Scott's Data Management Robot

This notebook contains, "Scott's Robot", described in
http://katlas.math.toronto.edu/wiki/Modifying_Knot_Pages...

After downloading it, KnotTheory` and WikiLink.m, it takes five steps to run Scott's Robot:

1. Set the KnotTheory` directory and load KnotTheory`.
2. Set the WikiLink directory and load WikiLink.m.
3. Create the WikiLink connection to the Knot Atlas wiki server.
4. Load ManagingKnotData.m and retrieve the "Invariant Definition Table"
5. Upload some data!

1. Set the KnotTheory` directory and load KnotTheory`.

Change "KnotAtlasPath" as appropriate for your system (e.g., it should be the directory above "KnotTheory/") and execute the following cell:

Dror's version

```
KnotAtlasPath = "C:/drorbn/KAtlas/";
AppendTo[$Path, KnotAtlasPath];
<< \KnotTheory`
```

Scott's version

```
KnotTheoryPath = "c:\\scott\\projects\\svn-checkouts\\KnotTheory\\trunk\\";
AppendTo[$Path, KnotTheoryPath];
<< \KnotTheory`
```

```
Loading KnotTheory` version of March 31, 2006, 19:28:53.6735.
Read more at http://katlas.math.toronto.edu/wiki/KnotTheory.
```

2. Create the WikiLink connection to the Knot Atlas wiki server.

Execute the cell below. You will be prompted for your username and password on the Knot Atlas wiki.

```
(*CreateWikiConnection[
 "http://katlas.math.toronto.edu/w/index.php",
 InputString["Enter Your Username:"],
 InputString["Enter Your Password"]
]*)
```

```
CreateWikiConnection[
 "http://katlas.math.toronto.edu/w/index.php",
 "ScottDataRobot",
 InputString["Enter Your Password"]
]
```

```
WikiUserName[]
```

```
ScottDataRobot
```

3. Upload some data!

This asks the KnotTheory` package for some data.

```
data1 = RetrieveInvariants[
  Invariants["KnotTheory` Knot Invariants"], AllKnots[{0, 5}], "KnotTheory"]
```

```
KnotTheory::loading : Loading precomputed data in PD4Knots`.

KnotTheory::credits : The symmetry type data known to KnotTheory` is taken from Charles Livingston's
     http://www.indiana.edu/~knotinfo/.

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

KnotTheory::loading : Loading precomputed data in Jones4Knots`.

General::stop : Further output of KnotTheory::loading will be suppressed during this calculation. More…

KnotTheory::credits : The HOMFLYPT program was written by Scott Morrison.

Sorry, I don't know how to calculate
  the invariant Khovanov-Rozansky Polynomial using KnotTheory`.

Sorry, I don't know how to calculate
  the invariant Khovanov-Rozansky Polynomial using KnotTheory`.

Sorry, I don't know how to calculate
  the invariant Khovanov-Rozansky Polynomial using KnotTheory`.

Sorry, I don't know how to calculate
  the invariant Khovanov-Rozansky Polynomial using KnotTheory`.

Sorry, I don't know how to calculate
  the invariant Khovanov-Rozansky Polynomial using KnotTheory`.

Sorry, I don't know how to calculate the invariant Thurston-Bennequin Number using KnotTheory`.

Sorry, I don't know how to calculate the invariant Thurston-Bennequin Number using KnotTheory`.

Sorry, I don't know how to calculate the invariant Thurston-Bennequin Number using KnotTheory`.

Sorry, I don't know how to calculate the invariant Thurston-Bennequin Number using KnotTheory`.

Sorry, I don't know how to calculate the invariant Thurston-Bennequin Number using KnotTheory`.

{{Knotilus URL, Knot[0, 1], KnotilusURL[GaussCode[]]}, {Knotilus URL, Knot[3, 1],
   http://srankin.math.uwo.ca/cgi-bin/retrieve.cgi/-1,3,-2,1,-3,2/goTop.html},
  {Knotilus URL, Knot[4, 1],
   http://srankin.math.uwo.ca/cgi-bin/retrieve.cgi/1,-4,3,-1,2,-3,4,-2/goTop.html},
  {Knotilus URL, Knot[5, 1],
   http://srankin.math.uwo.ca/cgi-bin/retrieve.cgi/-1,4,-2,5,-3,1,-4,2,-5,3/goTop.html},
  {Knotilus URL, Knot[5, 2],
   http://srankin.math.uwo.ca/cgi-bin/retrieve.cgi/-1,5,-2,1,-3,4,-5,2,-4,3/goTop.html},
```

{Next Knot, Knot[0, 1], Knot[3, 1]}, {Next Knot, Knot[3, 1], Knot[4, 1]},
{Next Knot, Knot[4, 1], Knot[5, 1]}, {Next Knot, Knot[5, 1], Knot[5, 2]},
{Next Knot, Knot[5, 2], Knot[6, 1]}, {Previous Knot, Knot[0, 1], Knot[0, 1]},
{Previous Knot, Knot[3, 1], Knot[0, 1]}, {Previous Knot, Knot[4, 1], Knot[3, 1]},
{Previous Knot, Knot[5, 1], Knot[4, 1]}, {Previous Knot, Knot[5, 2], Knot[5, 1]},
{SymmetryType, Knot[0, 1], }, {SymmetryType, Knot[3, 1], Reversible},
{SymmetryType, Knot[4, 1], FullyAmphicheiral}, {SymmetryType, Knot[5, 1], Reversible},
{SymmetryType, Knot[5, 2], Reversible}, {UnknottingNumber, Knot[0, 1], 0},
{UnknottingNumber, Knot[3, 1], 1}, {UnknottingNumber, Knot[4, 1], 1},
{UnknottingNumber, Knot[5, 1], 2}, {UnknottingNumber, Knot[5, 2], 1},
{ThreeGenus, Knot[0, 1], 0}, {ThreeGenus, Knot[3, 1], 1}, {ThreeGenus, Knot[4, 1], 1},
{ThreeGenus, Knot[5, 1], 2}, {ThreeGenus, Knot[5, 2], 1}, {BridgeIndex, Knot[0, 1], 1},
{BridgeIndex, Knot[3, 1], 2}, {BridgeIndex, Knot[4, 1], 2}, {BridgeIndex, Knot[5, 1], 2},
{BridgeIndex, Knot[5, 2], 2}, {SuperBridgeIndex, Knot[0, 1], NotAvailable},
{SuperBridgeIndex, Knot[3, 1], 3}, {SuperBridgeIndex, Knot[4, 1], 3},
{SuperBridgeIndex, Knot[5, 1], 3}, {SuperBridgeIndex, Knot[5, 2], {3, 4}},
{NakanishiIndex, Knot[0, 1], NotAvailable}, {NakanishiIndex, Knot[3, 1], 1},
{NakanishiIndex, Knot[4, 1], 1}, {NakanishiIndex, Knot[5, 1], 1},
$\{\text{NakanishiIndex}, \text{Knot}[5, 2], 1\}, \{\text{Jones}, \text{Knot}[0, 1], 1\}, \left\{\text{Jones}, \text{Knot}[3, 1], -\frac{1}{q^4}+\frac{1}{q^3}+\frac{1}{q}\right\},$
$\left\{\text{Jones}, \text{Knot}[4, 1], 1+\frac{1}{q^2}-\frac{1}{q}-q+q^2\right\}, \left\{\text{Jones}, \text{Knot}[5, 1], -\frac{1}{q^7}+\frac{1}{q^6}-\frac{1}{q^5}+\frac{1}{q^4}+\frac{1}{q^2}\right\},$
$\left\{\text{Jones}, \text{Knot}[5, 2], -\frac{1}{q^6}+\frac{1}{q^5}-\frac{1}{q^4}+\frac{2}{q^3}-\frac{1}{q^2}+\frac{1}{q}\right\}, \{\text{Alexander}, \text{Knot}[0, 1], 1\},$
$\left\{\text{Alexander}, \text{Knot}[3, 1], -1+\frac{1}{t}+t\right\}, \left\{\text{Alexander}, \text{Knot}[4, 1], 3-\frac{1}{t}-t\right\},$
$\left\{\text{Alexander}, \text{Knot}[5, 1], 1+\frac{1}{t^2}-\frac{1}{t}-t+t^2\right\}, \left\{\text{Alexander}, \text{Knot}[5, 2], -3+\frac{2}{t}+2t\right\},$
{Determinant, Knot[0, 1], 1}, {Determinant, Knot[3, 1], 3},
{Determinant, Knot[4, 1], 5}, {Determinant, Knot[5, 1], 5},
{Determinant, Knot[5, 2], 7}, {Signature, Knot[0, 1], 0}, {Signature, Knot[3, 1], -2},
{Signature, Knot[4, 1], 0}, {Signature, Knot[5, 1], -4}, {Signature, Knot[5, 2], -2},
{Conway, Knot[0, 1], 1}, $\left\{\text{Conway}, \text{Knot}[3, 1], 1+z^2\right\}, \left\{\text{Conway}, \text{Knot}[4, 1], 1-z^2\right\},$
$\left\{\text{Conway}, \text{Knot}[5, 1], 1+3z^2+z^4\right\}, \left\{\text{Conway}, \text{Knot}[5, 2], 1+2z^2\right\}, \{\text{HOMFLYPT}, \text{Knot}[0, 1], 1\},$
$\left\{\text{HOMFLYPT}, \text{Knot}[3, 1], 2a^2-a^4+a^2z^2\right\}, \left\{\text{HOMFLYPT}, \text{Knot}[4, 1], -1+\frac{1}{a^2}+a^2-z^2\right\},$
$\left\{\text{HOMFLYPT}, \text{Knot}[5, 1], 3a^4-2a^6+4a^4z^2-a^6z^2+a^4z^4\right\},$
$\left\{\text{HOMFLYPT}, \text{Knot}[5, 2], a^2+a^4-a^6+a^2z^2+a^4z^2\right\}, \{\text{Kauffman}, \text{Knot}[0, 1], 1\},$
$\left\{\text{Kauffman}, \text{Knot}[3, 1], -2a^2-a^4+a^3z+a^5z+a^2z^2+a^4z^2\right\},$
$\left\{\text{Kauffman}, \text{Knot}[4, 1], -1-\frac{1}{a^2}-a^2-\frac{z}{a}-az+2z^2+\frac{z^2}{a^2}+a^2z^2+\frac{z^3}{a}+az^3\right\}, \left\{\text{Kauffman}, \text{Knot}[5, 1],\right.$
$\left.3a^4+2a^6-2a^5z-a^7z+a^9z-4a^4z^2-3a^6z^2+a^8z^2+a^5z^3+a^7z^3+a^4z^4+a^6z^4\right\}, \left\{\text{Kauffman},\right.$
$\left.\text{Knot}[5, 2], -a^2+a^4+a^6-2a^5z-2a^7z+a^2z^2-a^4z^2-2a^6z^2+a^3z^3+2a^5z^3+a^7z^3+a^4z^4+a^6z^4\right\},$
{Khovanov-Rozansky Polynomial, Knot[0, 1], $Failed},
{Khovanov-Rozansky Polynomial, Knot[3, 1], $Failed},
{Khovanov-Rozansky Polynomial, Knot[4, 1], $Failed},
{Khovanov-Rozansky Polynomial, Knot[5, 1], $Failed},
{Khovanov-Rozansky Polynomial, Knot[5, 2], $Failed}, {Vassiliev2, Knot[0, 1], 0},
{Vassiliev2, Knot[3, 1], 1}, {Vassiliev2, Knot[4, 1], -1}, {Vassiliev2, Knot[5, 1], 3},

```
 {Vassiliev2, Knot[5, 2], 2}, {Vassiliev3, Knot[0, 1], 0}, {Vassiliev3, Knot[3, 1], -1},
 {Vassiliev3, Knot[4, 1], 0}, {Vassiliev3, Knot[5, 1], -5},
 {Vassiliev3, Knot[5, 2], -3}, {Thurston-Bennequin Number, Knot[0, 1], $Failed},
 {Thurston-Bennequin Number, Knot[3, 1], $Failed},
 {Thurston-Bennequin Number, Knot[4, 1], $Failed},
 {Thurston-Bennequin Number, Knot[5, 1], $Failed},
 {Thurston-Bennequin Number, Knot[5, 2], $Failed}}
```

This writes it into the Knot Atlas! StoreInvariants returns a list of failures, so if this returns an empty list, all is going well!

```
StoreInvariants[data1, "KnotAtlas"]
```

```
{}
```

```
RetrieveInvariants[{"Next Knot"}, AllKnots[6], "KnotAtlas"]
```

```
{{Next Knot, Knot[6, 1], Knot[6, 2]},
 {Next Knot, Knot[6, 2], Knot[6, 3]}, {Next Knot, Knot[6, 3], Knot[7, 1]}}
```

```
FindDataDiscrepancies[Invariants["KnotTheory` Knot Invariants"],
 AllKnots[3], "KnotTheory", "KnotAtlas"]
```

```
Sorry, I don't know how to calculate the invariant Thurston-Bennequin Number using KnotTheory`.
```

```
{}
```

We can also retrieve data from Charles Livingston's KnotInfo server, automatically.

```
RetrieveInvariants[{"Khovanov s-Invariant"}, AllKnots[{3, 6}], "KnotInfo"]
```

```
{{Khovanov s-Invariant, Knot[3, 1], -2},
 {Khovanov s-Invariant, Knot[4, 1], 0}, {Khovanov s-Invariant, Knot[5, 1], -4},
 {Khovanov s-Invariant, Knot[5, 2], -2}, {Khovanov s-Invariant, Knot[6, 1], 0},
 {Khovanov s-Invariant, Knot[6, 2], -2}, {Khovanov s-Invariant, Knot[6, 3], 0}}
```

```
StoreInvariants[
 RetrieveInvariants[{"Khovanov s-Invariant"}, AllKnots[11], "KnotInfo"], "KnotAtlas"]
```

```
{}
```

And, of course, then write this into the KnotAtlas.

```
StoreInvariants[RetrieveInvariants[{"Conway Notation"}, AllKnots[4], "KnotInfo"],
  "KnotAtlas"] // AbsoluteTiming
```

```
{11.9071216 Second, {}}
```

```
RetrieveInvariants[{"Concordance Order"}, AllKnots[6], "KnotInfo"]
```

```
{{Concordance Order, Knot[3, 1], ∞},
 {Concordance Order, Knot[4, 1], 2}, {Concordance Order, Knot[5, 1], ∞},
 {Concordance Order, Knot[5, 2], ∞}, {Concordance Order, Knot[6, 1], 1},
 {Concordance Order, Knot[6, 2], ∞}, {Concordance Order, Knot[6, 3], 2}}
```

```
RetrieveInvariants[{"Ozsvath-Szabo Tau Invariant"}, AllKnots[{3, 6}], "KnotAtlas"]
```

```
{{Ozsvath-Szabo Tau Invariant, Knot[3, 1], 1},
 {Ozsvath-Szabo Tau Invariant, Knot[4, 1], 0},
 {Ozsvath-Szabo Tau Invariant, Knot[5, 1], 2},
 {Ozsvath-Szabo Tau Invariant, Knot[5, 2], 1},
 {Ozsvath-Szabo Tau Invariant, Knot[6, 1], 0},
 {Ozsvath-Szabo Tau Invariant, Knot[6, 2], 1},
 {Ozsvath-Szabo Tau Invariant, Knot[6, 3], 0}}
```

```
StoreInvariants[
 RetrieveInvariants[{"Conway Notation"}, AllKnots[{3, 6}], "KnotInfo"], "KnotAtlas"]
```

```
{}
```

```
RetrieveInvariants[{"Conway Notation"}, AllKnots[{3, 6}], "KnotAtlas"]
```

```
{{Conway Notation, Knot[3, 1], [3]},
 {Conway Notation, Knot[4, 1], [22]}, {Conway Notation, Knot[5, 1], [5]},
 {Conway Notation, Knot[5, 2], [32]}, {Conway Notation, Knot[6, 1], [42]},
 {Conway Notation, Knot[6, 2], [312]}, {Conway Notation, Knot[6, 3], [2112]}}
```

```
StoreInvariants[RetrieveInvariants[{"Conway Notation"}, AllKnots[7], "KnotInfo"],
  "KnotAtlas"] // AbsoluteTiming
```

```
{9.3033776 Second, {}}
```

```
StoreInvariants[RetrieveInvariants[{"Conway Notation", "Ozsvath-Szabo Tau Invariant"},
   AllKnots[{3, 7}], "KnotInfo"], "KnotAtlas"] // AbsoluteTiming
```

```
{4.4363792 Second, {}}
```

```
StoreInvariants[RetrieveInvariants[{"Thurston-Bennequin Number"},
   AllKnots[9], "KnotInfo"], "KnotAtlas"] // AbsoluteTiming
```

```
{74.4570640 Second, {}}
```

```
StoreInvariants[RetrieveInvariants[{"Thurston-Bennequin Number"},
   AllKnots[10], "KnotInfo"], "KnotAtlas"] // AbsoluteTiming
```

```
{248.6174944 Second, {}}
```

```
StoreInvariants[RetrieveInvariants[{"Thurston-Bennequin Number"},
   AllKnots[{3, 6}], "KnotInfo"], "KnotAtlas"] // AbsoluteTiming
```

```
{5.6581360 Second, {}}
```

```
StoreInvariants[RetrieveInvariants[{"Conway Notation", "Ozsvath-Szabo Tau Invariant"},
   AllKnots[8], "KnotInfo"], "KnotAtlas"] // AbsoluteTiming
```

```
{4.2861632 Second, {}}
```

```
StoreInvariants[RetrieveInvariants[{"Conway Notation", "Ozsvath-Szabo Tau Invariant"},
   AllKnots[9], "KnotInfo"], "KnotAtlas"] // AbsoluteTiming
```

```
{56.7916624 Second, {}}
```

```
StoreInvariants[RetrieveInvariants[{"Conway Notation", "Ozsvath-Szabo Tau Invariant"},
   AllKnots[10], "KnotInfo"], "KnotAtlas"] // AbsoluteTiming
```

{194.2593312 Second, {}}

```
StoreInvariants[RetrieveInvariants[{"Conway Notation", "Ozsvath-Szabo Tau Invariant"},
   AllKnots[11, Alternating], "KnotInfo"], "KnotAtlas"] // AbsoluteTiming
```

{11.6868048 Second, {}}

```
StoreInvariants[RetrieveInvariants[{"Conway Notation"}, AllKnots[11], "KnotInfo"],
  "KnotAtlas"] // AbsoluteTiming
```

{231.8834320 Second, {}}

```
StoreInvariants[RetrieveInvariants[{"Hyperbolic Volume"}, AllKnots[8], "KnotInfo"],
  "KnotAtlas"] // AbsoluteTiming
```

{25.4065328 Second, {}}

```
StoreInvariants[RetrieveInvariants[{"Hyperbolic Volume"}, AllKnots[9], "KnotInfo"],
  "KnotAtlas"] // AbsoluteTiming
```

{59.8861120 Second, {}}

```
StoreInvariants[RetrieveInvariants[{"Hyperbolic Volume"}, AllKnots[10], "KnotInfo"],
  "KnotAtlas"] // AbsoluteTiming
```

{57.0520368 Second, {}}

```
StoreInvariants[RetrieveInvariants[{"Hyperbolic Volume"},
   AllKnots[11, Alternating], "KnotInfo"], "KnotAtlas"] // AbsoluteTiming
```

{295.0342384 Second, {}}

```
StoreInvariants[RetrieveInvariants[{"Hyperbolic Volume"},
   AllKnots[11, NonAlternating], "KnotInfo"], "KnotAtlas"] // AbsoluteTiming
```

{14.5809664 Second, {}}

```
WikiGetPageText["Data:5_1/HyperbolicVolume"]
```

Not hyperbolic

```
StoreInvariants[RetrieveInvariants[Invariants["KnotTheory` Knot Invariants"],
   AllKnots[{0, 6}], "KnotTheory"], "KnotAtlas"] // AbsoluteTiming
```

{1.7124624 Second, {}}

```
StoreInvariants[RetrieveInvariants[Invariants["KnotTheory` Knot Invariants"],
   AllKnots[7], "KnotTheory"], "KnotAtlas"] // AbsoluteTiming
```

{1.2918576 Second, {}}

```
StoreInvariants[RetrieveInvariants[Invariants["KnotTheory` Knot Invariants"],
   AllKnots[8], "KnotTheory"], "KnotAtlas"] // AbsoluteTiming
```

{17.2447968 Second, {}}

```
StoreInvariants[RetrieveInvariants[Invariants["KnotTheory` Knot Invariants"],
   AllKnots[9], "KnotTheory"], "KnotAtlas"] // AbsoluteTiming
```

```
{46.1363408 Second, {}}
```

```
StoreInvariants[RetrieveInvariants[Invariants["KnotTheory` Knot Invariants"],
   AllKnots[10], "KnotTheory"], "KnotAtlas"] // AbsoluteTiming
```

```
StoreInvariants[RetrieveInvariants[Invariants["KnotTheory` Knot Invariants"],
   AllKnots[11], "KnotTheory"], "KnotAtlas"] // AbsoluteTiming
```

```
StoreInvariants[RetrieveInvariants[Invariants["KnotTheory` Link Invariants"],
   AllLinks[{1, 5}], "KnotTheory"], "KnotAtlas"] // AbsoluteTiming
```

```
KnotTheory::loading : Loading precomputed data in Jones4Links`.

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

Power::infy : Infinite expression 1/0 encountered. More...

Power::infy : Infinite expression 1/0 encountered. More...

Power::infy : Infinite expression 1/0 encountered. More...

General::stop : Further output of Power::infy will be suppressed during this calculation. More...

KnotTheory::loading : Loading precomputed data in Kauffman4Links`.

General::stop : Further output of KnotTheory::loading will be suppressed during this calculation. More...

{3.0744208 Second, {}}
```

```
StoreInvariants[RetrieveInvariants[Invariants["KnotTheory` Link Invariants"],
   AllLinks[], "KnotTheory"], "KnotAtlas"] // AbsoluteTiming
```

Further examples

```
RetrieveInvariant["Next Knot", Knot[10, 20], "KnotTheory"]
```

```
Knot[10, 21]
```

```
RetrieveInvariants[{"Next Knot", "Previous Knot"},
 {Knot[10, 20], Knot[10, 21]}, "KnotTheory"]
```

```
{{Next Knot, Knot[10, 20], Knot[10, 21]}, {Next Knot, Knot[10, 21], Knot[10, 22]},
 {Previous Knot, Knot[10, 20], Knot[10, 19]}, {Previous Knot, Knot[10, 21], Knot[10, 20]}}
```

```
RetrieveInvariant["Next Knot", Knot[10, 20], "KnotAtlas"]
```

```
Knot[10, 22]
```

```
RetrieveInvariant["Next Knott", Knot[10, 20], "KnotAtlas"]
```

```
I don't recognise the invariant Next Knott.

$Failed
```

```
RetrieveInvariants[{"Next Knot", "Previous Knot"},
 {Knot[10, 20], Knot[10, 21]}, "KnotAtlas"]
```

```
{{Next Knot, Knot[10, 20], Knot[10, 22]}, {Next Knot, Knot[10, 21], Knot[10, 22]},
 {Previous Knot, Knot[10, 20], Knot[10, 19]}, {Previous Knot, Knot[10, 21], Knot[10, 20]}}
```

```
data = RetrieveInvariants[Invariants["Navigation"], AllKnots[{0, 4}], "KnotTheory"]
```

```
{{Next Knot, Knot[0, 1], Knot[3, 1]}, {Next Knot, Knot[3, 1], Knot[4, 1]},
 {Next Knot, Knot[4, 1], Knot[5, 1]}, {Previous Knot, Knot[0, 1], Knot[0, 1]},
 {Previous Knot, Knot[3, 1], Knot[0, 1]}, {Previous Knot, Knot[4, 1], Knot[3, 1]}}
```

```
StoreInvariants[data, "KnotAtlas", Write → False]
```

```
{{Data:0_1/Next_Knot, 3_1}, {Data:3_1/Next_Knot, 4_1},
 {Data:4_1/Next_Knot, 5_1}, {Data:0_1/Previous_Knot, 0_1},
 {Data:3_1/Previous_Knot, 0_1}, {Data:4_1/Previous_Knot, 3_1}}
```

```
StoreInvariants[data, "KnotAtlas"]
```

```
{}
```

Now we'll simulate a vandal, and use FindDataDiscrepancies to reveal the problem.

```
realData = RetrieveInvariants[{"Next Knot"}, {Knot[10, 20]}, "KnotTheory"]
```

```
{{Next Knot, Knot[10, 20], Knot[10, 21]}}
```

Make some fake data instead

```
fakeData = {{"Next Knot", Knot[10, 20], Knot[10, 22]}};
```

```
StoreInvariants[fakeData, "KnotAtlas"]
```

```
{}
```

```
RetrieveInvariants[{"Next Knot"}, {Knot[10, 20]}, "KnotAtlas"]
```

```
{{Next Knot, Knot[10, 20], Knot[10, 22]}}
```

Mwhahaha! Our virtual vandal has succeeded to putting erroneous data in the Knot Atlas. However, now it's easy to catch!

```
FindDataDiscrepancies[{"Next Knot"}, {Knot[10, 20]}, "KnotTheory", "KnotAtlas"]
```

```
{}
```

Now clean up our mess!

```
StoreInvariants[realData, "KnotAtlas"]
```

```
{}
```

Reformatting the Invariant Definition Table on the wiki.

```
LoadInvariantRules["Invariant_Definition_Table"];
```

```
CreateWikiConnection[
 "http://katlas.math.toronto.edu/w/index.php",
 "Scott",
 InputString["Enter Your Password"]
]
```

```
WikiUserName[]
```

```
Scott
```

```
WikiSetPageText["Invariant Definition Table",
 InvariantDefinitionTable[DeleteCases[Invariants[], _RuleDelayed]]]
```

```
True
```