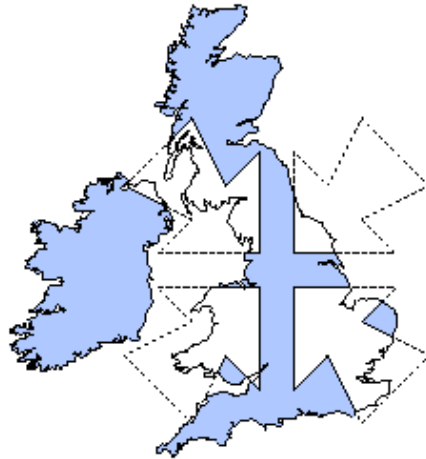


GPC - General Polygon Clipper library



The University of Manchester GPC library (wikipedia: [GPC](#)) is a flexible and highly robust polygon set operations library for use with C, C#, Delphi, Java, Perl, Python, Haskell, Lua, VB.Net (and other) applications.

Designer and implementor: [Alan Murta](#) | Licencing Manager: [Toby Howard](#)

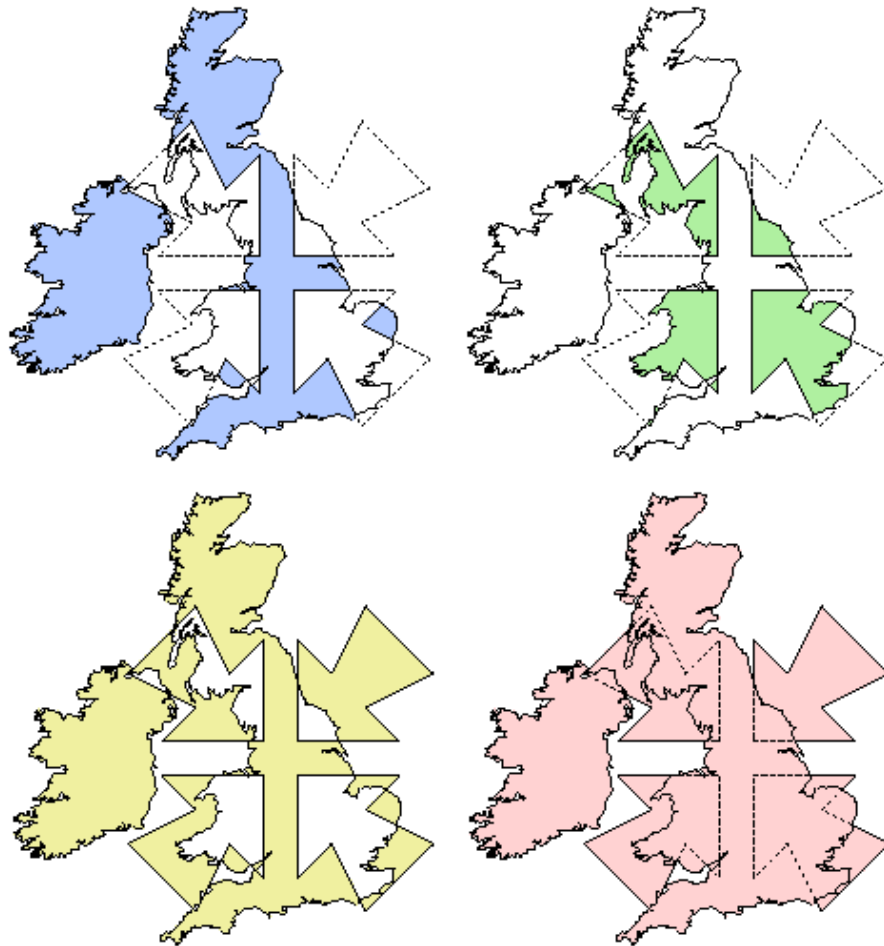
[Features](#) | [Licensing](#) | [Download](#) | [Demo apps](#) | [Ports and Wrappers](#) | [Links](#) | [Tech FAQ](#)

GPC Features

- Difference, intersection, exclusive-or and union clip operations are supported.
 - Polygons may be comprised of multiple disjoint contours.
 - Contour vertices may be given in any order - clockwise or anticlockwise.
 - Contours may be convex, concave or self-intersecting.
 - Contours may be nested (i.e. polygons may have holes).
 - Output may take the form of either polygon contours or tristrips.
 - Hole and external contours are differentiated in the result.
 - Coincident edges and degenerate regions are handled correctly.
-

GPC in action

The following examples show the results of GPC operations on two sets of polygons (Set 1: the United Kingdom and Ireland; Set 2: the four inward-pointing arrows). The operations are: **difference** (blue), **intersection** (green), **exclusive-or** (yellow) and **union** (purple).



GPC Licensing

GPC is free for downloading and time-unlimited evaluation by anyone.

Non-commercial use of GPC (for example: private / hobbyist / education)

GPC is free for non-commercial use only.

We invite non-commercial users to make a [voluntary donation](#) towards the upkeep of GPC.

Commercial use of GPC (for example: product development / commercial research)

If you wish to use GPC in support of a commercial product,
you must obtain an official GPC Commercial Use Licence from The University of Manchester.

Please [email](#) for details.

Download GPC

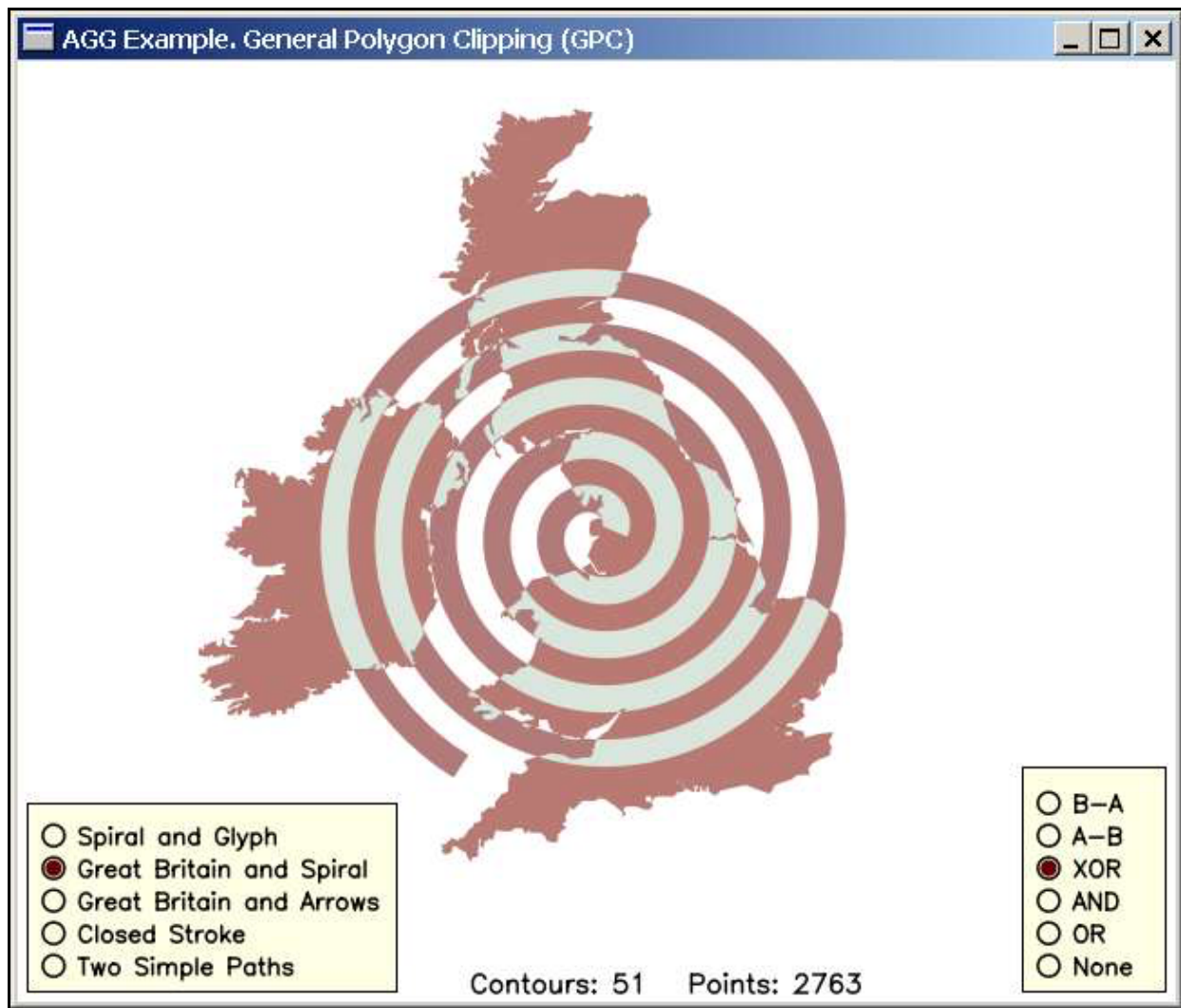
[GPC v2.32](#) - stable release.

[GPC v2.33](#) - experimental release (May 2014).

On-line documentation is [here](#).

GPC demo for Windows

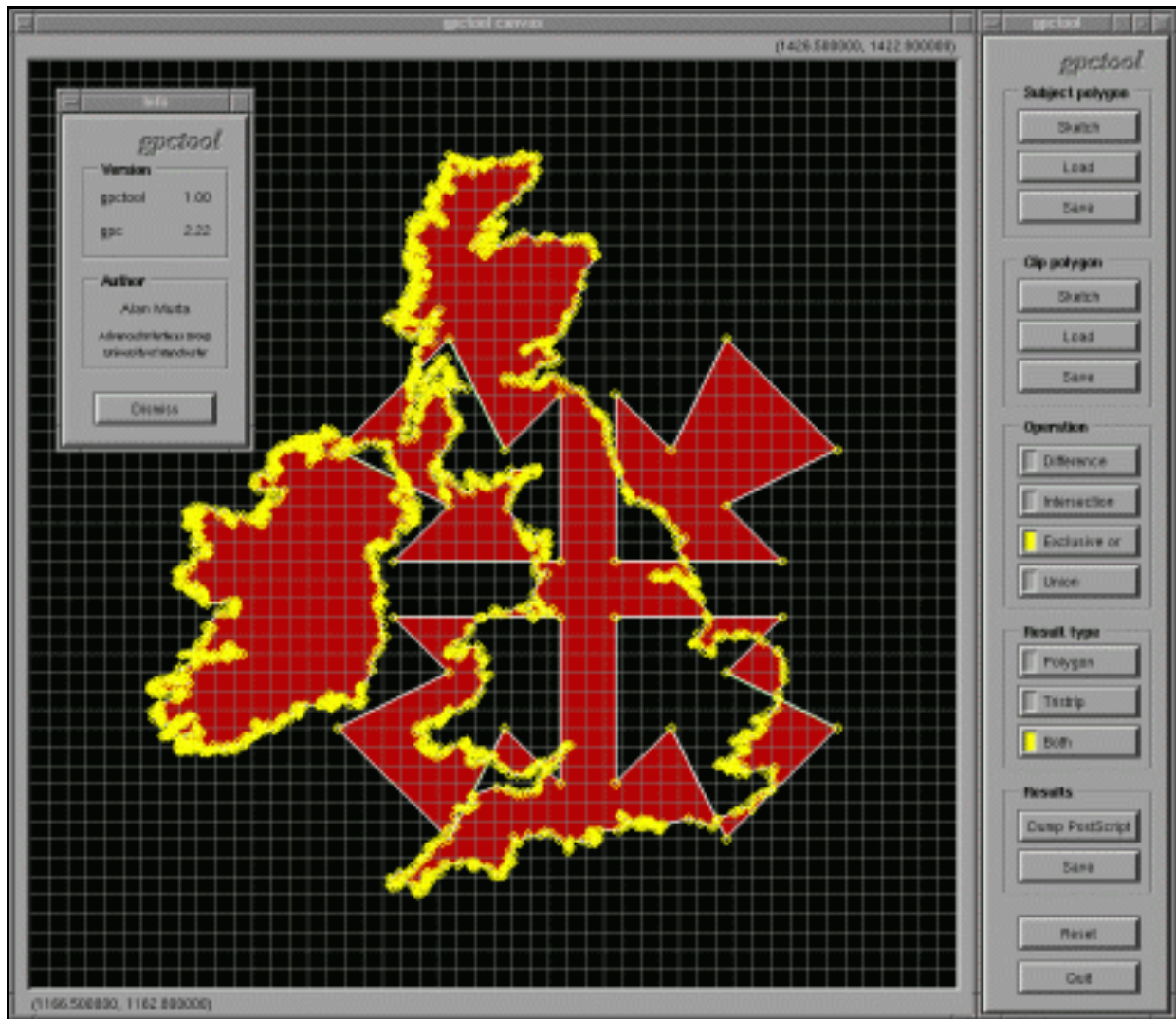
Maxim Shemanarev, developer of the [Anti-Grain Geometry](#) high quality rendering engine, has kindly donated [this Windows application](#) which shows GPC in action.



GPC demo for Linux

The **gpctool** package allows the interactive graphical evaluation of the GPC library under Unix / X11. Compilation requires the [Mesa](#) (or [OpenGL](#)) and [xforms](#) libraries - no precompiled binaries are available. The gpctool sources are available as either a [Unix compressed tarfile \(62k\)](#) or a [PC Zip file \(38k\)](#). Please note that

this software is completely unsupported.



GPC ports and wrappers

We thank these contributors for their GPC ports and wrappers:

.NET wrapper	Christian Buck
ActionScript 3 port	Jakub Kaniewski
C# wrapper	Stefan Menne / Guido Bonino
Cocoa/NSBezier wrapper	Graham Cox
COM wrapper	Tom Wolf
Delphi/Pascal port (GPC v2.30)	Stefan Schedel
Delphi/Pascal port (GPC v2.32)	Richard B. Winston
haXe port	Michael Baczynski

FORTRAN wrapper	Jeff Krob
Haskell port	Marco Túlio Gontijo e Silva
Java port	Daniel Bridenbecker
Javascript port	Arif Buntaran
Lua binding	Luiz Henrique de Figueiredo
Objective-C wrapper	John Swensen
OCaml binding	Coherent Graphics/ John Whittington
Octave binding	Rafael Laboissiere
Perl binding	Eric Wilhelm
Python bindings	Joerg Raedler
VB.NET wrapper	Tadej Basa

Other polygon clipping resources

- Michael Leonov has compiled a [comparison of polygon clippers](#), including GPC.
 - The [comp.graphics.algorithms FAQ](#).
 - The [UIUC Computational Geometry Pages](#).
 - Klaas Holwerda's [Boolean](#), a C++ library.
 - David Kennison's [Polypack](#), a FORTRAN library based on the Vatti algorithm.
 - Klamer Schutte's [Clippoly](#), a clipper written in C++.
 - Michael Leonov's [poly_Boolean](#) C++ library, which extends the Schutte algorithm.
 - Dave Eberly's page on [constructive planar geometry](#) software.
 - [CGAL](#), the Computational Geometry Algorithms Library.
-

GPC is free for non-commercial use only

If you are a **non-commercial user** and you have found GPC to be useful, we invite you to please make a donation and help support the continuation of this project. Thanks!

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