



CSCE 491

Computer Engr. Design Project

2002/9/19

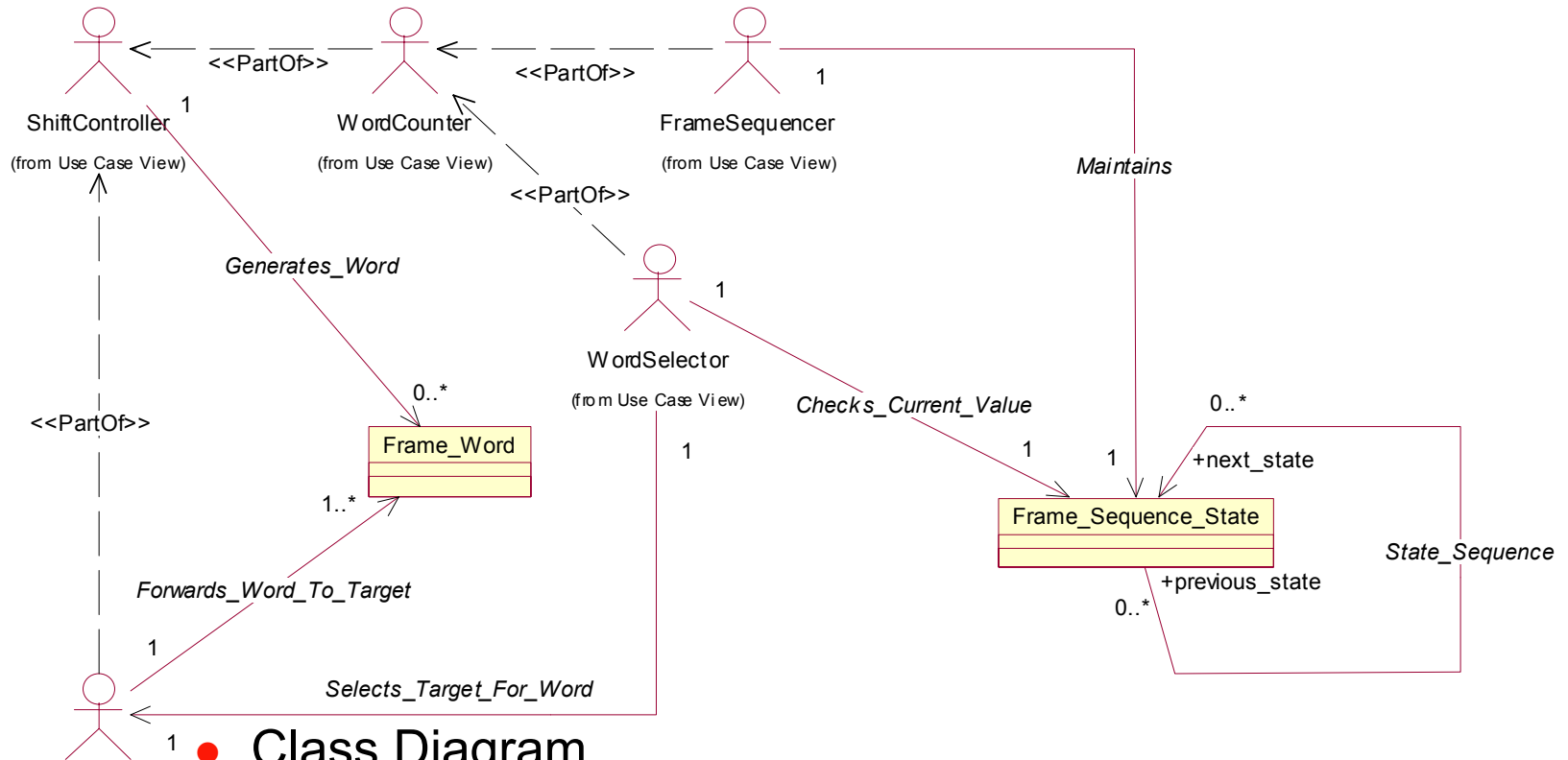
Fall 2002 - Lecture 11
802.11 MAC Receiver – Architecture Analysis-2

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Outline

- 802.11 Frame Processing - Continued.
 - ✓ Further elaboration of the ShifterController block and its various functions.
 - ✓ Class Diagram of the Actors and non-actor Classes representing the 802.11 domain artifacts that are relevant to our analysis and architecture task.
 - ✓ State chart diagram of the “lifecycle” of a Frame_Word (example).
- Questions and Discussion of HW#4 (Due Monday)
 - ✓ This assignment involves analysis much like what we’ve gone over in the lectures. This is your opportunity to ask questions and we can discuss it further.

MAC Receiver Shifter Controller

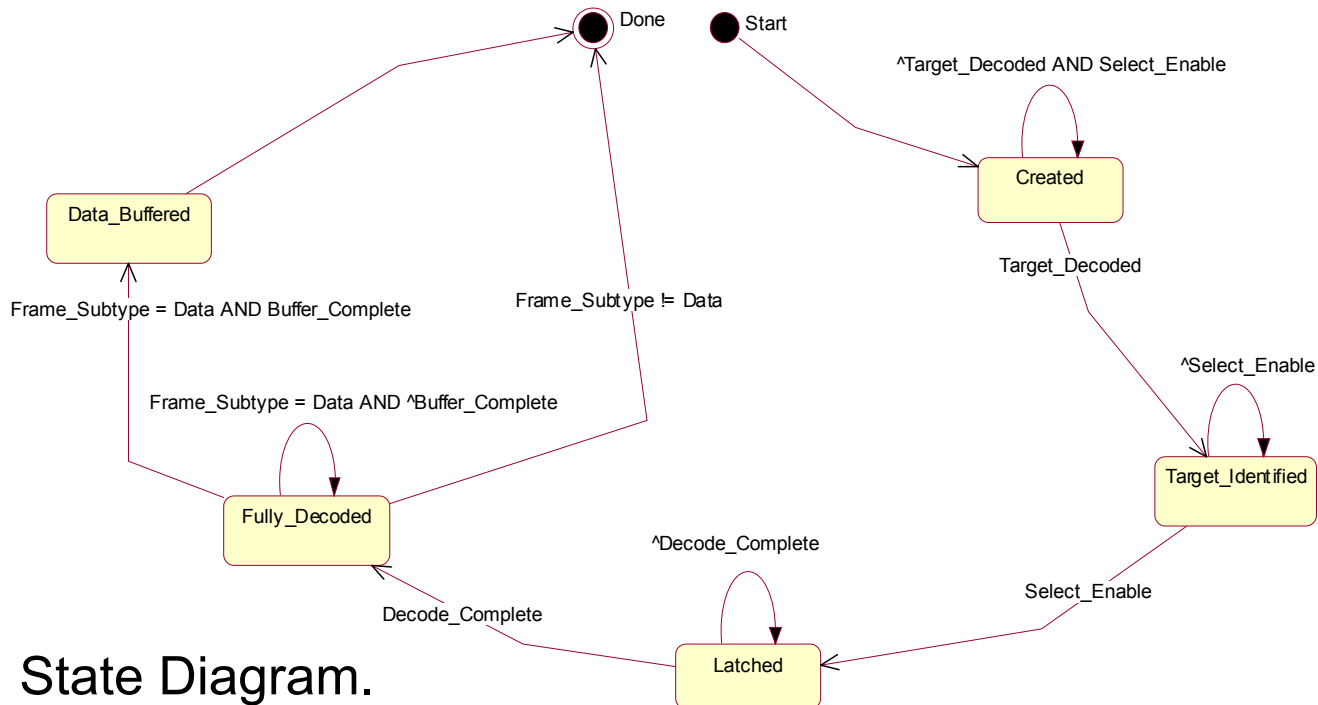


DecoderSelector
(from Use Case View)

- ✓ We have several 802.11 WLAN domain “artifacts” in which we are interested, which are not defined Actors.
- ✓ Frame_Word: the current word that has been shifted by the Shifter (part of ShiftController not shown). Each time we shift a new word in, we need to reset this object (analogous to creating a new instance).
- ✓ Frame_Sequence_State: indicates the current field of the frame for the identified frame subtype. We’ll use this to cycle through the fields of each received frame, and thereby indicate which block in the pipeline gets the current Frame_Word.

MAC Receiver Shifter Controller

This abstract state diagram indicates the somewhat artificial lifecycle of a `Frame_Word`, as it passes through its various states. We might analyze the `Frame_Word` in such a way that this is a meaningful distinction. We'll later see that we probably don't need to model any specific state behavior for the `Frame_Word`. However, the `Frame_Sequence_State` does need explicit lifecycle modeling.



● State Diagram.

- ✓ `Frame_Word`: the current word that has been shifted by the Shifter, and which gets passed to one of the target blocks that will decode the contents of the word. Each time we shift a new word in, we need to reset this object (analogous to creating a new instance).
- ✓ Therefore, the “lifecycle” of a `Frame_Word` corresponds to the sequence of states which each one might pass through between the time it is created by the Shifter and when it is decoded by one of the downstream blocks in the MAC Receiver’s pipeline. Also, if the Word is actual data, we’ll need to insure it is properly buffered in MAC Receiver memory (since we’ll be reassembling frames into IP packets).

Frame_Word - Lifecycle

