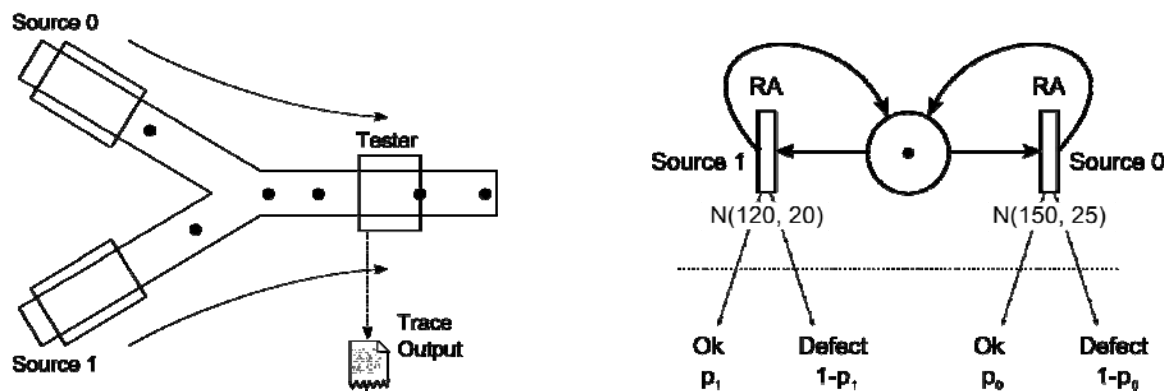


The object of the semester assignment “Quality Tester” is a small part of a wafer production line. It will be used to apply the knowledge and implement the algorithms taught throughout the semester. Students will see the different levels of applicability of the methods and understand their features and shortcomings. The improvements and new developments in current research will be motivated and demonstrated.



The system is specified as follows:

There are two sources of wafers upstream of the quality tester, which could be two different suppliers or upstream processing machines. The material flows coming from the two sources are merged and then pass through the tester. The tester records in a protocol the timestamp and result of each test (Ok or Defective). The source of the individual wafers is not recorded. The material flow from source 0 is slower than the one from source 1, resulting in a larger mean interarrival time. The interarrival times of the wafers from each machine are random and normally distributed. However, the standard deviation of the distributions is large enough to make the decision non-trivial.

The current setting is that an unusually large amount of defective wafers has been detected. We now want to retrace the source of this problem by determining the machine that produced the larger proportion of defective wafers. The only source of information we have is a tester output protocol of the following form:

```

...
2882.217706447267 ok
2910.0851469785025 ok
3034.310004644629 ok
3046.6760736251117 ok
3163.9621703088205 ok
3181.396624867343 Defect
3277.704145442948 ok
3319.580712096737 ok
3374.557676091804 ok
4872.70280396103 Defect
...

```