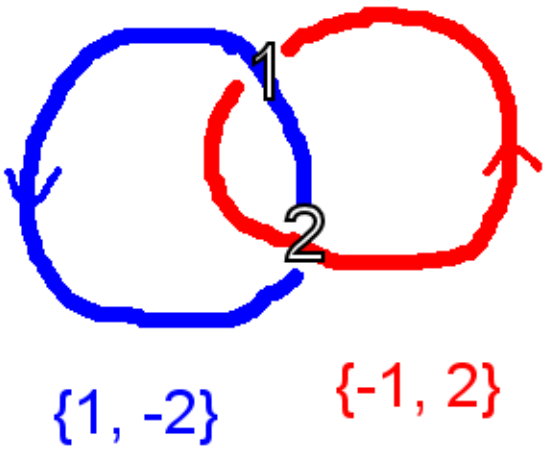
(Directory and $Path initialization not included.)

```
Needs["KnotTheory`"]
```

```
Loading KnotTheory` version of September 6, 2014, 13:37:37.2841.
Read more at http://katlas.org/wiki/KnotTheory.
```

A simple link, albeit with ambiguous orientation:

```
hopfGC = {{1, -2}, {2, -1}};
```



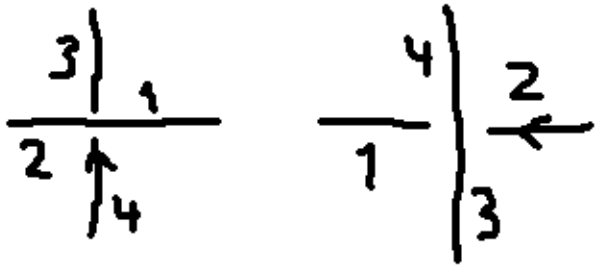
I ask for its planar diagram:

```
hopfPD = PD[GaussCode @@ hopfGC]
```

KnotTheory::credits : The GaussCode to PD conversion was written by Siddarth Sankaran at the University of Toronto in the summer of 2005.

```
PD[X[4, 1, 3, 2], X[2, 4, 1, 3]]
```

But that's impossible. Here are those crossings...



... and I try to connect them ...

... but 3 and 4 are trapped on opposite sides.

DrawMorseLink finds out:

```
DrawMorseLink[hopfPD]
```

KnotTheory::credits : MorseLink was added to KnotTheory` by Siddarth Sankaran
at the University of Toronto in the summer of 2005.

Part::partw : Part 3 of Knot[MorseLink::Error: bad input] does not exist. ≫

Part::partw : Part 2 of Knot[MorseLink::Error: bad input] does not exist. ≫

Part::partw : Part 4 of Knot[MorseLink::Error: bad input] does not exist. ≫

General::stop : Further output of Part::partw will be suppressed during this calculation. ≫

```
$Aborted
```

Jones doesn't panic, justs gives wrong stuff:

```
Factor[Jones[hopfPD][t]]
```

$$-\frac{1+t}{\sqrt{t}}$$

Same link, in hopes of coaxing:

```
hopfGC2 = {{1, -2}, {-1, 2}};
```

Still wrong:

```
hopfPD2 = PD[GaussCode @@ hopfGC2]
```

```
PD[X[3, 2, 4, 1], X[2, 4, 1, 3]]
```

```
DrawMorseLink[hopfPD2]
```

Part::partw : Part 3 of Knot[MorseLink::Error: bad input] does not exist. ≫

Part::partw : Part 2 of Knot[MorseLink::Error: bad input] does not exist. ≫

Part::partw : Part 4 of Knot[MorseLink::Error: bad input] does not exist. ≫

General::stop : Further output of Part::partw will be suppressed during this calculation. ≫

```
$Aborted
```

Jones is still wrong, but different.

```
Factor[Jones[hopfPD2][t]]
```

```
-t (1 + t)
```

But isn't the Hopf link in the big list?

```
AllLinks[2, Alternating]
```

```
{Link[2, Alternating, 1]}
```

```
hopf0 = Link[2, Alternating, 1]
```

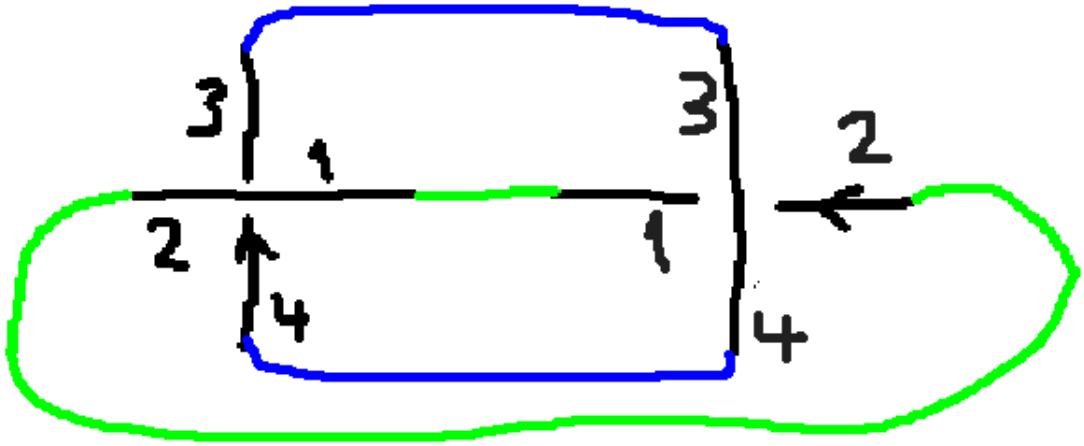
```
Link[2, Alternating, 1]
```

This is good, but perhaps only because it was precomputed...

```
PD[hopf0]
```

```
KnotTheory::loading : Loading precomputed data in PD4Links`.
```

```
PD[X[4, 1, 3, 2], X[2, 3, 1, 4]]
```



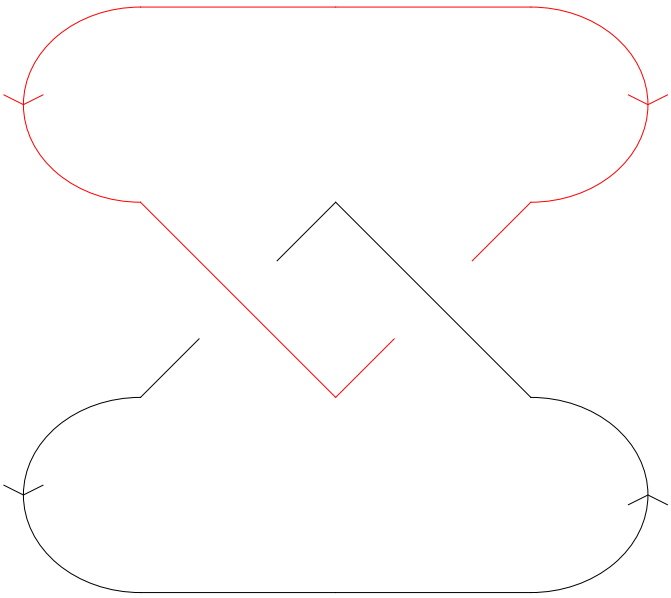
... and this looks okay, until you realize we saw it before.

```
GaussCode[hopf0]
```

```
GaussCode[{1, -2}, {2, -1}]
```

Nice picture ... until you follow the orientation! (Two praying mantises locked in a death-kiss?)

```
DrawMorseLink[hopf0]
```



This was run in Mathematica 10, but the same sorts of things were present in 9 (and even 8, I believe). The same behavior occurs in a "version of March 22, 2011, 21:10:4.67737".

Other trivial links suffer similarly. Two overlapping unlinked components can even produce the same impossible planar diagram:

```
PD[GaussCode[{1, 2}, {-1, -2}]]
```

```
PD[X[3, 2, 4, 1], X[4, 1, 3, 2]]
```

```
PD[GaussCode[{1, -2}, {-1, 2}]]
```

```
PD[X[3, 2, 4, 1], X[2, 4, 1, 3]]
```