

Graficas punto 1

November 13, 2018

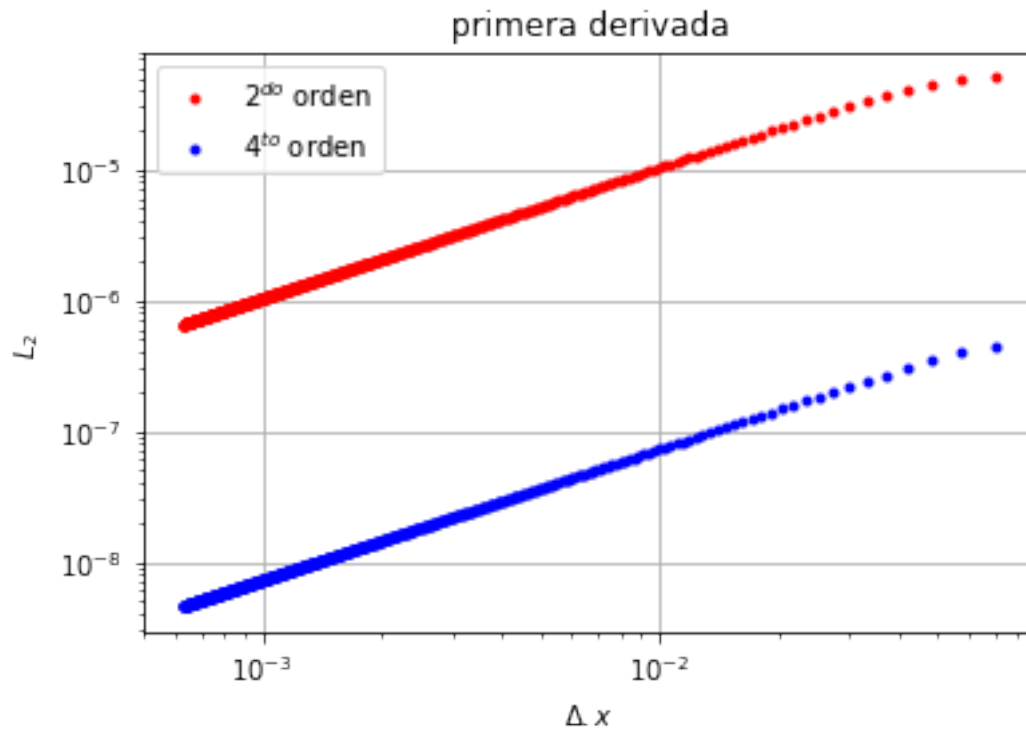
```
In [1]: import numpy as np
import matplotlib.pyplot as plt
import scipy as sp
%matplotlib inline
```

1 Primera derivada

```
In [47]: d1 = np.loadtxt('d1_2do.dat', unpack = True)
d2 = np.loadtxt('d1_4to.dat', unpack = True)

plt.loglog(d1[0],d1[1],"r.",label="$2^{\text{do}}$ orden")
plt.loglog(d2[0],d2[1],"b.",label="$4^{\text{to}}$ orden")

plt.grid(True)
plt.xlabel("$\\Delta.x$")
plt.ylabel("$L_{2}$")
plt.title("primera derivada")
plt.legend()
plt.savefig("1_derivada_df.eps",format = "eps", dpi =400)
```

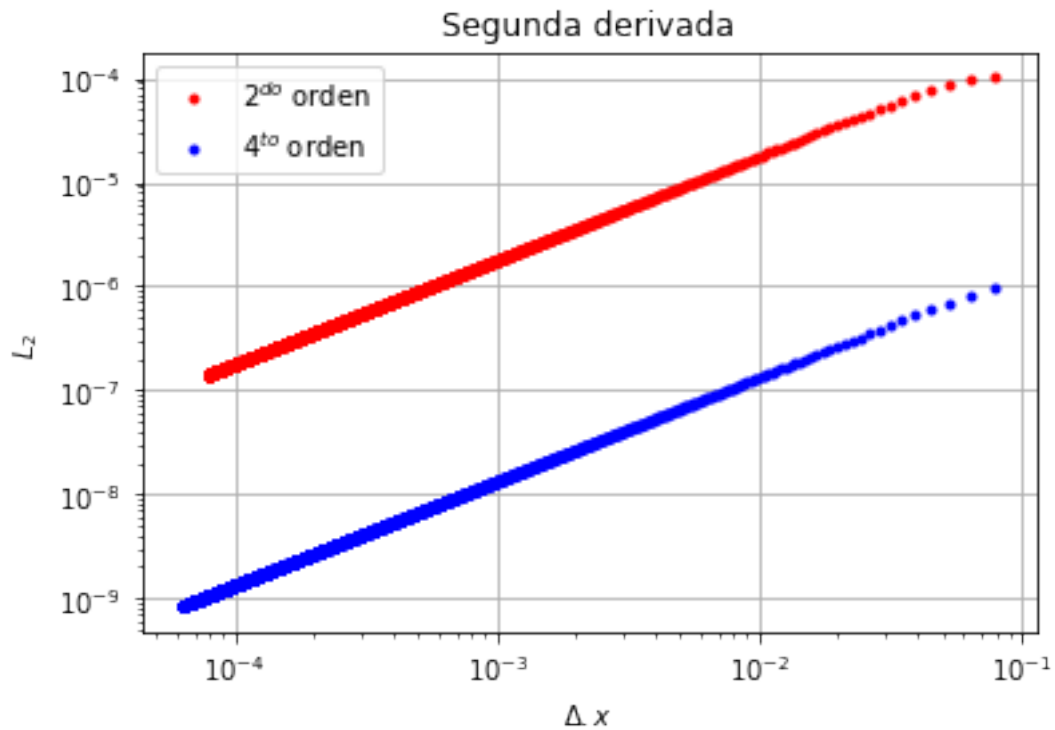


2 Segunda derivada

```
In [48]: d3 = np.loadtxt('d2_4to.dat', unpack = True)
         d4 = np.loadtxt('d2_6to.dat', unpack = True)

plt.loglog(d3[0],d3[1],"r.",label="$2^{\text{do}}$ orden")
plt.loglog(d4[0],d4[1],"b.",label="$4^{\text{to}}$ orden")

plt.grid(True)
plt.xlabel("$\\Delta x$")
plt.ylabel("$L_{2}$")
plt.title("Segunda derivada")
plt.legend()
plt.savefig("2_derivada_df.eps",format = "eps", dpi =400)
```



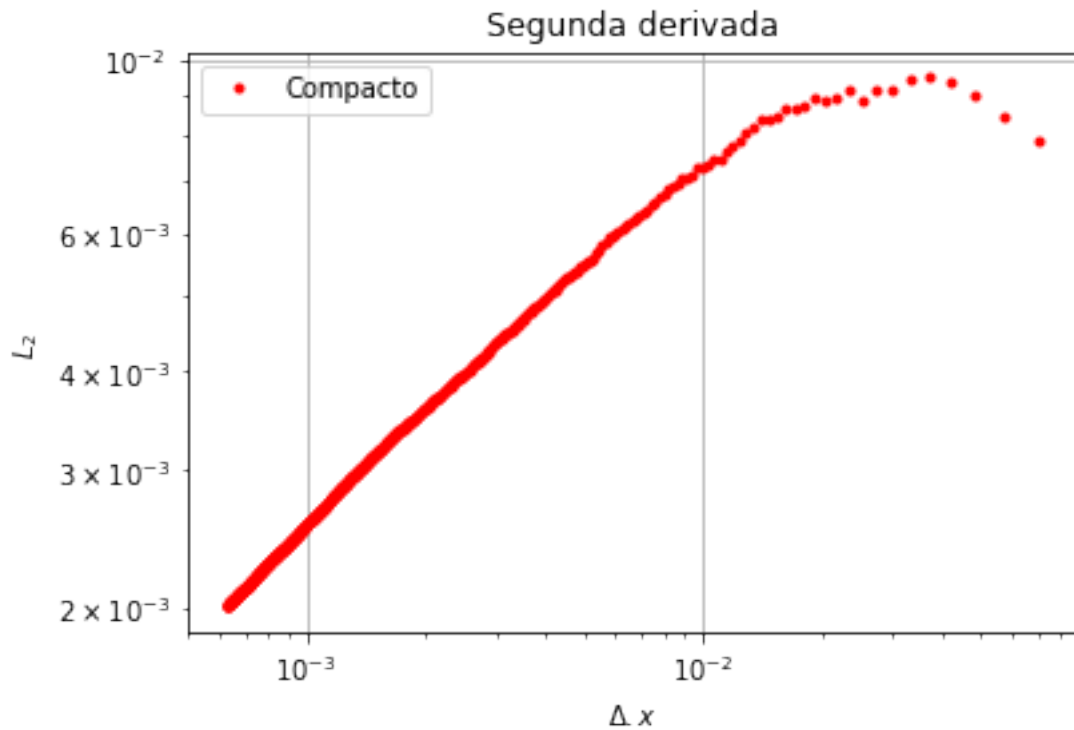
3 Esquemas compactos

3.1 primera derivada

In [49]: `c1 = np.loadtxt('c1.dat', unpack = True)`

```
plt.loglog(c1[0],c1[1],"r.",label="Compacto")
```

```
plt.grid(True)
plt.xlabel("$\\Delta x$")
plt.ylabel("$L_{2}$")
plt.title("Segunda derivada")
plt.legend()
plt.savefig("1_derivada_c.eps",format = "eps", dpi =400)
```

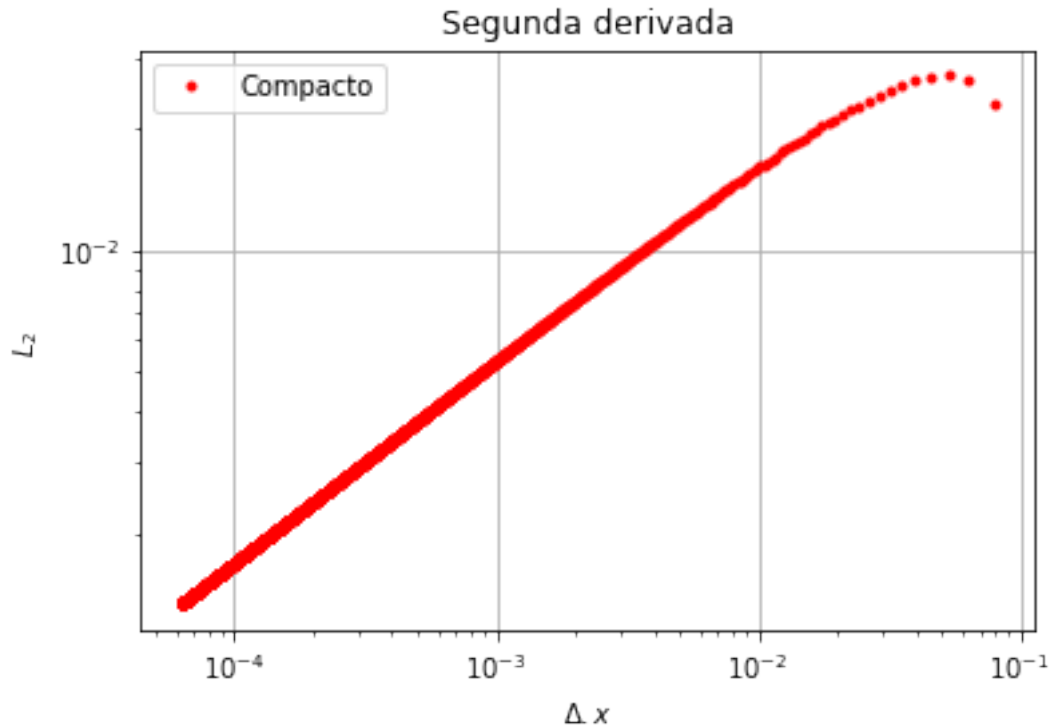


4 Segunda derivada

```
In [50]: c2 = np.loadtxt('c2.dat', unpack = True)

plt.loglog(c2[0],c2[1],"r.",label="Compacto")

plt.grid(True)
plt.xlabel("$\\Delta x$")
plt.ylabel("$L_{2}$")
plt.title("Segunda derivada")
plt.legend()
plt.savefig("2_derivada_c.eps",format = "eps", dpi =400)
```

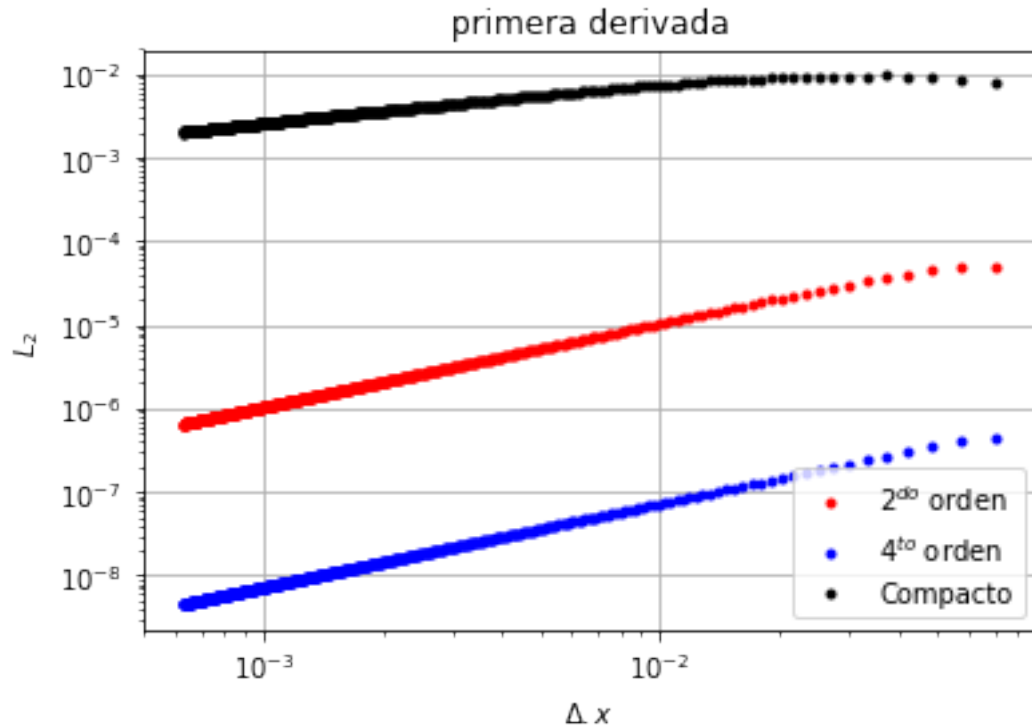


5 Comparación de la primera derivada para los tres métodos

```
In [51]: d1 = np.loadtxt('d1_2do.dat', unpack = True)
         d2 = np.loadtxt('d1_4to.dat', unpack = True)
         c1 = np.loadtxt('c1.dat', unpack = True)

         plt.loglog(d1[0],d1[1],"r.",label="$2^{\text{do}}$ orden")
         plt.loglog(d2[0],d2[1],"b.",label="$4^{\text{to}}$ orden")
         plt.loglog(c1[0],c1[1],"k.",label="Compacto")

         plt.grid(True)
         plt.xlabel("$\\Delta x$")
         plt.ylabel("$L_{2}$")
         plt.title("primera derivada")
         plt.legend()
         plt.savefig("1_derivada.eps",format = "eps", dpi =400)
```



6 Comparación de la segunda derivada para los tres métodos

```
In [52]: d3 = np.loadtxt('d2_4to.dat', unpack = True)
d4 = np.loadtxt('d2_6to.dat', unpack = True)
c2 = np.loadtxt('c2.dat', unpack = True)

plt.loglog(d3[0],d3[1],"r.",label="$2^{\text{do}}$ orden")
plt.loglog(d4[0],d4[1],"b.",label="$4^{\text{to}}$ orden")
plt.loglog(c2[0],c2[1],"k.",label="Compacto")

plt.grid(True)
plt.xlabel("$\\Delta x$")
plt.ylabel("$L_{2}$")
plt.title("Segunda derivada")
plt.legend()
plt.savefig("2_derivada.eps",format = "eps", dpi =400)
```

