Using \Input

This simple example shows how `\Input` can be used in include other LaTeX sources within the host source. Note the use of nested `\Input`'s. The merged file can be inspected by running

```
merge-tex.py  -i example-10.tex  -o merged.tex
```

from the command line. The merged file will be named `merged.tex`.

Source of example-10.tex

```
\Input{./example-10/limits/limits.tex}
\Input{./example-10/calculus/calculus.tex}
```

Source of example-10/limits/limits.tex

```
\section*{Limits}

\begin{python}
   from sympy import *
   a, n, x, dx = symbols('a n x dx')
   ans = limit(sin(4*x)/x,x,0)                  # py (ans.301,ans)
   ans = limit(2**x/x,x,oo)                     # py (ans.302,ans)
   ans = limit(((x+dx)**2 - x**2)/dx, dx,0)     # py (ans.303,ans)
   ans = limit((4*n + 1)/(3*n - 1),n,oo)        # py (ans.304,ans)
   ans = limit((1+(a/n))**n,n,oo)               # py (ans.305,ans)
\end{python}

\begin{align*}
   &\py*{ans.301}\\
   &\py*{ans.302}\\
   &\py*{ans.303}\\
   &\py*{ans.304}\\
   &\py*{ans.305}
\end{align*}
```

Source of example-10/calculus/calculus.tex

```
\Input{./example-10/calculus/derivs/derivs.tex}
\Input{./example-10/calculus/integrals/integrals.tex}
```

Source of example-10/calculus/derivs/derivs.tex

```
\section*{Differentiation}

\begin{python}
   ans = diff(x*sin(x),x)                                  # py (ans.501,ans)
   ans = diff(x*sin(x),x).subs(x,pi/4)                     # py (ans.502,ans)
\end{python}

\begin{align*}
   &\py*{ans.501}\\
   &\py*{ans.502}
\end{align*}
```

Source of example-10/calculus/integrals/integrals.tex

```
\section*{Integration}

\begin{python}
   a, b, x, y = symbols('a b x y')
   ans = integrate(2*sin(x)**2, (x,a,b))                   # py (ans.503,ans)
   ans = Integral(2*exp(-x**2), (x,0,oo))                  # py (lhs.504,ans)
   ans = ans.doit()                                        # py (ans.504,ans)
   ans = Integral(Integral(x**2 + y**2, (y,0,x)), (x,0,1)) # py (lhs.505,ans)
   ans = ans.doit()                                        # py (ans.505,ans)
\end{python}

\begin{align*}
   &\py*{ans.503}\\
    \py{lhs.504}&=\Py{ans.504}\\
    \py{lhs.505}&=\Py{ans.505}
\end{align*}
```

Limits

```
from sympy import *
a, n, x, dx = symbols('a n x dx')
ans = limit(sin(4*x)/x,x,0)                    # py (ans.301,ans)
ans = limit(2**x/x,x,oo)                       # py (ans.302,ans)
ans = limit(((x+dx)**2 - x**2)/dx, dx,0)       # py (ans.303,ans)
ans = limit((4*n + 1)/(3*n - 1),n,oo)          # py (ans.304,ans)
ans = limit((1+(a/n))**n,n,oo)                 # py (ans.305,ans)
```

$$\texttt{ans.301} := 4$$
$$\texttt{ans.302} := \infty$$
$$\texttt{ans.303} := 2x$$
$$\texttt{ans.304} := \frac{4}{3}$$
$$\texttt{ans.305} := e^{a}$$

Differentiation

```
ans = diff(x*sin(x),x)                         # py (ans.501,ans)
ans = diff(x*sin(x),x).subs(x,pi/4)            # py (ans.502,ans)
```

$$\texttt{ans.501} := x\cos\left(x\right) + \sin\left(x\right)$$
$$\texttt{ans.502} := \frac{\sqrt{2}\pi}{8} + \frac{\sqrt{2}}{2}$$

Integration

```
a, b, x, y = symbols('a b x y')
ans = integrate(2*sin(x)**2, (x,a,b))          # py (ans.503,ans)
ans = Integral(2*exp(-x**2), (x,0,oo))         # py (lhs.504,ans)
```

```
ans = ans.doit()                                          # py (ans.504,ans)
ans = Integral(Integral(x**2 + y**2, (y,0,x)), (x,0,1))   # py (lhs.505,ans)
ans = ans.doit()                                          # py (ans.505,ans)
```

$$\texttt{ans.503} := -a + b + \sin(a)\cos(a) - \sin(b)\cos(b)$$

$$\int_0^\infty 2e^{-x^2}\,dx = \sqrt{\pi} \tag{ans.504}$$

$$\int_0^1 \int_0^x \left(x^2 + y^2\right)\,dy\,dx = \frac{1}{3} \tag{ans.505}$$