CLAIMS

~~What is claimed is:~~

1. A method for wireless communications, comprising:

identifying, at a relay device, a set of resources partitioned into a first subset of resources for the relay device and a second subset of resources for a parent network node and a child network node in communication with the relay device~~;~~, wherein the relay device is in a first node set and the parent network node and child network node are in a second node set different from the first node set; receiving, from the parent network node, a ~~first~~ resource configuration for a slot of the second subset of resources;

~~receiving, from the child network node, a second resource configuration for the slot of the second subset of resources;~~

scheduling communications in the slot of the second subset of resources based at least in part on the ~~first and second~~ resource ~~configurations~~configuration; and

communicating with one or more devices during the slot of the second subset of resources according to the scheduled communications.

2. The method of claim 1, further comprising:

identifying a slot structure for a slot of the first subset of resources, wherein the slot structure indicates a set of flexible symbols;

dividing the set of flexible symbols into a set of free flexible symbols and a set of non-free flexible symbols; and

transmitting an indication of the set of free flexible symbols to the parent network node or the child network node.

3. The method of claim 2, further comprising:

receiving, from the parent network node or the child network node, a request for a number of free flexible symbols, wherein the indication of the set of free flexible symbols is transmitted in response to the request.

4.———— The method of claim 2, wherein transmitting the indication of the set of free flexible symbols comprises:

transmitting a radio resource control (RRC) message that specifies a ratio of a number of free flexible symbols to a total number of flexible symbols of the set of flexible symbols.

5.———— The method of claim 2, further comprising:

determining the set of free flexible symbols based at least in part on a traffic demand of a cell supported by the relay device.

6.———— The method of claim 2, wherein the indication comprises a bitmap that specifies whether a flexible symbol of the set of flexible symbols is free.

7.———— The method of claim 1, further comprising:

transmitting, to the child network node, a request for a number of free flexible symbols of the slot of the second subset of resources; and

receiving, from the child network node, an indication of the number of free flexible symbols in response to the request.

8.———— The method of claim 7, wherein receiving the indication of the number of free flexible symbols comprises:

receiving a radio resource control (RRC) message that specifies a ratio of the number of free flexible symbols to a total number of flexible symbols of the slot.

9.———— The method of claim 7, wherein the indication comprises a bitmap that specifies whether a flexible symbol of the slot of the second subset of resources is free.

10.———— The method of claim 1, further comprising:

transmitting, to the parent network node, a request for a number of free flexible symbols of the slot of the second subset of resources; and

receiving, from the parent network node, an indication of the number of free flexible symbols in response to the request.

11. The method of claim 10, wherein receiving the indication of the number of free flexible symbols comprises:

receiving a radio resource control (RRC) message that specifies a ratio of the number of free flexible symbols to a total number of flexible symbols of the slot.

12. The method of claim 10, wherein the indication comprises a bitmap that specifies whether a flexible symbol of the slot of the second subset of resources is free.

13. The method of claim 1, further comprising:

determining a direction table for the slot of the second subset of resources based at least in part on the first and second resource configurations, wherein the direction table indicates a communication direction for a set of symbols of the slot of the second subset of resources.

14. The method of claim 13, further comprising:

determining, for a symbol of the slot of the second subset of resources, that the parent network node and the child network node are scheduled for downlink transmissions; and

indicating the symbol of the slot of the second subset of resources as uplink based at least in part on determining that the parent network node and child network nodes are scheduled for downlink transmissions.

15. The method of claim 13, further comprising:

determining, for a symbol of the slot of the second subset of resources, that the parent network node and the child network node are scheduled for uplink transmissions; and

indicating the symbol of the slot of the second subset of resources as downlink based at least in part on determining that the parent and child network nodes are scheduled for uplink transmissions.

16. The method of claim 13, further comprising:

determining, for a symbol of the slot of the second subset of resources, that the parent network node and the child network node are scheduled for different communication directions; and

indicating the symbol of the slot of the second subset of resources as unavailable based at least in part on determining that the parent and child network nodes are scheduled for different communication directions.

17. The method of claim 13, further comprising:

identifying, for the slot of the second subset of resources, a first set of free flexible symbols for the parent network node or the child network node;

determining, for a symbol of the slot of the second subset of resources, that the parent network node and the child network node are either free flexible or scheduled for downlink transmissions; and

indicating the symbol of the slot of the second subset of resources as uplink based at least in part on determining that the parent network node and the child network node are either free flexible or scheduled for downlink transmissions.

18. The method of claim 13, further comprising:

identifying, for the slot of the second subset of resources, a first set of free flexible symbols for the parent network node or the child network node;

determining, for a symbol of the slot of the second subset of resources, that the parent network node and the child network node are either free flexible or scheduled for uplink transmissions; and

indicating the symbol of the slot of the second subset of resources as downlink based at least in part on determining that the parent network node and the child network node are either free flexible or scheduled for uplink transmissions.

19. The method of claim 1, further comprising:

receiving a resource allocation scheme from the parent network node or an anchor network node, wherein the resource allocation scheme indicates the first and second subsets of resources.

20. The method of claim 1, further comprising:

transmitting, to the child network node, a request for the second resource configuration; and

receiving, from the child network node, the second resource configuration in response to the request.

21. The method of claim 20, wherein the second resource configuration is received via a physical uplink control channel (PUCCH) or a physical uplink shared channel (PUSCH).

22. The method of claim 1, further comprising:

identifying transmission regulation information associated with the second ~~subset~~sub set of resources; and

communicating with the one or more devices during the slot of the second subset of resources based at least in part on the transmission regulation information.

23. The method of claim 22, wherein identifying the transmission regulation information comprises:

receiving, from at least one of the parent network node and the child network node, transmission regulation information associated with the parent network node or the child network node.

24.———— The method of claim 23, wherein the transmission regulation information comprises a range of beam directions, a set of beam widths, or a transmission power.

25.———— The method of claim 1, further comprising:

allocating a control channel for the relay device to resources of the first subset of resources.

26.———— The method of claim 25, wherein the control channel is associated with communications via the first or second subsets of resources.

27.———— The method of claim 25, further comprising:

allocating a second control channel for the relay device to resources of the second subset of resources.

28.———— The method of claim 27, further comprising:

determining a direction table for the resources of the second subset of resources based at least in part on control channel configurations for the parent network node and the child network node.

29.———— The method of claim 1, further comprising:

receiving an indication of a control channel allocation ~~for~~assigning a control channel ~~for~~to the relay device, wherein the control channel is associated with communications via the first or second subsets of resources.

30.———— The method of claim 1, further comprising:

scheduling communications for a slot of the first subset of resources independent of the first and second resource configurations; and

communicating with the one or more devices during the slot of the first subset of resources according to the scheduled communications.

31. The method of claim 1, further comprising:

receiving the first resource configuration via a semi-static cell-specific message, a semi-static user equipment (UE)-specific message, or a group-common control channel.

32. The method of claim 31, wherein:

the semi-static cell-specific message is received via a system information block (SIB);

the semi-static UE-specific message is received via radio resource control (RRC) signaling; and

the group-common control channel is received via a group-common physical downlink control channel (GC-PDCCH) and comprises a slot format indicator (SFI).

33. An apparatus for wireless communications, comprising:

~~a processor;~~

~~memory in electronic communication with the processor: and~~

~~instructions stored in the memory and executable by the processor to cause the apparatus to:~~

~~identify, at a relay device, a set of resources partitioned into a first subset of resources for the relay device and a second subset of resources for a parent network node and a child network node in communication with the relay device;~~

~~receive, from the parent network node, a first resource configuration for a slot of the second subset of resources;~~

~~receive, from the child network node, a second resource configuration for the slot of the second subset of resources;~~

~~schedule communications in the slot of the second subset of resources based at least in part on the first and second resource configurations; and~~

~~communicate with one or more devices during the slot of the second subset of resources according to the scheduled communications.~~

~~34. An apparatus for wireless communications, comprising:~~

means for identifying, at a relay device, a set of resources partitioned into a first subset of resources for the relay device and a second subset of resources for a parent network node and a child network node in communication with the relay device~~;~~

, wherein the relay device is in a first node set and the parent network node and child network node are in a second node set different from the first node set; means for receiving, from the parent network node, a ~~first~~ resource configuration for a slot of the second subset of resources;

~~means for receiving, from the child network node, a second resource configuration for the slot of the second subset of resources;~~

means for scheduling communications in the slot of the second subset of resources based at least in part on the ~~first and second~~ resource ~~configurations~~configuration; and

means for communicating with one or more devices during the slot of the second subset of resources according to the scheduled communications.

~~35. The apparatus of claim 34, further comprising:~~

~~means for identifying~~

34. An apparatus for wireless communications, comprising: a processor; memory coupled with the processor; and instructions stored in the memory and executable by the processor to cause the apparatus to: identify, at a relay device, a set of resources partitioned into a first subset of resources for the relay device and a second subset of resources for a parent network node and a child network node in communication with the relay device, wherein the relay device is in a first node set and the parent network node and child network node are in a second node set different from the first node set; receive, from the parent network node, a resource configuration for a slot of the second subset of resources; schedule communications in the slot of the second subset of resources based at least in part on the resource configuration; and communicate with one or more devices during the slot of the second subset of resources according to the scheduled communications.

35. The apparatus of claim 34, wherein the instructions are further executable by the processor to cause the apparatus to: identify a slot structure for a slot of the first subset of resources, wherein the slot structure indicates a set of flexible symbols;

~~means for dividing~~ divide the set of flexible symbols into a set of free flexible symbols and a set of non-free flexible symbols; and

~~means for transmitting~~ transmit an indication of the set of free flexible symbols to the parent network node or the child network node.

36. ~~———~~ The apparatus of claim 35, wherein the instructions are further ~~comprising:~~

~~means for receiving~~executable by the processor to cause the apparatus to: receive, from the parent network node or the child network node, a request for a number of free flexible symbols, wherein the indication of the set of free flexible symbols is transmitted in response to the request.

37. ~~———~~ The apparatus of claim 35, wherein the ~~means for transmitting~~instructions to transmit the indication of the set of free flexible symbols ~~further comprises:~~

~~means for transmitting~~are executable by the processor to cause the apparatus to: transmit a radio resource control (RRC) message that specifies a ratio of a number of free flexible symbols to a total number of flexible symbols of the set of flexible symbols.

38. ~~———~~ The apparatus of claim 35, wherein the instructions are further ~~comprising:~~

~~means for determining~~executable by the processor to cause the apparatus to: determine the set of free flexible symbols based at least in part on a traffic demand of a cell supported by the relay device.

39. ~~———~~ The apparatus of claim 35, wherein the indication comprises a bitmap that specifies whether a flexible symbol of the set of flexible symbols is free.

40. ~~———~~ The apparatus of claim 34, wherein the instructions are further ~~comprising:~~

means for transmittingexecutable by the processor to cause the apparatus to: transmit, to the child network node, a request for a number of free flexible symbols of the slot of the second subset of resources; and

means for receiving receive, from the child network node, an indication of the number of free flexible symbols in response to the request.

41. The apparatus of claim 40, wherein the means for receivinginstructions to receive the indication of the number of free flexible symbols further comprises:

means for receivingare executable by the processor to cause the apparatus to: receive a radio resource control (RRC) message that specifies a ratio of the number of free flexible symbols to a total number of flexible symbols of the slot.

42. The apparatus of claim 40, wherein the indication comprises a bitmap that specifies whether a flexible symbol of the slot of the second subset of resources is free.

43. The apparatus of claim 34, wherein the instructions are further comprising:

means for transmittingexecutable by the processor to cause the apparatus to: transmit, to the parent network node, a request for a number of free flexible symbols of the slot of the second subset of resources; and

means for receiving receive, from the parent network node, an indication of the number of free flexible symbols in response to the request.

44. The apparatus of claim 43, wherein the means for receivinginstructions to receive the indication of the number of free flexible symbols further comprises:

means for receivingare executable by the processor to cause the apparatus to: receive a radio resource control (RRC) message that specifies a ratio of the number of free flexible symbols to a total number of flexible symbols of the slot.

45. The apparatus of claim 43, wherein the indication comprises a bitmap that specifies whether a flexible symbol of the slot of the second subset of resources is free.

46. The apparatus of claim 34, wherein the instructions are further ~~comprising:~~

~~means for determining~~executable by the processor to cause the apparatus to: determine a direction table for the slot of the second subset of resources based at least in part on the first and second resource configurations, wherein the direction table indicates a communication direction for a set of symbols of the slot of the second subset of resources.

47. The apparatus of claim 46, wherein the instructions are further ~~comprising:~~

~~means for determining~~executable by the processor to cause the apparatus to: determine, for a symbol of the slot of the second subset of resources, that the parent network node and the child network node are scheduled for downlink transmissions; and

~~means for indicating~~ indicate the symbol of the slot of the second subset of resources as uplink based at least in part on determining that the parent network node and child network nodes are scheduled for downlink transmissions.

48. The apparatus of claim 46, wherein the instructions are further ~~comprising:~~

~~means for determining~~executable by the processor to cause the apparatus to: determine, for a symbol of the slot of the second subset of resources, that the parent network node and the child network node are scheduled for uplink transmissions; and

~~means for indicating~~ indicate the symbol of the slot of the second subset of resources as downlink based at least in part on determining that the parent and child network nodes are scheduled for uplink transmissions.

49. The apparatus of claim 46, wherein the instructions are further ~~comprising:~~

~~means for determining~~executable by the processor to cause the apparatus to: determine, for a symbol of the slot of the second subset of resources, that the parent network node and the child network node are scheduled for different communication directions; and

~~means for indicating~~ indicate the symbol of the slot of the second subset of resources as unavailable based at least in part on determining that the parent and child network nodes are scheduled for different communication directions.

50. The apparatus of claim 46, wherein the instructions are further ~~comprising:~~

~~means for identifying~~executable by the processor to cause the apparatus to: identify, for the slot of the second subset of resources, a first set of free flexible symbols for the parent network node or the child network node;

~~means for determining~~ determine, for a symbol of the slot of the second subset of resources, that the parent network node and the child network node are either free flexible or scheduled for downlink transmissions; and

~~means for indicating~~ indicate the symbol of the slot of the second subset of resources as uplink based at least in part on determining that the parent network node and the child network node are either free flexible or scheduled for downlink transmissions.

51. The apparatus of claim 46, wherein the instructions are further ~~comprising:~~

~~means for identifying~~executable by the processor to cause the apparatus to: identify, for the slot of the second subset of resources, a first set of free flexible symbols for the parent network node or the child network node;

~~means for determining~~ determine, for a symbol of the slot of the second subset of resources, that the parent network node and the child network node are either free flexible or scheduled for uplink transmissions; and

~~means for indicating~~ indicate the symbol of the slot of the second subset of resources as downlink based at least in part on determining that the parent network node and the child network node are either free flexible or scheduled for uplink transmissions.

52. The apparatus of claim 34, wherein the instructions are further ~~comprising:~~

~~means for receiving~~executable by the processor to cause the apparatus to: receive a resource allocation scheme from the parent network node or an anchor network node, wherein the resource allocation scheme indicates the first and second subsets of resources.

53. The apparatus of claim 34, wherein the instructions are further ~~comprising:~~

~~means for transmitting~~executable by the processor to cause the apparatus to: transmit, to the child network node, a request for the second resource configuration; and

~~means for receiving~~ receive, from the child network node, the second resource configuration in response to the request.

54. The apparatus of claim 53, wherein the second resource configuration is received via a physical uplink control channel (PUCCH) or a physical uplink shared channel (PUSCH).

55. The apparatus of claim 34, wherein the instructions are further ~~comprising:~~

~~means for identifying~~executable by the processor to cause the apparatus to: identify transmission regulation information associated with the second subset of resources; and

~~means for communicating~~ communicate with the one or more devices during the slot of the second subset of resources based at least in part on the transmission regulation information.

56. The apparatus of claim 55, wherein the ~~means for identifying~~instructions to identify transmission regulation information ~~further comprises:~~

~~means for receiving~~are executable by the processor to cause the apparatus to: receive, from at least one of the parent network node and the child network node, transmission regulation information associated with the parent network node or the child network node.

57. The apparatus of claim 56, wherein the transmission regulation information comprises a range of beam directions, a set of beam widths, or a transmission power.

58. The apparatus of claim 34, wherein the instructions are further ~~comprising:~~

~~means for allocating~~executable by the processor to cause the apparatus to: allocate a control channel for the relay device to resources of the first subset of resources.

59. The apparatus of claim 58, wherein the control channel is associated with the communications via the first or second subsets of resources.

60. The apparatus of claim 58, wherein the instructions are further ~~comprising:~~

~~means for allocating~~executable by the processor to cause the apparatus to: allocate a second control channel for the relay device to resources of the second subset of resources.

61. The apparatus of claim 60, wherein the instructions are further ~~comprising:~~

~~means for determining~~executable by the processor to cause the apparatus to: determine a direction table for the resources of the second subset of resources based at least in part on control channel configurations for the parent network node and the child network node.

62. The apparatus of claim 34, wherein the instructions are further ~~comprising:~~

~~means for receiving~~executable by the processor to cause the apparatus to: receive an indication of a control channel allocation ~~for~~assigning a control channel ~~for~~to the relay device, wherein the control channel is associated with the communications via the first or second subsets of resources.

63. The apparatus of claim 34, wherein the instructions are further ~~comprising:~~

~~means for scheduling~~executable by the processor to cause the apparatus to: schedule communications for a slot of the first subset of resources independent of the first and second resource configurations; and

~~means for communicating~~ communicate with the one or more devices during the slot of the first subset of resources according to the scheduled communications.

64. The apparatus of claim 34, wherein the instructions are further ~~comprising:~~

~~means for receiving~~executable by the processor to cause the apparatus to: receive the first resource configuration via a semi-static cell-specific message, a semi-static user equipment (UE)-specific message, or a group-common control channel.

65. The apparatus of claim 64, wherein:

the semi-static cell-specific message is received via a system information block (SIB);

the semi-static UE-specific message is received via radio resource control (RRC) signaling; and

the group-common control channel is received via a group-common physical downlink control channel (GC-PDCCH) and comprises a slot format indicator (SFI).

66. A non-transitory computer-readable medium storing code for wireless communications, the code comprising instructions executable by a processor to:

identify, at a relay device, a set of resources partitioned into a first subset of resources for the relay device and a second subset of resources for a parent network node and a child network node in communication with the relay device~~;~~

, wherein the relay device is in a first node set and the parent network node and child network node are in a second node set different from the first node set; receive, from the parent network node, a ~~first~~ resource configuration for a slot of the second subset of resources;

~~receive, from the child network node, a second resource configuration for the slot of the second subset of resources;~~

schedule communications in the slot of the second subset of resources based at least in part on the ~~first and second~~ resource ~~configurations~~configuration; and

communicate with one or more devices during the slot of the second subset of resources according to the scheduled communications.