to decode video data, the apparatus comprising:

a memory configured to store a block of video data; and

one or more processors implemented in circuitry and in communication with the memory, the one or more processors configured to:

determine a context, from a plurality of contexts, for decoding a sign prediction syntax element for a transform coefficient of a block of video data based on a position of the transform coefficient in the block of video data, wherein the sign prediction syntax element indicates whether a sign prediction hypothesis is correct for the transform coefficient;

decode the sign prediction syntax element using the context;

determine the sign prediction hypothesis for the transform coefficient;

determine a sign of the transform coefficient based on the sign prediction hypothesis and the sign prediction syntax element; and

decode the block of video data based on the sign of the transform coefficient.

11. The apparatus of claim 10, wherein to determine the context, from the plurality of contexts, for decoding the sign prediction syntax element for the transform coefficient based on the position of the transform coefficient in the block of video data, the one or more processors are further configured to:

determine the context, from the plurality of contexts, for decoding the sign prediction syntax element for the transform coefficient based on whether the transform coefficient is a DC coefficient.

12. The apparatus of claim 10, wherein to determine the context, from the plurality of contexts, for decoding the sign prediction syntax element for the transform coefficient based on the position of the transform coefficient in the block of video data, the one or more processors are further configured to:

determine a first context, from the plurality of contexts, for decoding the sign prediction syntax element based on the transform coefficient being a DC coefficient; and

determine a second context, from the plurality of contexts, for decoding the sign prediction syntax element based on the transform coefficient not being the DC coefficient.

13. The apparatus of claim 10, wherein to determine the context, from the plurality of contexts, for decoding the sign prediction syntax element for the transform coefficient based on the position of the transform coefficient in the block of video data, the one or more processors are further configured to:

determine the context, from the plurality of contexts, for decoding the sign prediction syntax element based on a sign prediction order in the block of video data, wherein the position of the transform coefficient in the block of video data is based on the sign prediction order, and wherein the sign prediction order is a scanning order within the block.

14. The apparatus of claim 10, wherein the one or more processors are further configured to:

determine the context, from the plurality of contexts, for decoding the sign prediction syntax element for the transform coefficient further based on a coding mode used to encode the block.

15. The apparatus of claim 14, wherein to determine the context, from the plurality of contexts, for decoding the sign prediction syntax element for the transform coefficient further based on the coding mode, the one or more processors are further configured to:

determine the context, from the plurality of contexts, for decoding the sign prediction syntax element further based on whether the coding mode used to code the block of video data is an inter prediction coding mode or an intra prediction coding mode.

16. The apparatus of claim 10, wherein the one or more processors are further configured to:

determine the context, from the plurality of contexts, for decoding the sign prediction syntax element for the transform coefficient further based on an intra prediction direction.

17. The apparatus of claim 10, wherein to determine the sign prediction hypothesis for the transform coefficient, the one or more processors are further configured to:

minimize a cost function that includes combined template values.

18. The apparatus of claim 10, further comprising:

a display configured to display a picture that includes the block of video data.

19. The apparatus of claim 10, wherein the apparatus is a wireless communication device.

20. An apparatus configured to encode video data, the apparatus comprising:

a memory configured to store a block of video data; and

one or more processors implemented in circuitry and in communication with the memory, the one or more processors configured to:

determine a sign of a transform coefficient of a block of video data;

determine a sign prediction hypothesis for the transform coefficient;

determine a context, from a plurality of contexts, for encoding a sign prediction syntax element for the transform coefficient of the block of video data based on a position of the transform coefficient in the block of video data, wherein the sign prediction syntax element indicates whether the sign prediction hypothesis is correct for the transform coefficient; and

encode the sign prediction syntax element using the context based on the sign of the transform coefficient and the sign prediction hypothesis.

21. The apparatus of claim 20, wherein to determine the context, from a plurality of contexts, for encoding the sign prediction syntax element for the transform coefficient based on the position of the transform coefficient in the block of video data, the one or more processors are further configured to:

determine the context, from a plurality of contexts, for encoding the sign prediction syntax element for the transform coefficient based on whether the transform coefficient is a DC coefficient.

22. The apparatus of claim 20, wherein to determine the context, from the plurality of contexts, for encoding the sign prediction syntax element for the transform coefficient based on the position of the transform coefficient in the block of video data, the one or more processors are further configured to:

determine a first context, from the plurality of contexts, for encoding the sign prediction syntax element based on the transform coefficient being a DC coefficient; and

determine a second context, from the plurality of contexts, for encoding the sign prediction syntax element based on the transform coefficient not being the DC coefficient.

23. The apparatus of claim 20, wherein to determine the context, from the plurality of contexts, for encoding the sign prediction syntax element for the transform coefficient based on the position of the transform coefficient in the block of video data, the one or more processors are further configured to:

determine the context, from the plurality of contexts, for encoding the sign prediction syntax element based on a sign prediction order in the block of video data, wherein the position of the transform coefficient in the block of video data is based on the sign prediction order, and wherein the sign prediction order is a scanning order within the block.

24. The apparatus of claim 20, wherein the one or more processors are further configured to:

determine the context, from the plurality of contexts for encoding the sign prediction syntax element for the transform coefficient further based on a coding mode used to encode the block.

25. The apparatus of claim 24, wherein to determine the context, from the plurality of contexts, for encoding the sign prediction syntax element for the transform coefficient further based on the coding mode, the one or more processors are further configured to:

determine the context, from the plurality of contexts, for encoding the sign prediction syntax element further based on whether the coding mode used to code the block of video data is an inter prediction coding mode or an intra prediction coding mode.

26. The apparatus of claim 20, wherein the one or more processors are further configured to:

determine the context, from the plurality of contexts, for encoding the sign prediction syntax element for the transform coefficient further based on an intra prediction direction.

27. The apparatus of claim 20, wherein to determine the sign prediction hypothesis for the transform coefficient, the one or more processors are further configured to:

minimize a cost function that includes combined template values.

28. The apparatus of claim 20, further comprising:

a camera configured to capture a picture that includes the block of video data.

29. The apparatus of claim 20, wherein the apparatus is a wireless communication device.