

Module: UVM-2

Register Abstraction Layer

RAL

Assignment 06

➤ **Predict() vs mirror() methods:**

The **predict** method is used to update the mirrored value of a register in the UVM register model based on observed activity on the DUT. This method is typically invoked by monitors or predictors whenever a register operation, such as a read or write, is detected on the bus. It ensures that the mirrored value in the model reflects the register's updated state in the DUT. Notably, the predict method does not initiate any physical access to the DUT; instead, it passively updates the model based on observed transactions. For example, when a predictor observes a write operation to a register, it uses the predict method to align the mirrored value with the new state.

In contrast, the **mirror** method is used to compare or synchronize the mirrored value in the UVM register model with the actual value in the DUT. This method can optionally perform a physical access (read) to retrieve the DUT's current value and update the mirrored value in the model. It is commonly used to verify whether the mirrored value in the UVM model and the actual value in the DUT are consistent. For example, the mirror method might be called during a verification sequence to ensure the DUT register state matches the expected mirrored value in the UVM model.

The **primary differences** between the two methods lie in their purpose, access type, and initiation. The predict method is purely for updating the UVM model based on observed transactions and involves no physical access to the DUT. On the other hand, the mirror method actively synchronizes or verifies the UVM model against the DUT, often performing a physical read. Furthermore, predict is typically invoked by testbench components like monitors or predictors, while mirror is explicitly called in sequences or verification checks.

In summary, the predict method is a passive mechanism to update the UVM model without accessing the DUT, whereas the mirror method is an active approach to ensure consistency between the model and the DUT.