BranchData.txt

This file contains all bifurcations within a HYPE model domain. Bifurcations are stream splits in downstream direction. They can occur naturally, but are often used in HYPE to describe inter-catchment water transfers for e.g. hydropower production. HYPE allows to split water flows by fixed fractions (`mainpart`) and optionally to define minimum and maximum flow limits. Another way to determine branch flow is through lakes with two outlets defined in LakeData.txt. Then only the path of the branch is necessary to give in BranchData.txt, but `mainpart` can also be given. It is used to calculate the upstream area of the subbasin, which in turn is used for calculating initial volume of main river, general rating curve parameters, upstream-area-output variables etc. A third way to define branch flow is by prescribing a constant or a time series of the wanted flow.

BranchData.txt is a tab-separated file located in the modeldir folder. Sub-basins with bifurcations are listed row-wise. The first row contains a column header with variable names. Variable names are not case-sensitive (max. 10 characters, no spaces). Columns with headings unknown to HYPE are skipped while reading the file, but must not longer than ten characters. Columns containing character strings, e.g. descriptive meta-data, must not exceed a length of 100 characters. The columns may be in any order. A value must exist for every column and row, i.e. empty cells are not allowed.

Example for a *BranchData.txt* file structure with two bifurcations:

```
name         sourceid branchid mainpart maxqmain minqmain maxqbranch
bifurcation1 43       576      0.9      5000     350      1
bifurcation2 3955     2301     0.5      0        0        500
```

The table below describes all *BranchData.txt* columns read by HYPE.

Variable ID	Unit	Description
`sourceid`	-	SUBID of sub-basin with bifurcation, i.e. with two downstream sub-basins
`branchid`	-	SUBID of sub-basin receiving the second branch flow, must be located in a row below the sub-basin with bifurcation in GeoData.txt
`mainpart`	-	fraction of flow from subbasin sourceid that flows in the main branch (as given in column *maindown* in GeoData.txt) (between 0 and 1). Default is 1.
`maxQmain`	m^3/s	maximum flow that is allowed in the main branch. Use 0 for no limitation or exclude column completely.
`minQmain`	m^3/s	minimum flow that is required in the main branch before water is routed into branch. Use 0 for no limitation or exclude column completely.
`maxQbranch`	m^3/s	maximum flow that is allowed in the branch. Use 0 for no limitation or exclude column completely.
`Qbranch`	m^3/s	the prescribed flow is taken from the outflow of the subbasin; 0 (default) not used, >0 = wanted constant water flow in the branch, -1 = read from Xobs.txt (`dwtr`)