CLAIMS

~~**What is claimed is:**~~

1.~~———~~ A method for wireless communication, comprising:

identifying, at a user equipment (UE), a first set of uplink resources for reporting a first acknowledgment feedback to a base station and a first set of delay values associated with the first set of uplink resources, wherein the first set of delay values is non-overlapping with a second set of delay values for reporting a second acknowledgment feedback to the base station, and wherein delay values of the first set of delay values and the second set of delay values are each associated with a corresponding time domain resource allocation of a downlink shared channel; determining, based at least in part on the first set of delay values, one or more first time domain resource allocations of downlink shared channel resources that are to have feedback included with the first acknowledgment feedback; and transmitting the first acknowledgment feedback for the one or more first time domain resource allocations via the first set of uplink resources.

~~determining, based at least in part on the first set of delay values, a first time domain resource allocation of downlink shared channel resources associated with the first acknowledgment feedback; and~~

~~transmitting the first acknowledgment feedback for the first time domain resource allocation via the first set of uplink resources.~~

2.~~———~~ The method of claim 1, wherein the first set of delay values and the second set of delay values have same or different units for measuring time domain differences between a downlink data transmission and the first set of uplink resources.

3.~~———~~ The method of claim 2, wherein:

the units for measuring time domain differences include one or more of slots, sub-slots, orthogonal frequency division multiplexing (OFDM) symbols, or any combinations thereof.

4.~~———~~ The method of claim 1, wherein the first set of delay values is associated with a first wireless service having a first transmission time interval (TTI), and the second set of delay values is associated with a second wireless service having a second TTI that is shorter than the first TTI.

5.~~———~~ The method of claim 1, further comprising:

determining, based at least in part on the second set of delay values, a second time domain resource allocation of downlink shared channel resources associated with the second acknowledgment feedback, wherein the second time domain resource allocation has a same ending orthogonal frequency division multiplexing (OFDM) symbol as the one or more

first time domain resource ~~allocation~~allocations and overlaps the one or more first time domain resource ~~allocation~~allocations; and

transmitting the second acknowledgment feedback for the second time domain resource allocation via a second set of uplink resources that is different than the first set of uplink resources.

6. The method of claim 5, wherein the first set of uplink resources and the second set of uplink resources are different uplink resources within a same slot.

7. The method of claim 1, wherein the identifying comprises:

receiving, from the base station, configuration information that configures the first set of delay values and the second set of delay values.

8. The method of claim 7, wherein the configuration information comprises a downlink shared channel time domain resource allocation list that links the one or more first time domain resource ~~allocation~~allocations with the first set of delay values and that links a second time domain resource allocation of downlink shared channel resources with the second set of delay values.

9. The method of claim 8, wherein the first set of delay values and the second set of delay values are provided in a downlink data to uplink acknowledgment table that is provided with the downlink shared channel time domain resource allocation list.

10. The method of claim 1, wherein the first set of delay values correspond to downlink shared channel time domain resources that span a first number of orthogonal frequency division multiplexing (OFDM) symbols and the second set of delay values correspond to downlink shared channel time domain resources that span a second number of OFDM symbols.

11. The method of claim 10, wherein the first number of OFDM symbols span more than a threshold number of OFDM symbols and the second number of OFDM symbols is less than or equal to the threshold number of OFDM symbols.

12. The method of claim 10, wherein the second number of OFDM symbols are included in an enumerated set of numbers of OFDM symbols, and the first number of OFDM symbols correspond to other available numbers of OFDM symbols outside of the enumerated set of numbers of OFDM symbols.

13. The method of claim 1, wherein a plurality of overlapping downlink data transmissions from the base station each end during a same transmission time interval, and the first acknowledgment feedback is associated with latest starting data transmission of the plurality of overlapping downlink data transmissions, or is associated with a data transmission of the plurality of overlapping downlink data transmissions that has a shortest time duration.

14. A method for wireless communication, comprising:

identifying, at a user equipment (UE), a first set of delay values associated with a first set of downlink control channel monitoring occasions and a second set of delay values associated with a second set of downlink control channel monitoring occasions, wherein each delay value of the first set of delay values and the second set of delay values corresponds to a time period between a downlink shared channel transmission from a base station and a corresponding acknowledgment feedback transmission to the base station;

receiving a first downlink control channel transmission during the first set of downlink control channel monitoring occasions that indicates a first downlink shared channel resource for a first downlink data transmission to the UE;

determining, based at least in part on the first set of delay values, a first uplink resource for transmitting a first acknowledgment feedback associated with the first downlink data transmission;

monitoring the first downlink shared channel resource for the first downlink data transmission; and

transmitting, based at least in part on the monitoring, the first acknowledgment feedback to the base station via the first uplink resource.

15. The method of claim 14, further comprising:

receiving a second downlink control channel transmission during the second set of downlink control channel monitoring occasions that indicates a second downlink shared channel resource for a second downlink data transmission to the UE, wherein the second downlink shared channel resource overlaps with the first downlink shared channel resource;

determining, based at least in part on the second set of delay values, a second uplink resource for transmitting a second acknowledgment feedback associated with the second downlink data transmission, wherein the second uplink resource is different than the first uplink resource;

monitoring the second downlink shared channel resource for the second downlink data transmission; and transmitting the second acknowledgment feedback to the base station via the second uplink resource.

~~transmitting the second acknowledgment feedback to the base station via the second uplink resource.~~

16.—— The method of claim 15, wherein the first set of downlink control channel monitoring occasions correspond to downlink control channel monitoring occasions within an initial number of orthogonal frequency division multiplexing (OFDM) symbols of a slot, and the second set of downlink control channel monitoring occasions correspond to downlink control channel monitoring occasions that are after the initial number of OFDM symbols of the slot.

17.—— The method of claim 16, wherein the initial number of OFDM symbols corresponds to up to three initial symbols of the slot.

18.—— The method of claim 15, wherein the first uplink resource and the second uplink resource correspond to different feedback bits in a same uplink control channel transmission.

19.—— The method of claim 15, wherein the first set of delay values is associated with a first wireless service having a first transmission time interval (TTI), and the second set of delay values is associated with a second wireless service having a second TTI that is shorter than the first TTI.

20.———— The method of claim 19, wherein:

the first wireless service is associated with downlink shared channel resources that span more than a threshold number of orthogonal frequency division multiplexing (OFDM) symbols, and the second wireless service is associated with downlink shared channel resources that span a number of OFDM symbols that is less than or equal to the threshold number of OFDM symbols, or

the second wireless service is associated with downlink shared channel resources that span a number of orthogonal frequency division multiplexing (OFDM) symbols that are included in an enumerated set of numbers of OFDM symbols, and the first wireless service is associated with downlink shared channel resources that span numbers of OFDM symbols that are outside of the enumerated set of numbers of OFDM symbols.

21.—— The method of claim 19, wherein the second wireless service is associated with downlink control channel monitoring occasions that are after an initial number of orthogonal frequency division multiplexing (OFDM) symbols of the TTI.

22.———— A method for wireless communication, comprising:

identifying, at a base station, a first set of uplink resources for receiving a first acknowledgment feedback from a user equipment (UE) and a first set of delay values associated with the first set of uplink resources~~;~~

, wherein the first set of delay values indicate one or more first time domain resource allocations of a downlink shared channel that are to have feedback provided in the first acknowledgment feedback; identifying, at the base station, a second set of uplink resources for receiving a second acknowledgment feedback from the UE and a second set of delay values associated with the second set of uplink resources, wherein the first set of delay values is non-overlapping with the second set of delay values, and wherein ~~delay values of the first set of delay values and~~ the second set of delay values ~~are each associated with a corresponding~~indicate one or more second time domain resource ~~allocation~~allocations of ~~a~~the downlink shared channel~~;~~

that are to have feedback provided in the second acknowledgment feedback; transmitting a first downlink data transmission to the UE using a first time domain resource allocation associated with the first set of delay values, and a second downlink data transmission to the UE using a second time domain resource allocation associated with the second set of delay values, wherein the second time domain resource allocation is at least partially overlapping with the first time domain resource allocation; and

monitoring, responsive to the transmitting, the first set of uplink resources for the first acknowledgment feedback from the UE and the second set of uplink resources for the second acknowledgment feedback from the UE.

23.—— The method of claim 22, wherein the first set of delay values is associated with a first wireless service having a first transmission time interval (TTI), and the second set of delay values is associated with a second wireless service having a second TTI that is shorter than the first TTI.

24.—— The method of claim 22, wherein the second time domain resource allocation has a same ending orthogonal frequency division multiplexing (OFDM) symbol as the first time domain resource allocation and overlaps the first time domain resource allocation.

25.————— The method of claim 22, further comprising:

transmitting, to the UE, configuration information that configures the first set of delay values and the second set of delay values, wherein the configuration information comprises a downlink shared channel time domain resource allocation list that links the one or more first time domain resource ~~allocation~~allocations with the first set of delay values and that links ~~a~~the one or more second time domain resource ~~allocation~~allocations of downlink shared channel resources with the second set of delay values.

26.—— The method of claim 25, wherein the first set of delay values and the second set of delay values are provided in a downlink data to uplink acknowledgment table that is provided with the downlink shared channel time domain resource allocation list.

27. The method of claim 22, wherein the first set of delay values and the second set of delay values have same or different units for measuring time domain differences between a downlink data transmission and the first set of uplink resources, and wherein the units for measuring time domain differences include one or more of slots, sub-slots, orthogonal frequency division multiplexing (OFDM) symbols, or any combinations thereof.

28. The method of claim 22, wherein the first set of delay values correspond to downlink shared channel time domain resources that span a first number of orthogonal frequency division multiplexing (OFDM) symbols and the second set of delay values correspond to downlink shared channel time domain resources that span a second number of OFDM symbols.

29. The method of claim 22, wherein a plurality of overlapping downlink data transmissions from the base station each end during a same transmission time interval, and the first acknowledgment feedback is associated with latest starting data transmission of the plurality of overlapping downlink data transmissions, or the first acknowledgment feedback is associated with a data transmission of the plurality of overlapping downlink data transmissions that has a shortest time duration.

30. A method for wireless communication, comprising:

identifying, at a base station, a first set of delay values associated with a first set of downlink control channel monitoring occasions of user equipment (UE) and a second set of delay values associated with a second set of downlink control channel monitoring occasions of the UE, wherein each delay value of the first set of delay values and the second set of delay values corresponds to a time period between a downlink shared channel transmission to the UE and a corresponding acknowledgment feedback transmission from the UE;

transmitting a first downlink control channel transmission during the first set of UE downlink control channel monitoring occasions that indicates a first downlink shared channel resource for a first downlink data transmission to the UE;

transmitting the first downlink data transmission to the UE via the first downlink shared channel resource;

determining, based at least in part on the first set of delay values, a first uplink resource for receiving a first acknowledgment feedback associated with the first downlink data transmission; and monitoring the first uplink resource for the first acknowledgment feedback.

~~monitoring the first uplink resource for the first acknowledgment feedback.~~

31. The method of claim 30, further comprising:

transmitting a second downlink control channel transmission during the second set of downlink control channel monitoring occasions that indicates a second downlink shared channel resource for a second downlink data transmission to the UE, wherein the second downlink shared channel resource overlaps with the first downlink shared channel resource;

determining, based at least in part on the second set of delay values, a second uplink resource for receiving a second acknowledgment feedback associated with the second downlink data transmission, wherein the second uplink resource is different than the first uplink resource;

transmitting the second downlink data transmission to the UE via the second downlink shared channel resource; and monitoring the second uplink resource for the second acknowledgment feedback.

~~monitoring the second uplink resource for the second acknowledgment feedback.~~

32. The method of claim 31, wherein the first set of downlink control channel monitoring occasions correspond to downlink control channel monitoring occasions within an initial number of orthogonal frequency division multiplexing (OFDM) symbols of a slot, and the second set of downlink control channel monitoring occasions correspond to downlink control channel monitoring occasions that are after the initial number of OFDM symbols of the slot.

33. The method of claim 31, wherein the first set of delay values is associated with a first wireless service having a first transmission time interval (TTI), and the second set of delay values is associated with a second wireless service having a second TTI that is shorter than the first TTI.

34. The method of claim 33, wherein:

the first wireless service is associated with downlink shared channel resources that span more than a threshold number of orthogonal frequency division multiplexing (OFDM) symbols, and the second wireless service is associated with downlink shared channel resources that span a number of OFDM symbols that is less than or equal to the threshold number of OFDM symbols, or

the second wireless service is associated with downlink shared channel resources that span a number of orthogonal frequency division multiplexing (OFDM) symbols that are included in an enumerated set of numbers of OFDM symbols, and the first wireless service is associated with downlink shared channel resources that span numbers of OFDM symbols that are outside of the enumerated set of numbers of OFDM symbols.

35.—— The method of claim 33, wherein the second wireless service is associated with downlink control channel monitoring occasions that are after an initial number of orthogonal frequency division multiplexing (OFDM) symbols of the TTI.

36.—— The method of claim 33, wherein the first wireless service is associated with downlink shared channel resources that span a more than a threshold number of orthogonal frequency division multiplexing (OFDM) symbols and the second wireless service is associated with downlink shared channel resources that span a number of OFDM symbols that are less than or equal to the threshold number of OFDM symbols.

37.———— An apparatus for wireless communication, comprising:

~~means for identifying~~ 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 user equipment (UE), a first set of uplink resources for reporting a first acknowledgment feedback to a base station and a first set of delay values associated with the first set of uplink resources, wherein the first set of delay values is non-overlapping with a second set of delay values for reporting a second acknowledgment feedback to the base station, and wherein delay values of the first set of delay values and the second set of delay values are each associated with a corresponding time domain resource allocation of a downlink shared channel; determine, based at least in part on the first set of delay values, one or more first time domain resource allocations of downlink shared channel resources that are to have feedback included with the first acknowledgment feedback; and transmit the first acknowledgment feedback for the one or more first time domain resource allocations via the first set of uplink resources.

~~means for determining, based at least in part on the first set of delay values, a first time domain resource allocation of downlink shared channel resources associated with the first acknowledgment feedback; and~~

~~means for transmitting the first acknowledgment feedback for the first time domain resource allocation via the first set of uplink resources.~~

38.———— The apparatus of claim 37, wherein the instructions are further ~~comprising:~~

~~means for determining~~executable by the processor to cause the apparatus to: determine, based at least in part on the second set of delay values, a second time domain resource allocation of downlink shared channel resources associated with the second acknowledgment feedback, wherein the second time domain resource allocation has a same ending orthogonal frequency division multiplexing (OFDM) symbol as the one or more first time domain resource ~~allocation~~allocations and overlaps the one or more first time domain resource ~~allocation~~allocations; and

~~wherein the means for transmitting transmits~~ transmit the second acknowledgment feedback for the second time domain resource allocation via a second set of uplink resources that is different than the first set of uplink resources.

39. The apparatus of claim 37, wherein the instructions are further ~~comprising: means for receiving~~executable by the processor to cause the apparatus to: receive, from the base station, configuration information that configures the first set of delay values and the second set of delay values, wherein the configuration information comprises a downlink shared channel time domain resource allocation list that links the one or more first time domain resource ~~allocation~~allocations with the first set of delay values and that links a second time domain resource allocation of downlink shared channel resources with the second set of delay values.

40. An apparatus for wireless communication, comprising:

~~means for identifying~~ 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 user equipment (UE), a first set of delay values associated with a first set of downlink control channel monitoring occasions and a second set of delay values associated with a second set of downlink control channel monitoring occasions, wherein each delay value of the first set of delay values and the second set of delay values corresponds to a time period between a downlink shared channel transmission from a base station and a corresponding acknowledgment feedback transmission to the base station;

~~means for receiving~~ receive a first downlink control channel transmission during the first set of downlink control channel monitoring occasions that indicates a first downlink shared channel resource for a first downlink data transmission to the UE;

~~means for determining~~ determine, based at least in part on the first set of delay values, a first uplink resource for transmitting a first acknowledgment feedback associated with the first downlink data transmission;

~~means for monitoring~~ monitor the first downlink shared channel resource for the first downlink data transmission; and

~~means for transmitting~~ transmit, based at least in part on the monitoring, the first acknowledgment feedback to the base station via the first uplink resource.

41. The apparatus of claim 40, wherein the instructions are further ~~comprising: means for receiving~~executable by the processor to cause the apparatus to: receive a second downlink control channel transmission during the second set of downlink

control channel monitoring occasions that indicates a second downlink shared channel resource for a second downlink data transmission to the UE, wherein the second downlink shared channel resource overlaps with the first downlink shared channel resource;

~~means for determining~~ determine, based at least in part on the second set of delay values, a second uplink resource for transmitting a second acknowledgment feedback associated with the second downlink data transmission, wherein the second uplink resource is different than the first uplink resource; monitor the second downlink shared channel resource for the second downlink data transmission; and transmit the second acknowledgment feedback to the base station via the second uplink resource.

~~means for monitoring the second downlink shared channel resource for the second downlink data transmission; and~~

~~means for transmitting the second acknowledgment feedback to the base station via the second uplink resource.~~

42. The apparatus of claim 41, wherein the first set of downlink control channel monitoring occasions correspond to downlink control channel monitoring occasions within an initial number of orthogonal frequency division multiplexing (OFDM) symbols of a slot, and the second set of downlink control channel monitoring occasions correspond to downlink control channel monitoring occasions that are after the initial number of OFDM symbols of the slot.

43. The apparatus of claim 41, wherein the first set of delay values is associated with a first wireless service having a first transmission time interval (TTI), and the second set of delay values is associated with a second wireless service having a second TTI that is shorter than the first TTI.

44. The apparatus of claim 43, wherein:

the first wireless service is associated with downlink shared channel resources that span more than a threshold number of orthogonal frequency division multiplexing (OFDM) symbols, and the second wireless service is associated with downlink shared channel resources that span a number of OFDM symbols that is less than or equal to the threshold number of OFDM symbols, or the second wireless service is associated with downlink shared channel resources that span a number of orthogonal frequency division multiplexing (OFDM) symbols that are included in an enumerated set of numbers of OFDM symbols, and the first wireless service is associated with downlink shared channel resources that span numbers of OFDM symbols that are outside of the enumerated set of numbers of OFDM symbols.