Opmerking: Introduction to queueing theory

**Chapter 2**

The similarity of the **arrival and services** processes can be brought out by identifying similar components, such as interarrival times and services, or arrival epoches and departure epochs.

In the case of the **Poisson Process**, it is also convenient to consider the distribution of the number of events occuring in a given length of time.

The Poisson process is a special case of the Markov process. It is widely used in stochastic modeling because of its properties with reference to the occurence of eventes and the properties of the exponential distribution representing the corresponding interoccurence time of events:

* If an interval, such as service time, can be represented by an exponential distribution and the interval is ongoing at time t, the remaining time in the interval has the same distribution as the original one, regardless of the the start of the interval. **Memoryless property**
* The time required for the occurence of a given number of Poisson events has a distribution given by the Earling distribution with scale parameter n.

To start with, we note that depending on the properties of the basic process convenience, we may use either continuous or discrete distributions. In many situations **continuous distributions** may be easier to handle analytically. Nevertheless, continuous and discrete models are mutually analogues and most of the properties cary through in both cases.

Z1, Z2,.. 🡪 non negative random variables representing either interrarival times or service time of consecutive customers. {Zn}∞n=1 independent and identically distributed random variables

**Chapter 3 Stochastic process**