

**NAME**

`cproj`, `cprojf`, `cprojl` – project into Riemann Sphere

**SYNOPSIS**

```
#include <complex.h>
```

```
double complex cproj(double complex z);
```

```
float complex cprojf(float complex z);
```

```
long double complex cprojl(long double complex z);
```

Link with `-lm`.

**DESCRIPTION**

These functions project a point in the plane onto the surface of a Riemann Sphere, the one-point compactification of the complex plane. Each finite point  $z$  projects to  $z$  itself. Every complex infinite value is projected to a single infinite value, namely to positive infinity on the real axis.

**VERSIONS**

These functions first appeared in glibc in version 2.1.

**ATTRIBUTES**

For an explanation of the terms used in this section, see [attributes\(7\)](#).

Interface	Attribute	Value
<code>cproj()</code> , <code>cprojf()</code> , <code>cprojl()</code>	Thread safety	MT-Safe

**CONFORMING TO**

C99, POSIX.1-2001, POSIX.1-2008.

**NOTES**

In glibc 2.11 and earlier, the implementation does something different (a *stereographic* projection onto a Riemann Sphere).

**SEE ALSO**

[cabs\(3\)](#), [complex\(7\)](#)

**COLOPHON**

This page is part of release 4.16 of the Linux *man-pages* project. A description of the project, information about reporting bugs, and the latest version of this page, can be found at <https://www.kernel.org/doc/man-pages/>.