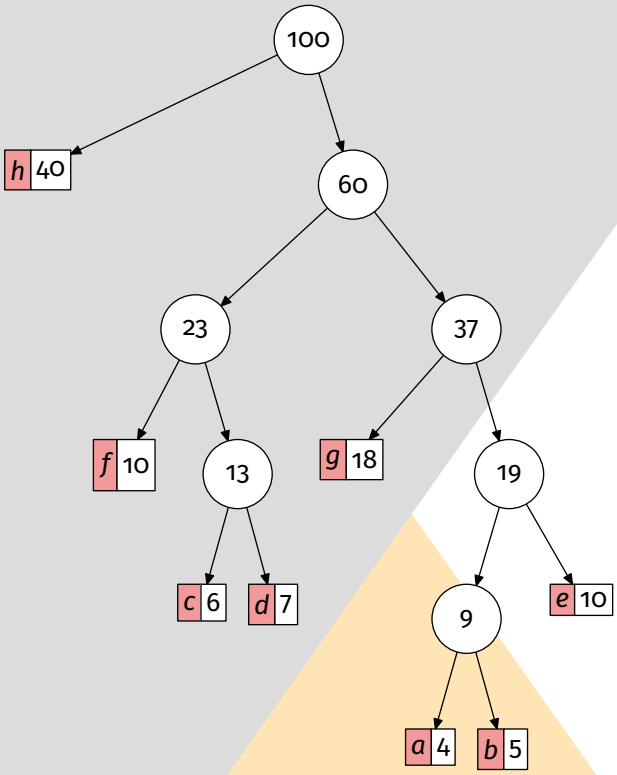
huffman

drawing binary Huffman trees
with METAPOST and METAOBJ



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https://plmlab.math.cnrs.fr/mchupin/huffman

Abstract

This METAPOST package allows to draw binary Huffman trees from two arrays : a string one, and a value one. It is based on METAOBJ package which provides many tools to build trees in general.

https://plmlab.math.cnrs.fr/mchupin/huffman
https://github.com/chupinmaxime/huffman

Contents

This package is in beta version—do not hesitate to report bugs, as well as requests for improvement.

1 Installation

huffman is on CTAN and can also be installed via the package manager of your distribution.

https://www.ctan.org/pkg/huffman

1.1 With TEXlive under Linux or macOS

To install huffman with TEXLive, you will have to create the directory texmf directory in your home.

```
user $> mkdir ~/texmf
```

Then, you will have to place the huffman.mp file in the

~/texmf/metapost/huffman/

Once this is done, huffman will be loaded with the classic METAPOSTinput code

```
input huffman
```

1.2 With MikTeX and Windows

These two systems are unknown to the author of huffman, so we refer you to the MikTeXdocumentation concerning the addition of local packages:

http://docs.miktex.org/manual/localadditions.html

1.3 Dependencies

huffman depends, of course on METAPOST [2], as well as the packages metaobj [1] and—if huffman is not used with LuaLaTeX and the luamplib package—the latexmp package.

2 Main Command

The package huffman provides one principal command (which is a METAOBJ like constructor):

newBinHuffmanTree.⟨*name*⟩(⟨*sizeofarrays*⟩)(⟨*symbarray*⟩,⟨*valuearray*⟩)

⟨***name***⟩**:** is the name of the object;

⟨***sizeofarray***⟩**:** is the size (integer) of the arrays;

⟨***symbarray***⟩**:** is the array of string containing the symboles;

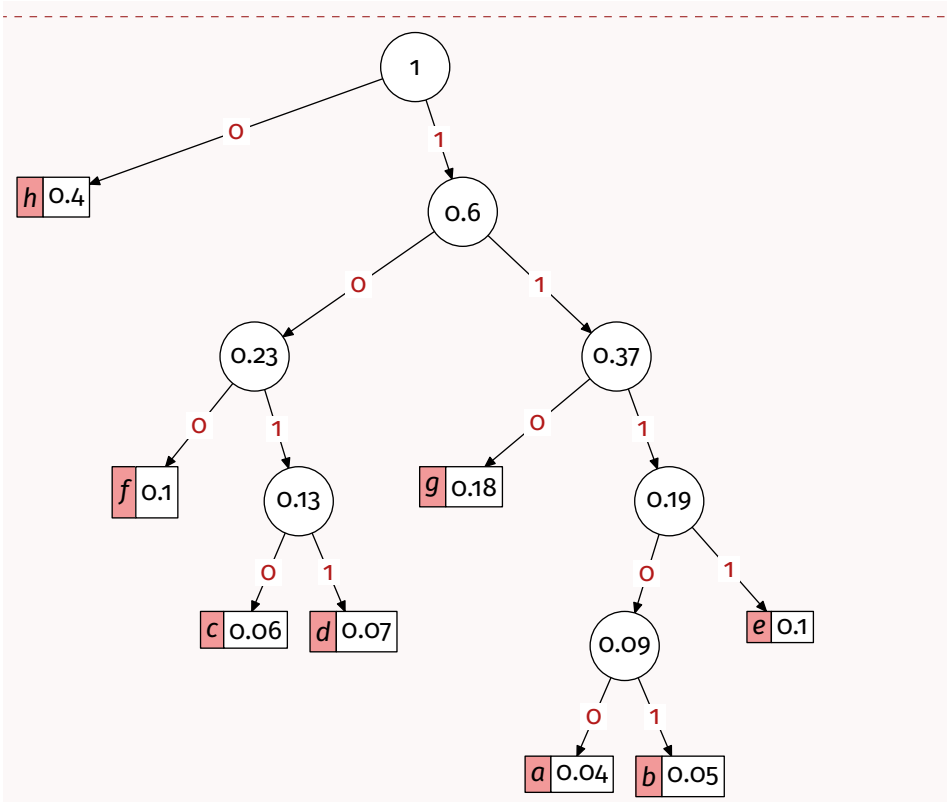
⟨***valuearray***⟩**:** is the array of numeric containing the values associated to the symboles.

Exemple 1

```
input huffman

beginfig(0);
string charList[];
numeric frequency[];
charList[1]:="a"; frequency[1]:=0.04;
charList[2]:="b"; frequency[2]:=0.05;
charList[3]:="c"; frequency[3]:=0.06;
charList[4]:="d"; frequency[4]:=0.07;
charList[5]:="e"; frequency[5]:=0.1;
charList[6]:="f"; frequency[6]:=0.1;
charList[7]:="g"; frequency[7]:=0.18;
charList[8]:="h"; frequency[8]:=0.4;

newBinHuffman.myHuff(8)(charList,frequency);
myHuff.c=origin;
drawObj(myHuff);
endfig;
```



References

[1] Denis B. Roegel. *The `metaobj` package. MetaPost package providing high-level objects*. Version 0.93. June 24, 2016. URL: https://ctan.org/pkg/metaobj.

[2] The MetaPost Team and John Hobby. *The `metapost` package. A development of Metafont for creating graphics*. Aug. 26, 2021. URL: https://ctan.org/pkg/metapost.

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