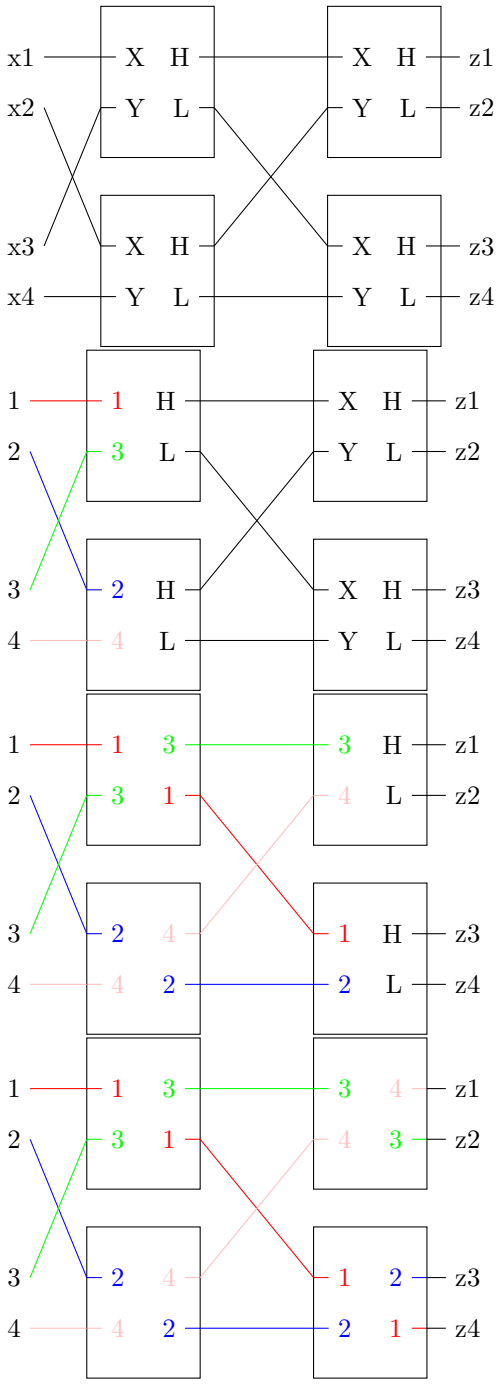
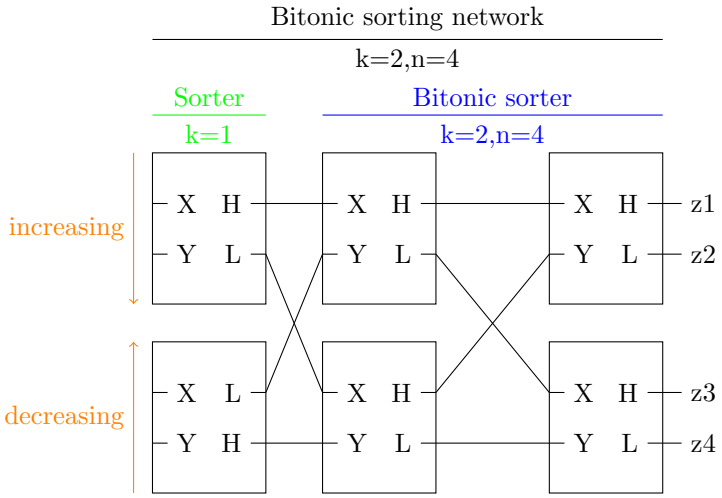

x1
x2
x3
x4
X H
Y L
z1
z2
z3
z4
1
2
3
4
1 H
3 L
2 H
4 L
1 3
3 1
2 4
4 2

1 Sorting network

A bitonic sorting network is created by using several bitonic sorter. These bitonic sorters are recursivly used to create two monotonic one decreasing and one increasing sequence who are then put into the next stage. This creates a bitonic series for the next stage which can then use this bitonic series to be used as a monotonic series for the next stage. Consider the following example for a n=4 bitonic sort network.



The bitonic sorting network for k=2 can be created by using a k=2 bitonic sorter and two k=k-1 sorter. The two sorter create a decreasingly or increasingly sorted sequence in order to create a bitonic input for the bitonic sorter. Bitonic sorting networks of a lower order are mostly used for the two pre sorters, therefore a recursiv definition of a bitonic sorting network from bitonic sorters can be descibed. In the above example the two bitonic sorting networks are k=1 networks hence they are just a comparator.

2 Bitonic Sorter

With a bitonic sorter only bitonic inputs can only be used to sort bitonic inputs. In order to sort arbitrary input sequences a bitonic sorting network can be created from bitonic sorters.