

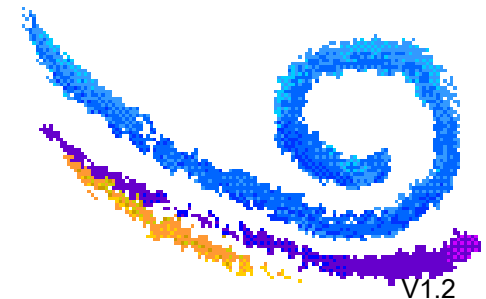
# IBM Enterprise COBOL

Work with a subset of a DISPLAY or NATIONAL  
data item

# Grabbing a subset of a string: Reference Modification

---

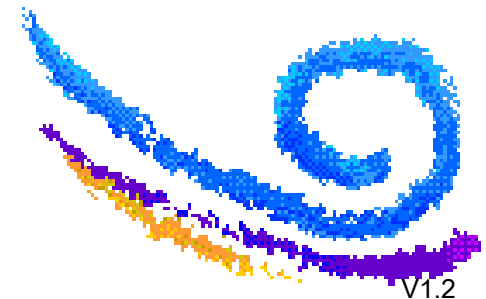
- ▶ You can work with character string data and extract just a subset of a character field
  - This is called "substring" in most languages, but "reference modification" in COBOL
  - The syntax is: *data\_name*(*start*:[*length*])



# Reference Modification, 2

---

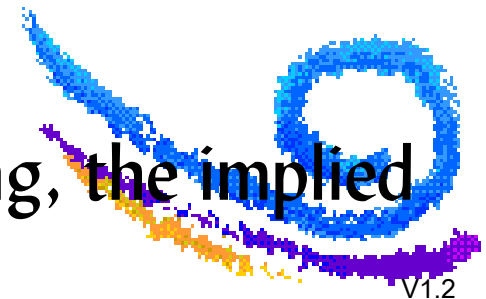
- ▶ The syntax is: *data\_name*(*start*: [*length*])
  - That is, name the field and follow it with a specification of which character to start at and how many characters to extract
  - Note that if *data\_name* is NATIONAL, each character is two bytes long



# Reference Modification, 3

---

- ▶ The syntax is: *data\_name*(*start*: [*length*])
  - *start* and *length* may each be any of: numeric literals, numeric data items, or numeric expressions
    - *start* must evaluate to an integer greater than 0 and less than the total length of *data\_name*
    - *length* must evaluate to an integer such that adding its value to *start* does not put you past the end of *data\_name*
  - The colon must be present; if *length* is missing, the implied length is "the rest of *data\_name*"



# Reference Modification, 4

---

## ► Some examples of using reference modification:

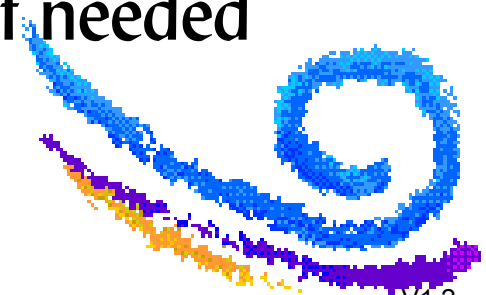
```
move fielda to fieldb (5:7) - move fielda to locations 5-11 of fieldb
```

```
move fielda (N:3) to fieldb - move data from fielda starting at the position indicated  
by the field N for a length of 3 bytes to fieldb
```

```
move fielda (M + 2:) to fieldb (3: (xy - 3)/2)  
- move data starting at position "M+2" to the end of fielda  
to the third character of fieldb for a length of (xy-3)/2
```

## ► Notes:

- Standard rules for character string moves apply -
  - Source is left justified in the target and padded on the right with spaces or truncated on the right, if needed
- If evaluating either *start* or *length* produces a non-integer, any fractional part is truncated



# Reference Modification, 5

---

- ▶ Reference modification is generally allowed anywhere a DISPLAY or NATIONAL data item is allowed

```
display 'Last name is ' LName (1:len)
```

```
if answer (5:5) = 'COBOL' ...
```

```
evaluate policy-no (12:2)
```

```
  when 'HR' ...
```

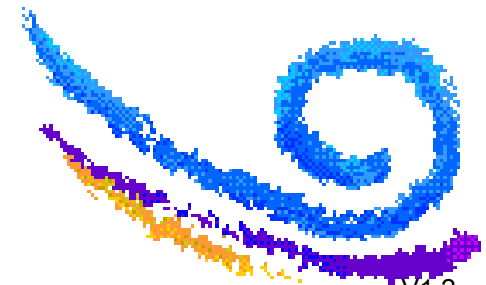
```
  when 'IS' ...
```

```
  .
```

```
  .
```

```
  .
```

```
end-evaluate
```





6790 East Cedar Avenue, Suite 201  
Denver, Colorado 80224  
USA

<http://www.trainersfriend.com>  
303.393.8716

Sales: [kitty@trainersfriend.com](mailto:kitty@trainersfriend.com)  
Technical: [steve@trainersfriend.com](mailto:steve@trainersfriend.com)