We are trying to examine whether replacement attack can be captured from schedulability of a system. Initially we tried with considering that scheduling will be lost if one of the participating task automata loses its Buchi property. But this approach could capture only iff the Buchi property is lost. Now we have changed our problem statement to make it more powerful. We are considering FlexRay system to demonstrate our idea.

A FlexRay schedule is organized in a number of communication cycles of same structure. Each FlexRay communication cycle is consistes of four different segments as:

- A static segment
- A dynamic Segment
- Symbol window
- Network Idle Time

We are interested only in Static segments, time triggered static segment used for scheduling. Static slots consists of fixed number of slots of equal size.

- Number of communication cycle n
- The cycle duration t_c
- Number of available static slots in one cycle n
- Message size l_m and takes period p_m
- Message repetition $r_m = (p_m/t_c)$
- Message m is scheduled in the first cycle called Base cycle b_m
- A Message m is scheduled in a cycle cc_i when $i = (b_m + r_m \cdot a) \mod k, a \epsilon N_0$
- If $\forall i, j \epsilon N_0 : (b_{m_1} + r_{m_1} \cdot i) \mod k \neq (b_{m_2} + r_{m_2} \cdot j) \mod k$ then m_1 and m_2 will not intersect

The aim is to avoid cycle conflict so that slot conflict can be avoided at the same time. In this system slot conflict arise if two messages tries to access the same cycle and same slot number. If no cycle conflict can be ensured then there will be no slot conflict.

Our Planning FlexRay parameters shows that whether two messages will intersect or not depends on the base cycle and number of repetitions. So our idea is:

- Initially system has defined static scheduling sequence
- That sequence says the base cycle and the number of repetitions of each messages
- Now if a message misses its allocated cycle due to delay and tries to access another cycle which is not granted for it, then a situation of conflict will arise
- We are trying to get a scheduler Büchi automata, that can capture the conflict