Preprocessing of discrete (binary) data in MKAD

The binary states (of the discrete variables) were translated into state
transitions where only the bit changes (switching) were logged as a
sequence of transitions. This means that the discrete parameters are
handled by marking the on and off transitions between switch states with
unique symbols and concatenating the symbols, while preserving the time
ordering, into a sequence vector.

For example: (Assuming rows represent time/sample points and columns
represent features/parameters)

1) Given the discrete (binary) values

D1	D2	D3	D4	D5
0	1	0	1	1
0	1	0	1	0
0	1	0	1	1
1	1	0	0	0
1	1	0	0	0
1	1	0	0	0

2) Convert to on/off transitions (differentiate)

D1	D2	D3	D4	D5
0	0	0	0	-1
0	0	0	0	1
1	0	0	-1	-1
0	0	0	0	0
0	0	0	0	0

3) Assign unique symbols

In this example we use integers to represent the switch transitions.

if positive transition, assign: column # * 1
if negative transition, assign: column # * 2

D1	D2	D3	D4	D5
0	0	0	0	10
0	0	0	0	9
1	0	0	8	10
0	0	0	0	0
0	0	0	0	0

**4) Concatenating the symbols to generate discrete sequence. If multiple
switching occurs during the same time sample the order of the columns
dictates the order at which the sequence is logged.**

10 9 1 8 10