CLAIMS

1. Method in a first node (100) for assisting the adaptation of a signal to be sent from the first node (100) to a second node (120) in a wireless communication system (110), the first node (100) being capable of communicating with the second node (120) over a radio link,

the second node (120) being configured to comprise a codebook, which codebook comprises a set of possible information alternatives used for assisting the adaptation of a signal to be sent from the first node (100) to the second node (120) over the radio link,

from which codebook, the second node (120) is arranged to select an information alternative, which selected information alternative is intended to be sent to the first node (100) to assist the first node (100) how to adapt the signal,

the first node (100) being arranged to know a number of subsets, each subset comprising a part of or the complete codebook,

the method comprising the steps of:

sending (302) a message to the second node (120), the message comprising a configuration request to the second node (120) to restrict the selection of information alternatives to at least one of the subsets; and

receiving (303) an information alternative from the second node (120), which information alternative is selected among the at least one subsets configured according to the configuration request, and which information alternative is conveyed from the second node (120) to the first node (100) by means of a specific signalling format, which specific format is possible to be reused for receiving an information alternative selected from at least one other subset.

2. Method according to claim 1, comprising the further step of :

determining (301) which at least one subset of the number of subsets, to request the second node 120 to restrict to.

3. Method according to claim 2, wherein the step of determining (301) is based on deployment scenario and/or reliability analysis in the first node (100) of the second node (120) reporting to the first node (100).

4. Method according to any of the claims 2-3, wherein the step of determining (301) is performed by searching for a subset by trying different subsets and selecting the one which maximizes a performance metric.

5. Method according to any of the claims 1-4, wherein the configuration request comprises a bit map where each bit corresponds to a certain information alternative.

6. Method according to any of the claims 1-5, wherein the configuration request comprises a bit map and wherein the value of the bit indicates whether to include or exclude the information alternative in the subset.

7. Method according to any of the claims 1-6, wherein the specific signalling format used in the step of receiving (303) an information alternative comprises certain bits that include signalling of the information alternative.

8. Method according to any of the claims 1-7, wherein the codebook comprises one or several precoders, or comprises one or several precoders and one or several transmission ranks, or combinations thereof.

9. Method according to any of the claims 1-7, wherein the codebook comprises precoder matrices, transmission ranks, modulation choices, transport block sizes, powers and/or channelization codes.

10. Method according to any of the claims 1-9, wherein the first node (100) is a base station.

11. Method according to any of the claims 1-9, wherein the first node (100) is a user equipment.

12. Method in a second node (120) for assisting a first node (100) in the adaptation of a signal to be sent from the first node (100) to the second node (120) in a wireless communication system (110), the second node (120) being capable of communicating with the first node (100) over a radio link,

the second node (120) being configured to comprise a codebook, which codebook comprises a set of possible information alternatives used for assisting the adaptation of a signal to be sent from the first node (100) to the second node (120) over the radio link,

from which codebook, the second node (120) is arranged to select an information alternative, which selected information alternative is intended to be sent to the first node (100) to assist the first node (100) in how to adapt the signal,

the first node (100) being arranged to know a number of subsets, each subset comprising a part of or the complete codebook,

the method comprising the steps of:

receiving (501) a message from the first node (100), the message comprising a configuration request to restrict the selection of information alternatives to at least one of the subsets;

configuring (502) the selection according to the received configuration request;

selecting (503) an information alternative among the configured at least one subsets;

sending (504) the selected information alternative to the first node (100), which information alternative is conveyed from the second node (120) to the first node (100) by using a specific signalling format, which specific signalling format is possible to be reused for sending an information alternative selected from at least one other subset.

13. Method according to claim 12, wherein the codebook comprises one or several precodersor, comprises one or several precoders and one or several transmission ranks, or combinations thereof and wherein the step of selecting (503) an information alternative is performed by selecting an element in the subset that optimizes a performance metric.

14. Method according to any of the claims 12-13, wherein the codebook comprises a precoder, or comprises a precoder and a transmission rank.

15. Method according to claim 14, wherein the codebook comprises precoder matrices, transmission ranks, modulation choices, transport block sizes, powers and/or channelization codes.

16. Method according to any of the claims 12-15, wherein the specific signalling format used in the step of sending (504) an information alternative comprises certain bits that include signalling of the information alternative.

17. Method according to any of the claims 12-15, wherein the second node (120) is a user equipment.

18. Method according to any of the claims 12-17, wherein the second node (120) is a base station.

19. Arrangement (400) in a first node (100) in a wireless communication system (110), the first node (100) being capable of communicating with a second node (120) in the wireless communication system (110) over a radio link,

the second node (120) being configured to comprise a codebook, which codebook comprises a set of possible information alternatives used for assisting the adaptation of a signal to be sent from the first node (100) to the second node (120) over the radio link,

from which codebook, the second node (120) is arranged to select an information alternative, which selected information alternative is intended, to be sent to the first node (100) to assist the first node (100) how to adapt the signal,

the first node (100) being arranged to know a number of subsets, each subset comprising a part of or the complete codebook

the first node arrangement (400) comprising:

a sending unit (410) arranged to send a message to the second node (120), the message comprising a configuration request to the second node (120) to restrict the selection of information alternatives to at least one of the subsets; and

a receiving unit (420) arranged to receive an information alternative from the second node (120), which information alternative is arranged to be selected by the second node (120) among the at least one subsets configured according to the configuration request, and which information alternative is arranged to be conveyed from the second node (120) to the first node (100) by means of a specific signalling format, which specific signalling format is possible to be reused for receiving an information alternative selected from at least one other subset.

20. First node arrangement (400) according to claim 19, wherein the first node (100) is a base station.

21. First node arrangement (400) according to claim 19, wherein the first node (110) is a user equipment.

22. Arrangement (600) in a second node (120) in a wireless communication system (110),

the second node (120) being capable of communicating with a first node (100) in the wireless communication system (110) over a radio link,

the second node (120) being configured to comprise a codebook, which codebook comprises a set of possible information alternatives used for assisting the adaptation of signal to be sent from the first node (100) to the second node (120) over the radio link,

from which codebook, the second node (120) is arranged to select an information alternative, which selected information alternative is intended to be sent to the first node (100) to assist the first node (100) how to adapt the signal,

the first node (100) being arranged to know a number of subsets, each subset comprising a part of or the complete codebook,

the second node arrangement (600) comprising:

a receiving unit (610) arranged to receive a message from the first node (100), the message comprising a configuration request to restrict the selection of information alternatives to at least one of the subsets;

a configuration unit (620) arranged to configure the selection according to the received configuration request;

a selection unit (630) arranged to select an information alternative among the configured at least one subsets;

a sending unit (640) arranged to send the selected information alternative to the first node (100), which information alternative is arranged to be conveyed from the second node (120) to the first node (100) by using a specific signalling format, which specific signalling format is arranged to be reused for sending an information alternative selected from at least one other subset.

23. Second node arrangement (600) according to claim 22, wherein the second node (120) is a user equipment.

24. Second node arrangement (600) according to claim 22, wherein the first node (100) is a base station.

The invention claimed is:

1. A method in a first node for adapting of a signal to be sent over a radio link from the first node to a second node in a wireless communication system, wherein the second node is configured to use a codebook comprising a set of possible information alternatives for use by the first node in adapting the signal, said method comprising:

sending a message to the second node comprising a configuration request, wherein the configuration request indicates at least one of a number of subsets of the set of possible information alternatives to the second node, and restricts selection of information alternatives by the second node to the at least one of the subsets, and wherein each subset of the set of possible information alternatives comprises at least a part of the codebook; and

receiving an information alternative from the second node, which information alternative is selected from among the at least one of the subsets indicated by the configuration request.

2. The method of claim 1, further comprising determining the at least one of the subsets from the number of subsets to use for restricting information alternative selection by the second node.

3. The method of claim 2, wherein said determining is based on at least one of a deployment scenario and a reliability analysis, in the first node of the second node reporting to the first node.

4. The method of claim 2, wherein the step of determining is performed by searching for a subset by trying different subsets and selecting the one which maximizes a performance metric.

5. The method of claim 1, wherein the configuration request comprises a bit map where each bit corresponds to a certain information alternative.

6. The method of claim 1, wherein the configuration request comprises a bit map and wherein the value of each bit in the bit map indicates whether to include or exclude a corresponding information alternative in the at least one of the subsets.

7. The method of claim 1, wherein said receiving the information alternative includes receiving the information alternative according to a specific signalling format that comprises certain bits that signal the information alternative.

8. The method of claim 1, wherein the codebook comprises one or several precoders, or comprises one or several precoders and one or several transmission ranks, or combinations thereof.

9. The method of claim 1, wherein the codebook comprises at least one of: a precoder matrix, a transmission rank, a modulation choice, a transport block size, a power, and a channelization code.

10. The method of claim 1, wherein the first node is a base station.

11. The method of claim 1, wherein the first node is a user equipment.

12. The method of claim 1, wherein said receiving the information alternative comprises receiving the information according to a specific signalling format suitable for receiving an information alternative selected from at least one other subset that is of a different size than the at least one of the subsets.

13. A method in a second node for assisting a first node in the adaptation of a signal to be sent over a radio link from the first node to the second node in a wireless communication system, wherein the second node is configured to use a codebook comprising a set of possible information alternatives for use by the first node in adapting the signal, said method comprising:

receiving a message from the first node, the message comprising a configuration request indicating at least one of a number of subsets of the set of possible information alternatives to the second node and restricting the selection of information alternatives by the second node to the at least one of the subsets, wherein each subset of the set of possible information alternatives comprises at least a part of the codebook;

selecting an information alternative from among the at least one of the subsets indicated by the configuration request; and

sending the selected information alternative to the first node.

14. The method of claim 13, wherein the codebook comprises one or several precoders, or comprises one or several precoders and one or several transmission ranks, or combinations thereof, and wherein said selecting an information alternative comprises selecting an element in the subset that optimizes a performance metric.

15. The method of claim 13, wherein the codebook comprises a precoder, or comprises a precoder and a transmission rank.

16. The method of claim 13, wherein the codebook comprises at least one of: a precoder matrix, a transmission rank, a modulation choice, a transport block size, a power, and a channelization code.

17. The method of claim 13, wherein said sending comprises sending the selected information alternative to the first node using a specific signaling format wherein certain bits signal the information alternative.

18. The method of claim 13, wherein the second node is a user equipment.

19. The method of claim 13, wherein the second node is a base station.

20. The method of claim 13, wherein said sending comprises sending the selected information alternative to the first node using a specific signaling format suitable for sending an information alternative selected from at least one other subset that is of a different size than the at least one of the subsets.

21. A first node in a wireless communication system that is configured to communicate over a radio link with a second node in the wireless communication system, wherein the second node is configured to use a codebook comprising a set of possible information alternatives for use by the first node in adapting a signal to be sent from the first node to the second node over the radio link, said first node comprising:

a transmitter configured to send a message to the second node, the message comprising a configuration request indicating at least one of a number of subsets of the set of possible information alternatives to the second node, and restricting selection of

information alternatives by the second node to the at least one of the subsets, and wherein each subset of the set of possible information alternatives comprises at least a part of the codebook; and

a receiver configured to receive an information alternative from the second node that was selected by the second node from among the at least one of the subsets as indicated by the configuration request.

22. The first node of claim 21, wherein the first node is a base station.

23. The first node of claim 21, wherein the first node is a user equipment.

24. The first node of claim 21, wherein the receiver is configured to receive the information alternative according to a specific signalling format suitable for receiving an information alternative selected from at least one other subset that is of a different size than the at least one of the subsets.

25. A second node in a wireless communication system, the second node configured to communicate with a first node in the wireless communication system over a radio link, and wherein the second node is configured to use a codebook comprising a set of possible information alternatives for use by the first node in adapting a signal to be sent from the first node to the second node over the radio link, said second node comprising:

a receiver configured to receive a message from the first node, the message comprising a configuration request indicating at least one of a number of subsets of the set of possible information alternatives to the second node, and restricting selection of information alternatives by the second node to the at least one of the subsets, wherein each subset of the set of possible information alternatives comprises at least a part of the codebook;

a processor circuit configured to: select an information alternative from among the at least one of the subsets indicated by the configuration request; and

a transmitter configured to send the selected information alternative to the first node.

26. The second node of claim 25, wherein the second node is a user equipment.

27. The second node of claim 25, wherein the first node is a base station.

28. The second node of claim 25, wherein the transmitter is configured to send the selected information alternative to the first node using a specific signalling format suitable for sending an information alternative selected from at least one other subset that is of a different size than the at least one of the subsets.