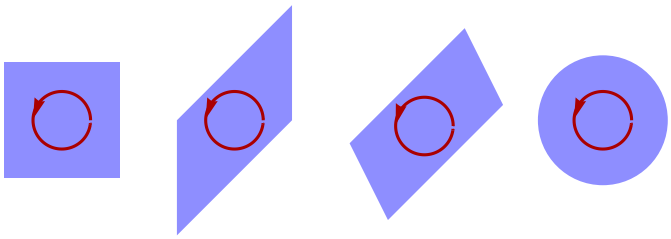
Oriented areas of different shapes

```
<< peeters`;
peeters`setGitDir["../project/figures/GAelectrodynamics"]
```

```
/Users/pjoot/project/figures/GAelectrodynamics
```

```
ClearAll[o, e1, e2, unitParallelogram]
o = {0, 0};
e1 = {1, 0};
e2 = {0, 1};
unitParallelogram[or_, v1_, v2_] := Module[{a}, a = Abs[Det[{v1, v2}]];
    (*{a,v1,v2, {v1/a,v2}}*)
    Parallelogram[or, {v1 / a, v2}]
    ];
orientedArc[or_, s_, f_, r_, c_] := Module[{data, p},
    data = Table[or + r {Cos[x], Sin[x]}, {x, s, f, (f - s) / 100}];
    p = ListPlot[data, Frame → True, Axes → False, Joined → True,
      PlotStyle → {c(*,Thin(*Thick*)*)}, AspectRatio → 1];
    p /. Line[x_] :→ {Arrowheads[{0, .03(*,.05*), 0}], Arrow[x]}
  ];
```

```
ClearAll[p1]
p1 = Show[
  {Graphics[
    {Blue // Lighter // Lighter,
     unitParallelogram[o, e1, e2] ,
     unitParallelogram[1.5 e1 - 0.5 e2, e1 + e2, e2] ,
     unitParallelogram[3 e1 + 0.3 e2, e1 - 2 e2, e2 + e1],
     Disk[5.2 e1 + e2 / 2, 1 / Sqrt[Pi]]
    }
   ],
   orientedArc[(e1 + e2) / 2, 0, 2 Pi - 0.1, 0.25, Red // Darker]
   ,
   orientedArc[1.5 e1 + (e1 + e2) / 2, 0, 2 Pi - 0.1, 0.25, Red // Darker]
   ,
   orientedArc[3 e1 + 0.65 (e1 + e2) - 0.2 e2, 0, 2 Pi - 0.1, 0.25, Red // Darker]
   ,
   orientedArc[5.2 e1 + e2 / 2, 0, 2 Pi - 0.1, 0.25, Red // Darker]
  }]
```



```
peeters`exportForLatex["orientedAreasVarietyFig1", p1]
```

```
{orientedAreasVarietyFig1.eps, orientedAreasVarietyFig1pn.png}
```