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 1: #!/afs/cats.ucsc.edu/courses/cmps112-wm/usr/smalltalk/bin/gst -f
 2: "$Id: writebits.st,v 1.5 2014-10-10 16:32:49-07 - - $"
 3: execname := '$RCSfile: writebits.st,v $' =~ '.*: (.*),v.*' at: 1.
 4:
 5: ""
 6: " Opens a file given as the first argument and writes out bits."
 7: ""
 8:
 9: nl := Character nl.
10:
11: FileStream extend [
12:     |bitNumber bitBuffer|
13:     clearByte [
14:        bitNumber := 8.
15:        bitBuffer := 0.
16:     ]
17:     flushByte [
18:        bitNumber = 8 ifFalse: [
19:           self nextPut: bitBuffer asCharacter.
20:           self clearByte.
21:        ]
22:     ]
23:     writeBit: bit [
24:        bitBuffer isNil ifTrue: [self clearByte].
25:        bitNumber = 0 ifTrue: [self flushByte].
26:        bitBuffer := bitBuffer bitAt: bitNumber put: bit.
27:        bitNumber := bitNumber - 1.
28:     ]
29: ]
30:
```

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31:
32: " Output of bitstream hello world."
33: bitArray := #(
34:     0 1 0 0   1 0 0 0
35:     0 1 1 0   0 1 0 1
36:     0 1 1 0   1 1 0 0
37:     0 1 1 0   1 1 0 0
38:     0 1 1 0   1 1 1 1
39:     0 0 1 0   1 1 0 0
40:     0 0 1 0   0 0 0 0
41:     0 1 0 1   0 1 1 1
42:     0 1 1 0   1 1 1 1
43:     0 1 1 1   0 0 1 0
44:     0 1 1 0   1 1 0 0
45:     0 1 1 0   0 1 0 0
46:     0 0 1 0   0 0 0 1
47:     0 0 0 0   1 0 1 0
48: ).
49:
50: writeBitArray := [:outfile|
51:     bitArray do: [:bit| outfile writeBit: bit].
52:     outfile flushByte.
53: ].
54:
55: Smalltalk arguments size = 0
56:     ifTrue: [writeBitArray value: stdout]
57:     ifFalse: [
58:         |outfilename|
59:         outfilename := Smalltalk arguments at: 1.
60:         [ |outfile|
61:            outfile := FileStream open: outfilename mode: FileStream write.
62:            writeBitArray value: outfile.
63:            outfile close.
64:         ] on: SystemExceptions.FileError do: [:signal |
65:            |errno|
66:            errno := File errno.
67:            stdout flush.
68:            stderr << execname << ': ' << filename << ': '
69:                        << signal messageText << nl.
70:            stderr flush.
71:         ]
72:     ]
73:
74: "TEST: writebits.st"
75: "TEST: writebits.st | od -c"
76: "TEST: writebits.st /tmp/foo2"
77: "TEST: cat -nv /tmp/foo2"
78: "TEST: od -c /tmp/foo2"
79:
```

```
 1: ****mks**** writebits.st 2>&1
 2: Hello, World!
 3: ****status: 0x0000
 4:
 5: ****mks**** writebits.st | od -c 2>&1
 6: 0000000   H   e   l   l   o   ,       W   o   r   l   d   !  \n
 7: 0000016
 8: ****status: 0x0000
 9:
10: ****mks**** writebits.st /tmp/foo2 2>&1
11: ****status: 0x0000
12:
13: ****mks**** cat -nv /tmp/foo2 2>&1
14:      1  Hello, World!
15: ****status: 0x0000
16:
17: ****mks**** od -c /tmp/foo2 2>&1
18: 0000000   H   e   l   l   o   ,       W   o   r   l   d   !  \n
19: 0000016
20: ****status: 0x0000
21:
```