DRAFT PROPOSAL

DYALOG

Eastbourne 2026

One Extension and Seven New Primitives

Adám Brudzewsky



DYALOG

Eastbourne 2026

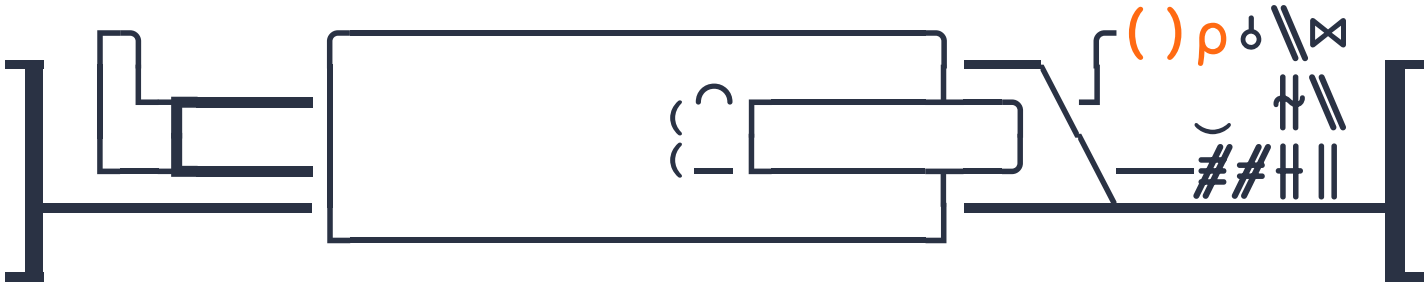
A FAIRY TALE

Snow White and the Seven Dwarfs

Adám Brudzewsky



Overview



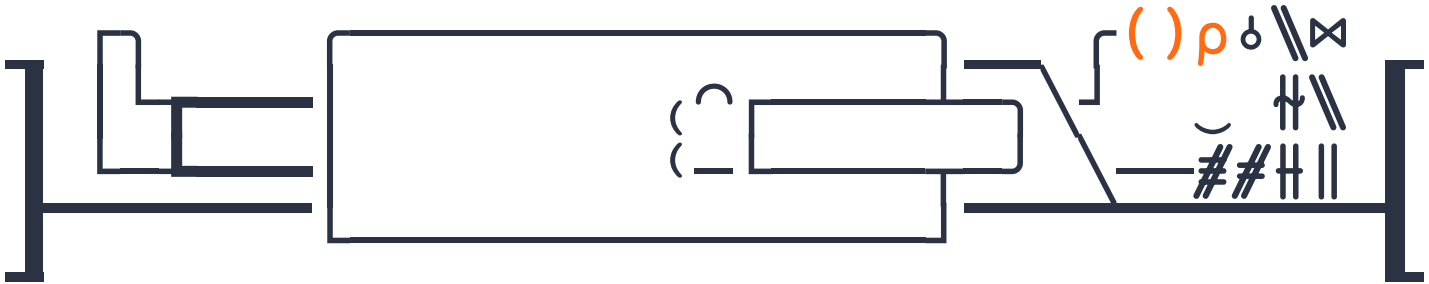
Snow White



Sorā Sorđ Prom Dem Binē Binđ Last

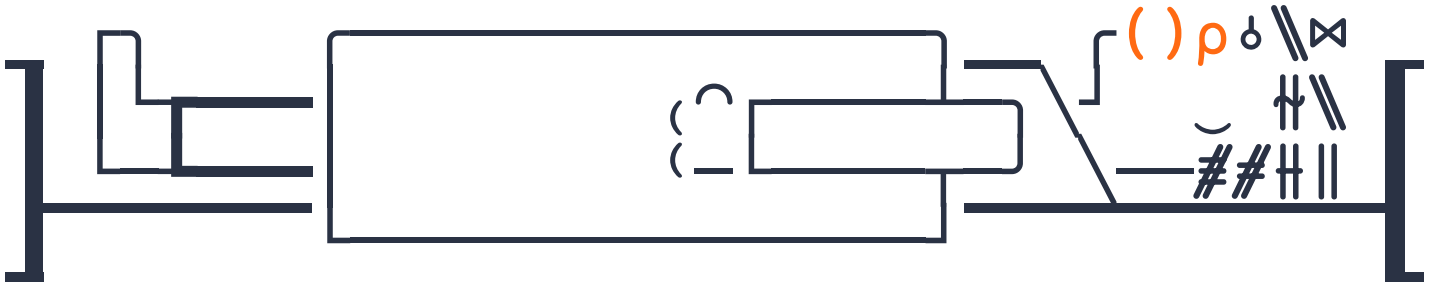
One Extension and Seven New Primitives

Reshape



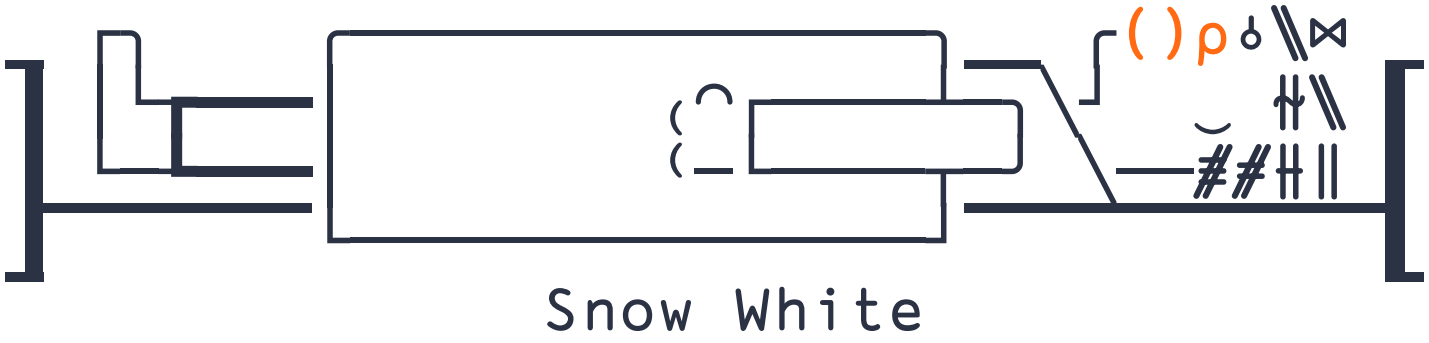

```
      ⍴
```

Reshape



```
      Snow White
      data←3 1 4 1 5 9
   ((≢data)÷2)2⍴data      2((≢data)÷2)⍴data
3 1 4                     3 1
1 5 9                     4 1
                          5 9
```

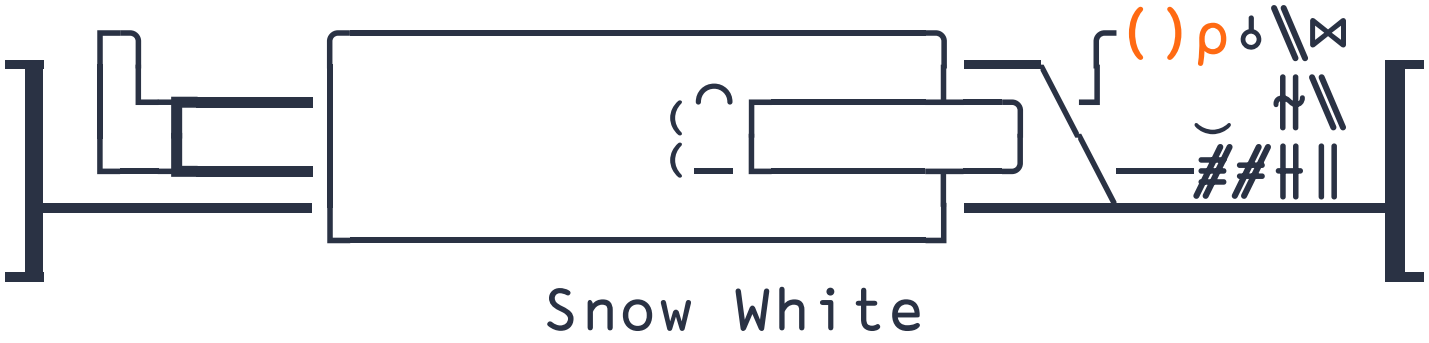
Reshape




```
()2⍴data
```

```
2()⍴data
```

Reshape

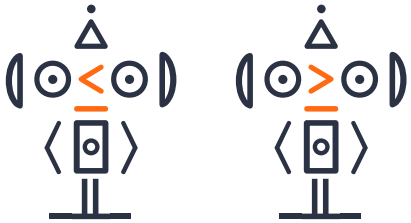



```
()2⍴data
```

```
2()⍴data
```

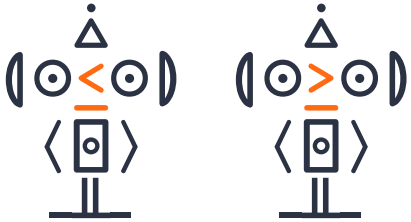
Sort Ascending & Descending

```
      {(⊂⍋⍵)⌷⍵} 3 1 4 1 5
1 1 3 4 5
```



Sort Ascending & Descending

```
      ⊂⍤⍋⌷⍵ 3 1 4 1 5
1 1 3 4 5
```



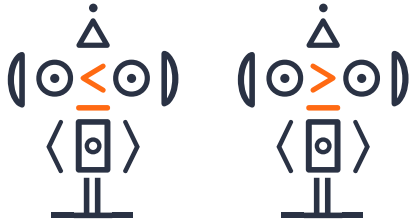
Sorā

Sorđ

Sort Ascending & Descending

```
      ≤ 3 1 4 1 5
1 1 3 4 5

      ≥ 3 1 4 1 5
5 4 3 1 1
```



Sorā Sord

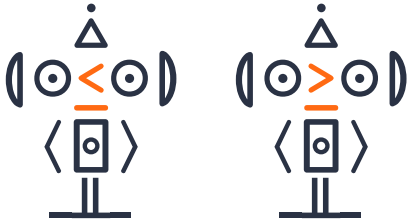
Sort Ascending & Descending

```
      ⍋ 3 1 4 1 5
1 1 3 4 5
```

```
      2 ⍋/ 1 1 3 4 5
1 1 1 1 1
```

```
      ⍒ 3 1 4 1 5
5 4 3 1 1
```

```
      2 ⍒/ 5 4 3 1 1
1 1 1 1 1
```



Sorā

Sorđ

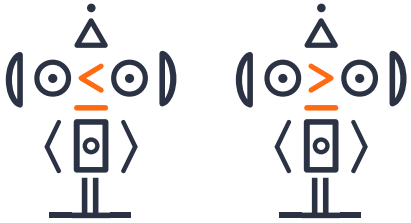
Sort Ascending & Descending

```
      ⍋ 3 1 4 1 5
1 1 3 4 5
```

```
      2 ⍋⌿ 1 1 3 4 5
1 1 1 1 1
```

```
      ⍒ 3 1 4 1 5
5 4 3 1 1
```

```
      2 ⍒⌿ 5 4 3 1 1
1 1 1 1 1
```



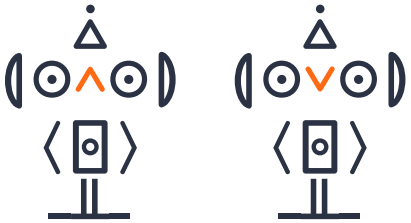
Sorā

Sorđ

Promote & Demote

```
,[÷2] 4 5 6
```

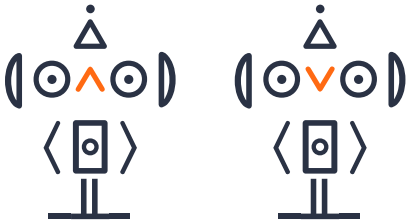
```
,[⍳2] rank3
```



Promote & Demote

```
⍉⍨ 4 5 6
```

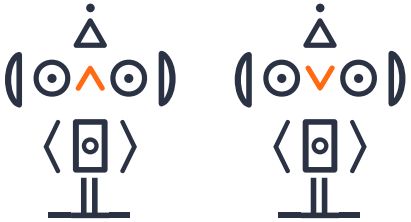
```
↑,↓ rank3
```



Promote & Demote

```
      ^ 4 5 6                    ⍒ rank3

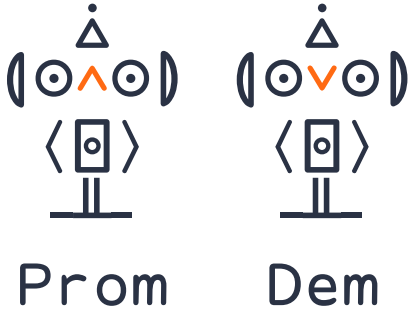
      4 5 6 ¯Ö^ 7 8 9
4 5 6
7 8 9
```



Promote & Demote

```
      ^ 4 5 6                    ⌄ rank3

      4 5 6 ¯Ö^ 7 8 9
4 5 6
7 8 9
```



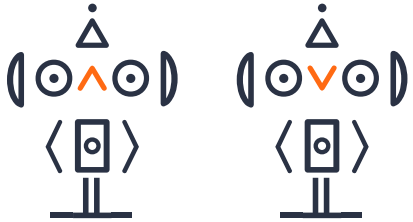


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Promote & Demote

```
      ^ 4 5 6
```

```
      4 5 6 ¯Ö^ 7 8 9
4 5 6
7 8 9
```




```
v rank3
```



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Promote & Demote

```
      ^ 4 5 6                    v rank3

      4 5 6 ¯Ö^ 7 8 9
4 5 6
7 8 9
```

```
 ⍙
(⊙^⊙)
 ⟨⊡⟩
  ‖
Prom
```

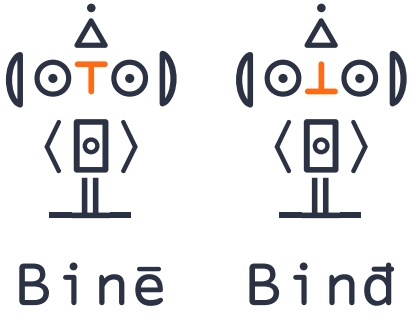
```
 ⍙
(⊙v⊙)
 ⟨⊡⟩
  ‖
Dem
```



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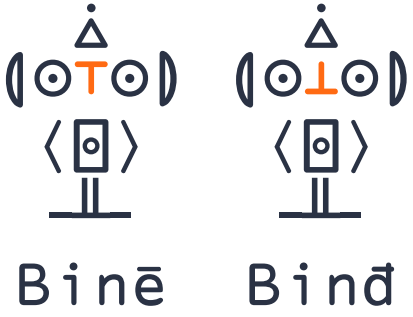
Binary Encode & Decode

```
      2 ⊥ ⍲/ (8⍴2) ⊤ 9 3
1 1
```



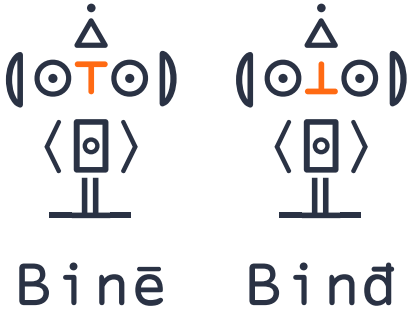
Binary Encode & Decode

```
      2 ⊥ ⍲/ 2 (⊥⍤¯1) 9 3
11
```



Binary Encode & Decode

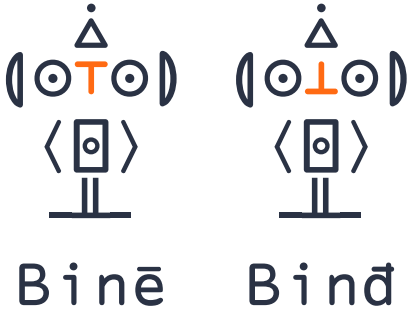
```
      2 ⊥ ⍲/ (8⍴2) ⊤ 9 3
1 1
```



Binary Encode & Decode

```
      ⊥ ⍲/ ⊤ 9 3
11
```

The value of x in a decimal system is denoted by $(10\in)\perp x$, and in a binary system by either $(2\in)\perp x$, or $\perp x$.



Last

```
      ⊃⌽ data
      ⊃⌽, highRankData

      (⊃,'-',⊃⍥⌽) 'MIL' 'LON'          ⊃⌽⍴ mat
MIL-LON
```



Last

Last

```
      ⍉ data
      ⍉ highRankData

    (⊃,'-',⍉) 'MIL' 'LON'                    ⍉⍴ mat
MIL-LON
```

	First	Last
Row	⊣⌿	⊢⌿
Column	⊣/	⊢/
Element	⊃	⍉



Last

Last

```
      ⊇ data
      ⊇ highRankData

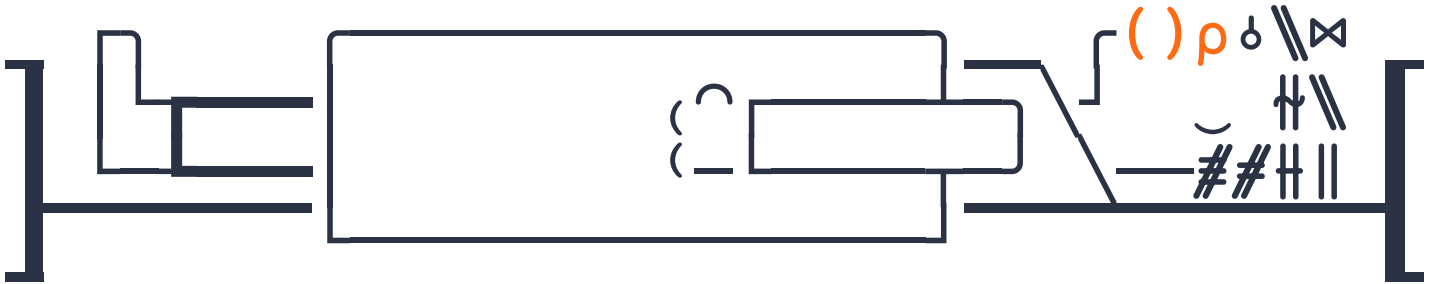
    (⊃,'-',⊇) 'MIL' 'LON'                    ⊇⍴ mat
MIL-LON
```

	First	Last
Row	⊣⌿	⊢⌿
Column	⊣/	⊢/
Element	⊃	⊇



Last

Summary

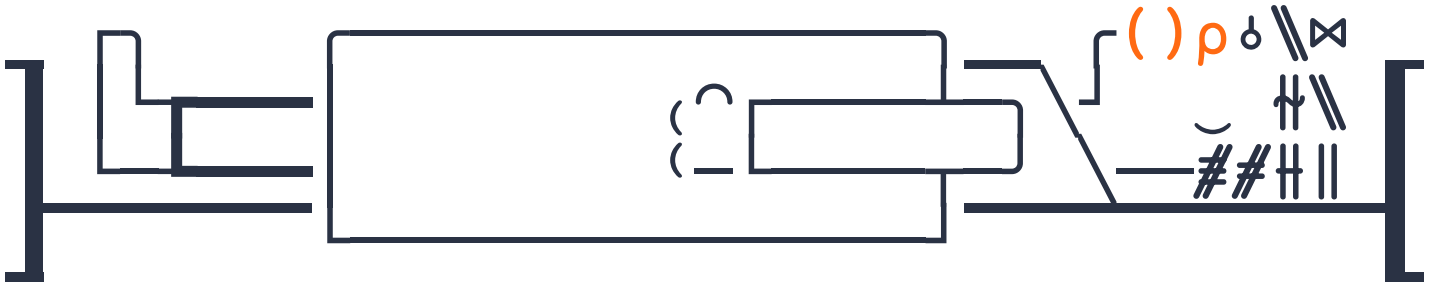


Snow White



Sorā Sorđ Prom Dem Binē Binđ Last

APL387 Unicode



Snow White



Sorā Sorđ Prom Dem Binē Binđ Last