myDel - non-uniform

This document is broken into several sections, denoted by a series of letters C and F. The first letter denotes the space that the operator is operating on, the second is the intermediate location (for second derivatives), and the third letter denotes the final location of the space.

# CCC or FFF

CCC or FFF implies that the data

## Central differencing

Let

This results in

### 1st derivative

or, in short

where

### 2nd derivative

or, in short

where

# Forward differencing

Let

This results in

## 1st derivative

Or

in short we have

where

## 2nd derivative

Or

Or

# Backward differencing

Let

This results in

## 1st derivative

Or

Or, in short

where

NOTE that the indexes for range from only . Therefore we have:

where

## 2nd derivative

Or

Or

Finally