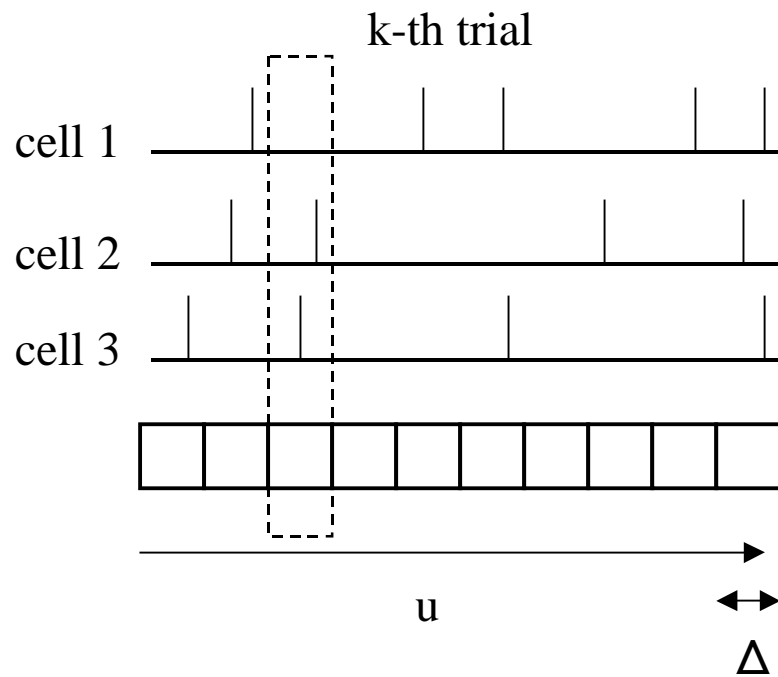


Example N=3, K trials



$$n_i^{(k)}(u) = 0 \text{ or } 1 \quad (i=1, 2, 3)$$

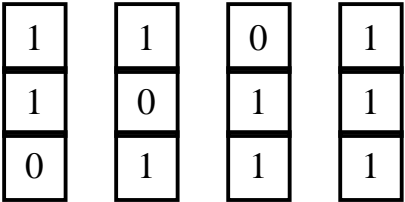
0	1	0	0	1	1	0	0	0	1	1
0	1	1	0	0	0	0	0	1	0	1
1	0	1	0	0	1	0	0	0	0	1

0
1
1

Vector in 3-dim space

$$\{n^{(k)}(u)\} = (n_1^{(k)}(u), n_2^{(k)}(u), n_3^{(k)}(u))$$

Synchronous cases

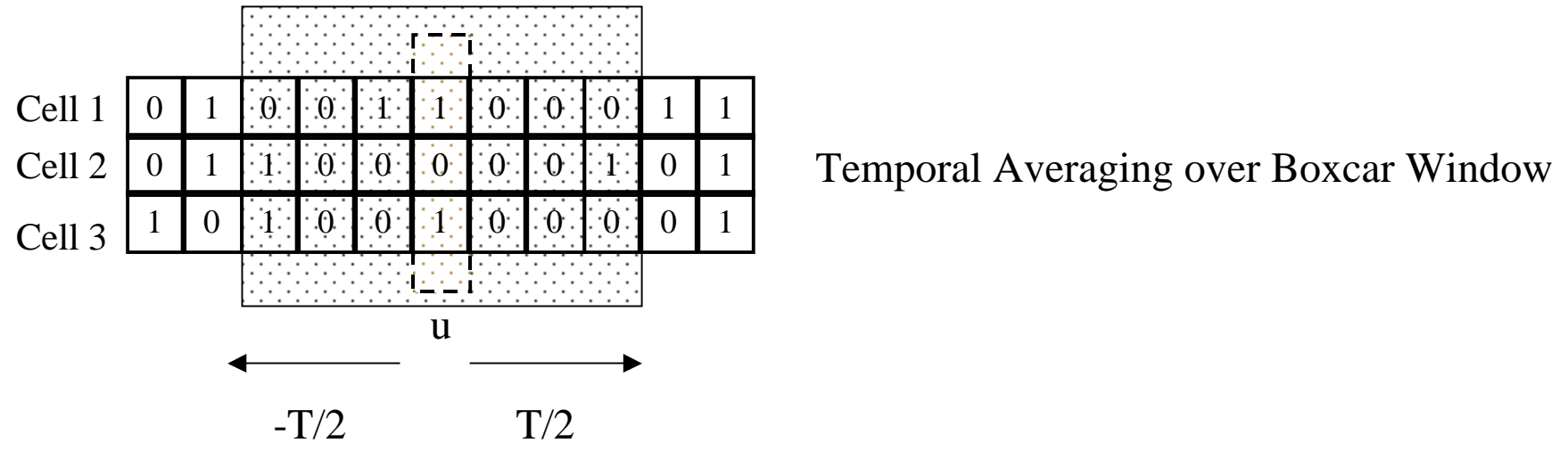


Example: Synchrony between Cells 1 and 2

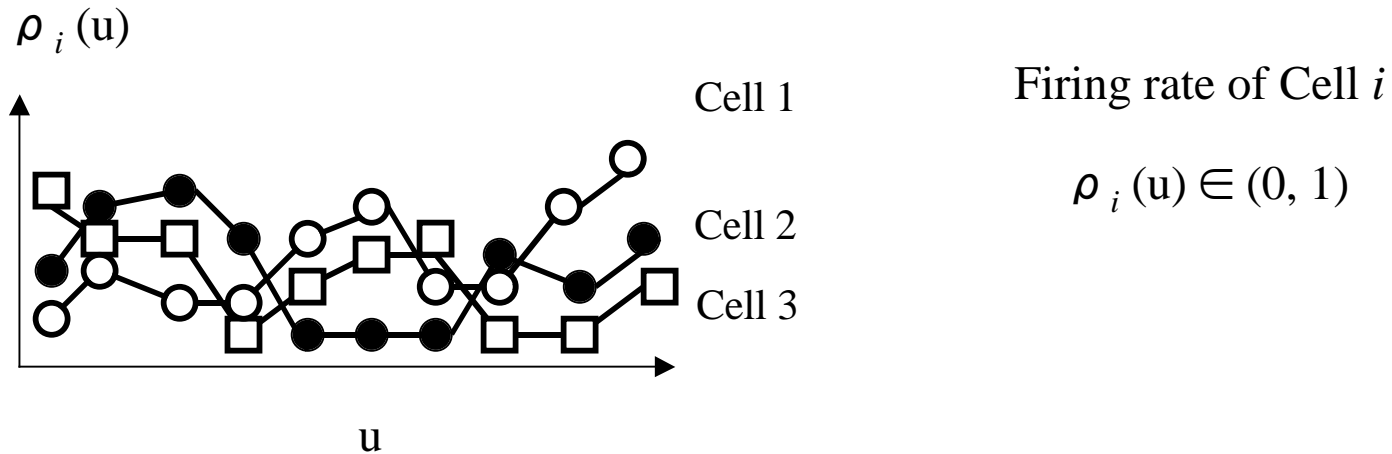
$$\begin{array}{|c|} \hline 1 \\ \hline 1 \\ \hline * \\ \hline \end{array} = \begin{array}{|c|} \hline 1 \\ \hline 1 \\ \hline 0 \\ \hline \end{array} + \begin{array}{|c|} \hline 1 \\ \hline 1 \\ \hline 1 \\ \hline \end{array}$$

图 2

Computation of Firing Rate

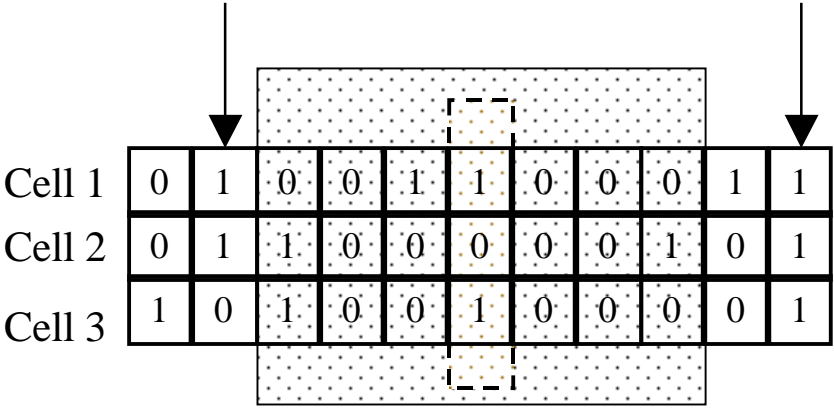


Ensemble Averaging over Trials

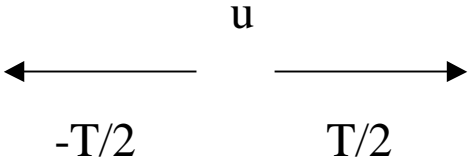


☒ 3

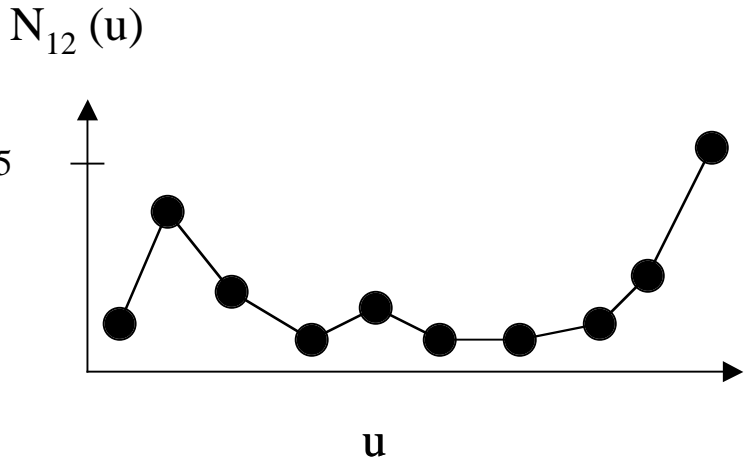
Number of occurrence of each synchronous event



Temporal Averaging over Boxcar Window



Ensemble Averaging over Trials



Compute number of the event

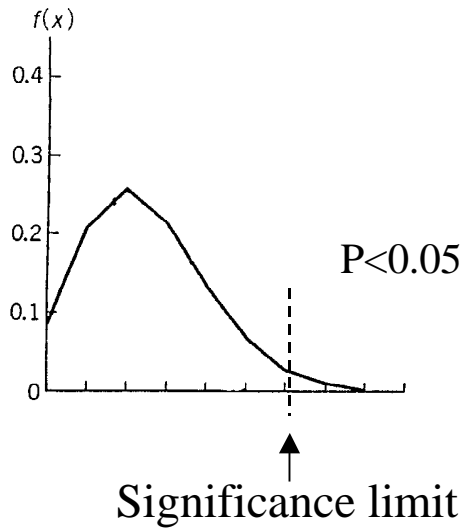
1
1
*

图 4

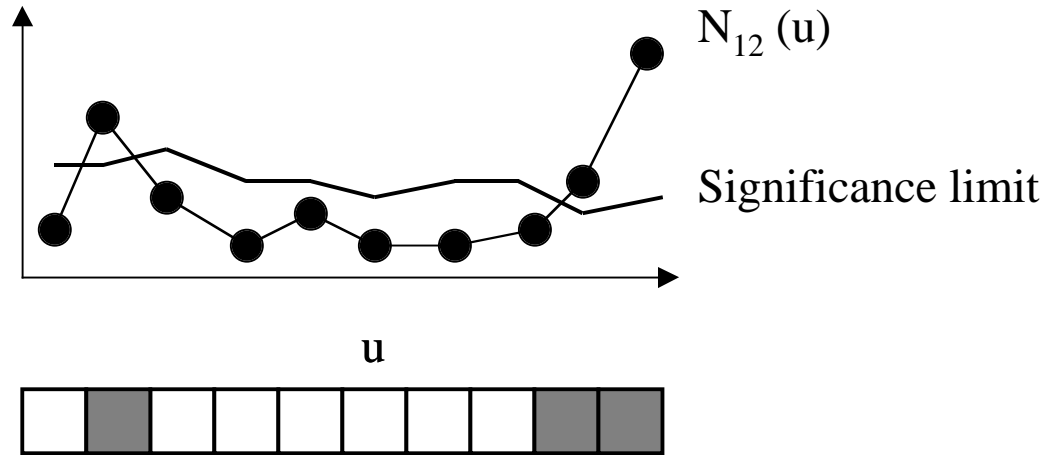
Significance Test

Null Hypothesis: Independence \rightarrow probability of the event $\begin{matrix} 1 \\ 1 \\ * \end{matrix} = \rho_1(u) \rho_2(u)$

Assume Binomial Distribution [mean : $T \rho_1(u) \rho_2(u)$]



Also, significant test of less synchrony



All the events $\begin{matrix} 1 \\ 1 \\ * \end{matrix}$ in \blacksquare bin are highlighted

Unitary Events