Pensieve Header: Plotting 2-variable polynomials.

In[•]:=
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Print[
 "Loading PolyPlot.m from http://drorbn.net/mv26/ap to plot 2-variable polynomials."]
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Loading PolyPlot.m from http://drorbn.net/mv26/ap to plot 2-variable polynomials.
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In[•]:=
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Options[PolyPlot1] = {Labeled → False};
PolyPlot1[Δ_, OptionsPattern[]] := Module[{Δ1, crs, m, maxc, minc, s, rect},
  Δ1 = PowerExpand@Expand@Δ;
  rect = {{0, 0}, {1, 0}, {1, 1}, {0, 1}};
  If[Δ1 === 0, Graphics[],
   m = Max[-Exponent[Δ1, T, Min], Exponent[Δ1, T, Max]];
   crs = CoefficientRules[T^m Δ1, {T}];
   maxc = N@Log@Max@Abs[Last /@ crs];
   minc = N@Log@Min@Select[Abs[Last /@ crs], # > 0 &];
   If[minc == maxc, s[_] = 0, s[c_] := s[c] = (maxc - Log@c) / (maxc - minc)];
   Graphics[crs /. ({x_} → c_) :> {
       Lighter[Which[c == 0, White, c > 0, Red, c < 0, Blue], 0.88 s[Abs@c]],
       Tooltip[Polygon[({x + m - 1 / 2, 0} + #) & /@ rect], c T^(x-m)],
       If[Not@OptionValue[Labeled], {},
        {Black, FontSize → Scaled[1 / ((m + 1) (6 + maxc))], Text[c T^(x-m), {x + m, 0.5}]}]
      }, AspectRatio → Min[1 / 5, 1 / Sqrt[m + 1]],
    ImagePadding → None, PlotRangePadding → None]
  ]];
Options[PolyPlot2] = {Labeled → False, Shear → True};
PolyPlot2[Θ_, OptionsPattern[]] :=
  Module[{Θ1, crs, m1, m2, maxc, minc, s, stone, mat, p},
   Θ1 = PowerExpand@Expand@Θ;
   If[Θ1 === 0, Graphics[{White, Disk[]}],
    If[OptionValue[Shear],
     stone = Table[{Cos[α], Sin[α]} / Cos[2 π / 12] / 2, {α, 2 π / 12, 2 π, 2 π / 6}];
     mat = {{1, -1 / 2}, {0, Sqrt[3] / 2}},
     stone = {{1, 1}, {-1, 1}, {-1, -1}, {1, -1}} / 2;
     mat = IdentityMatrix[2];
    ];
    m1 = Max[-Exponent[Θ1, T1, Min], Exponent[Θ1, T1, Max]];
    m2 = Max[-Exponent[Θ1, T2, Min], Exponent[Θ1, T2, Max]];
    crs = CoefficientRules[T1^m1 T2^m2 Θ1, {T1, T2}];
```

```
    maxc = N@Log@Max@Abs[Last /@ crs];
    minc = N@Log@Min@Select[Abs[Last /@ crs], # > 0 &];
    If[minc == maxc, s[_] = 0, s[c_] := s[c] = (maxc - Log@c) / (maxc - minc)];
    Graphics[{(*{Yellow,Disk[{0,0},1+Cos[2π/12]Norm[{m1,m2}]/√2]},*)
      crs /. ({x1_, x2_} → c_) :> {
          Lighter[Which[c == 0, White, c > 0, Red, c < 0, Blue], 0.88 s[Abs@c]],
          p = mat.{x1 - m1, x2 - m2};
          Tooltip[Polygon[(p + #) & /@ stone], c T1^(x1-m1) T2^(x2-m2)],
          If[Not@OptionValue[Labeled], {},
           {Black, FontSize → Scaled[1/(Max[m1, m2] (10 + maxc))], Text[c T1^(x1-m1) T2^(x2-m2), p]}]
        }
     }, ImagePadding → None, PlotRangePadding → None]
   ]];
Options[PolyPlot] = {Labeled → False, ImageSize → Automatic};
PolyPlot[{Δ_, Θ_}, opts___Rule] := GraphicsColumn[
   {PolyPlot1[Δ, FilterRules[Join[{opts}, Options[PolyPlot]], Options[PolyPlot1]]],
    PolyPlot2[Θ, FilterRules[Join[{opts}, Options[PolyPlot]], Options[PolyPlot2]]]},
   Spacings → Scaled@0.08, ImagePadding → None, PlotRangePadding → None,
   FilterRules[Join[{opts}, Options[PolyPlot]], Options[GraphicsColumn]]
  ];
```

In[•]:= $\texttt{PolyPlot@}\left\{-1+\frac{1}{T}+T,\ -\frac{1}{T_1^2}-T_1^2-\frac{1}{T_2^2}-\frac{1}{T_1^2\,T_2^2}+\frac{1}{T_1\,T_2^2}+\frac{1}{T_1^2\,T_2}+\frac{T_1}{T_2}+\frac{T_2}{T_1}+T_1^2\,T_2-T_2^2+T_1\,T_2^2-T_1^2\,T_2^2\right\}$

Out[•]=