

# Binding Strengths

For two entities **X** and **Y** that are adjacent in an expression (that is, **XY**), the binding strength between them and the result of the bind is shown in this table:

|   |     | Y |     |   |     |   |     |     |     |     |     |     |     |     |   |
|---|-----|---|-----|---|-----|---|-----|-----|-----|-----|-----|-----|-----|-----|---|
|   |     | A |     | F |     | H |     | MOP |     | DOP |     | DOT |     | IDX |   |
| X | A   | 6 | A   | 3 | AF  | 3 | AF  | 4   | F   |     |     | 7   | REF | 4   | A |
|   | F   | 2 | A   | 1 | F   | 4 | F   | 4   | F   |     |     |     |     | 4   | F |
|   | H   |   |     | 1 | F   | 4 | F   | 4   | F   |     |     |     |     | 4   | H |
|   | AF  | 2 | A   | 1 | F   |   |     |     |     |     |     |     |     |     |   |
|   | MOP |   |     |   |     | 4 | ERR |     |     |     |     |     |     |     |   |
|   | DOP | 5 | MOP | 5 | MOP | 5 | MOP |     |     |     |     |     |     |     |   |
|   | JOT | 5 | MOP | 5 | MOP | 5 | MOP | 4   | F   |     |     |     |     |     |   |
|   | DOT | 6 | ERR | 5 | MOP | 5 | MOP |     |     | 6   | ERR |     |     |     |   |
|   | REF | 7 | A   | 7 | F   | 7 | H   | 7   | MOP | 7   | DOP |     |     |     |   |
|   | IDX | 3 | ERR | 3 | ERR | 3 | ERR |     |     |     |     |     |     |     |   |

where:

- A** : \*Array, for example, `0 1 2 'hello' α ω`
- F** : \*Function (primitive/defined/derived/system), for example, `+ - +.× myfn □CR {α ω}`
- H** : \*Hybrid function/operator, that is, `/ ≠ \ †`
- AF** : Bound left argument, for example, `2+`
- MOP** : \*Monadic operator, for example, `¨ ~ &`
- DOP** : Dyadic operator, for example, `* ⊖ ∘ ⊖`
- JOT** : Jot, that is, compose/null operand `∘`
- DOT** : Dot, that is, reference/product `.`
- IDX** : square-bracketed expression, for example, `[α ι ω]`
- ERR** : Error

\* indicates a "first-class" entity, which can be parenthesised or named

In this table:

- the higher the number, the stronger the binding
- an empty field indicates no binding for this combination; an error.

For example, in the expression `a b.c[d]`, where `a`, `b`, `c` and `d` are arrays, the binding proceeds:

```

a b . c [d]
 6 7 6 4      A binding strengths between entities
→ a (b.) c [d]
  0   7 4
→ a (b.c) [d]
  6   4
→ (a(b.c))[d]

```

Note: Binding strengths can vary between APL distributions. For example, the expression `a b c[d]` binds as `(a b c)[d]` in Dyalog (and other pre-nested array APLs such as APL\360) rather than as `a b (c[d])`, which is preferred by APL2 and APLX (among others).