Forces

COLLABORATORS

	TITLE : Forces	

ACTION	*NAME*	*DATE*	*SIGNATURE*
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REVISION HISTORY

NUMBER	DATE	DESCRIPTION	NAME

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Forces

1.1 MBlank 1.22 - Modules/Forces

```
                Forces. (It's alive!)


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```

1.2 MBlank 1.22 - Modules/Forces/Bugs

```
Movement can be a little jerky(yerky?), depending on your con-
figuration and the settings of the forces module and also the
current workload of your computer.
```

1.3 MBlank 1.22 - Modules/Forces/Requirements

```
Forces uses a few additional libraries.
It tries to open mathffp.library + mathtrans.library, both
of version 37. If it's unable to open these libraries, it
will not use the MAGNETIC-MODE.
```

1.4 MBlank 1.22 - Modules/Forces/Introduction

```
                This module will display a number of objects on screen
  which are affected in their movements by forces.

  Forces are:

  -Gravitational pull from screen sides.
      You can specify the source of gravity by
      setting the 'Grav. Src.' cycle gadget on the
      settings window or by specifying the tooltype
      'G_SOURCE'. See
                Settings...
                      Via tooltypes you can even specify multiple
      sources, for example 'G_SOURCE=LEFT|TOP'.
      (Notice the vertical seperator-bar)

  -Gravitational pull from other objects.
      The pull is dependant on object-mass and
      'other' object-mass.

  -Air friction from the air.
      Not fully natural, not relative to speed.

  -Wall friction from hitting screen sides.
      Speed deduction if screen sides are hit.
```

1.5 MBlank 1.22 - Modules/Forces/Help

```
  Can someone tell me how I can speed up the rendering/double-
  buffering in a system-legal(friendly) way?
  At present my routines, which are not to optimized, are way to
  slow. Even on my 68030 I can only display a few objects without
  an irritating slowdown.
  At present Forces uses:   CALLGFX BltBitMapRastPort
           (render(no mask) and clear)
           CALLGFX BltMaskBitMapRastPort
           (render(mask))
           CALLINT MakeScreen
           CALLINT RethinkDisplay
           (dblbuf)

  Contact...
```

1.6 MBlank 1.22 - Modules/Forces/Settings

```
  Settings preceded by a '+' can be set via the settings window.

+ MODE=GRAVITY|MAGNETIC|AUTOMATIC
  default: NONE

    If NONE is specified, Forces will produce a rather dull
    display.
```

GRAVITY|MAGNETIC can be combined.
GRAVITY will cause the objects to be drawn to a specific side of the screen. See G_SOURCE to see what the possibi-ities are.
MAGNETIC will cause the objects to be drawn to each other in a not so magnetic way. (unless you use M_DIRECTION=MIX, see below)
AUTOMATIC will cause Forces to play a sequence of tooltype-settings.

+ SCREENDEPTH=1|2|3|4
default: 4

These are mutually exclusive, first found=used.
1=2 colour display, fastest.
2=4 colour display, little slower.
3=8 colour display, slower.
4=16 colour display, slowest.

- DIM=number
default: 0

Dimming percentage. (don't add % to the number).
Calculation: brightness = 100%-DIM% -> brightness%.
This determines the brightness of the objects, the background will allways be black. The default, which is 0 percent dimming, means no dimming at all.

+ OBJECTS=number
default: 7

Number of objects on screen. (On a 1230 50 MHZ + 4MB FAST), I use OBJECTS=10, but you can set it to anything you like, boundary checking is done on all tooltypes!

- PRECISION=number
default: 9

Don't change this one. It will affect almost all other number-tooltype values. But if your adventurous:

Use only values between 8-11 here. This is really an internal variable representing a number of bits. It represents the internal speed-calculation-precision.

+ NOVA_SPEED=number (Explosion Speed)
default: 12000

Speed with which objects will be propelled in certain situations. If you use a larger M_FORCE for instance, you will also need a larger NOVA_SPEED to tear up clusters of magnetic objects.

+ AIR_FRICTION=number
default: 5

The friction that's consistently working on moving objects.
(Unfortunately this friction is not relative(reversed) to
an object's speed.)
Don't use to high values here, object's will go 'dead' fast.

+ WALL_FRICTION=number
default: 150

The friction applied to an object if it collides with a side
of the screen. (This value will be subbed from the speed).

- STILL_COUNT=number (number of frames, not allways 1/50th of a secs.)
default: 1250

The amount of time an object may lie still before it is
blanked. You don't want areas of your screen to lighten up
for longer periods, otherwise the blanker would defeat it's
own purpose.

- STILL_MOVE=number (pixels)
default: 1

If you want objects moving at very low speeds to be regarded
by Forces as 'still' objects, set this value to 1.
Don't use higher values, because otherwise apparently moving
objects will be blanked out.

+ G_SOURCE=BOTTOM|TOP|LEFT|RIGHT
default: UP|DOWN

These can be combined, but two opposite sides will cancel
out each other. (the calculations are performed though, so
on a large number of objects it will have a negative effect.)
G_SOURCE, b.t.w. stands for Gravity-Source.

+ G_FORCE=number
default: 300

The higher this value, the stronger the gravitational force.

+ M_FORCE=number
default: 300

The higher this value, the stronger the magnetic force.

- M_SUSTAIN=number
default: 1

A higher value here will result in a slower decay of force
with distance.

+ M_RADIUS=number (in pixels)
default: 800

The circle surrounding an object, in which the magnetic
force is active.

```
+ MASSES=RANDOM|EQUAL|ORDER
  default: RANDOM

    RANDOM, objects masses are randomly picked.
    EQUAL,  all objects have the same mass, and therefore size.
    ORDER,  object masses will be MAX_MASS, MAX_MASS-1, ... ,
      MAX_MASS-(OBJECTS-1)

- MAX_MASS=number
  default: 15

    The masses are used in the stupidly called MAGNETIC-MODE.
    A 'heavier' object will pull harder at other objects than a
    'lighter' object will.

+ M_DIRECTION=PULL|PUSH|MIX
  default: PULL

    I've included this option just because it was so easy to
    implement. Only the PULL gives interesting results I think.
    MODE=AUTOMATIC does use the MIX value for a short period of
    time.

- NOVA_COUNT=number
  default: 5

    If objects overlap each other(if they have exactly the
    same positions), a counter is incremented. If this counter
    reaches NOVA_COUNT, Forces will let the (assumed) cluster
    explode with a maximum speed of NOVA_SPEED.
```

1.7 MBlank 1.22 - Modules/Forces/Changes

```
Forces 1.19:
29-01 +Settings window support.

Forces 1.22:
02-02 +Full settings window with lots of variables.
```