**Prefix, Infix, and Postfix Notation**

Let

* $f$be a binary operation and
* $e_1$, $e_2$two expressions

We can write $f(e_1,e_2)$in

|  |  |
| --- | --- |
| **prefix** notation | $f\ e_1\ e_2$ |
| **infix** notation | $e_1\ f\ e_2$ |
| **postfix** notation | $e_1\ e_2\ f$ |

Infix is the worst notation: it requires parantheses, the other two do not!

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **prefix** | + x y |  |  |  |
| **infix** | x + y |  |  |  |
| **postfix** | x y + |  |  |  |

---------

+

x y

---------

+

\* z

x y

---------

+

x \*

y z

---------

\*

x +

y z

---------

+

+ u

+ z

x y

---------

|  |  |  |
| --- | --- | --- |
| **prefix** | + + + x y z u | + x + y + z u |
| **infix** | ( ( x + y ) + z ) + u | x + (y + (z + u )) |
| **postfix** | x y + z + u + | x y z u + + + |

---------

+

+ u

+ z

x y

---------

+

x +

y +

z u

---------

Other names:

* prefix = [Polish notation](http://en.wikipedia.org/wiki/Polish%20notation) (attributed to [Jan Lukasiewicz](http://en.wikipedia.org/wiki/Jan%20Lukasiewicz) from Poland)
* postfix = [Reverse Polish notation](http://en.wikipedia.org/wiki/Reverse%20Polish%20notation) (RPN)

Is the sequence of characters in postfix opposite to one in prefix?

Postfix will be of particular interest of us today