Error Handling

Adám Brudzewsky

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Error Handling – Part 1

Tradfn structure `:Trap errno` (0 means all)

Dfn error guard `errno::result_expression`

Error Number of last error `⎕EN`

Error Message for number `⎕EM`

Error Handling – Part 1

dyalog.tv

Tradfn structure `:Trap errno` (0 means all)

Dfn error guard `errno::result_expression`

Error Number of last error `⎕EN`

Error Message for number `⎕EM`

Overview

Overview

- Trap Event:

Overview

- Trap Error: ⎕TRAP

Overview

- Trap Error: ⎕TRAP
- Extended Diagnostic Message: ⎕DMX

Preventing the build-up of a stack

Preventing the build-up of a stack

```
∇ foo  ⍝ bad function
  1÷0
∇
```

Preventing the build-up of a stack

```
      ∇ foo  ⍝ bad function
        1÷0
      ∇
      foo
DOMAIN ERROR: Divide by zero
foo[1] 1÷0
         ^
```

Preventing the build-up of a stack

```
      ∇ foo  ⍝ bad function
        1÷0
      ∇
      foo
DOMAIN ERROR: Divide by zero
foo[1] 1÷0
         ^
      )si
#.foo[1]*
```

Preventing the build-up of a stack

```
      foo
DOMAIN ERROR: Divide by zero
foo[1] 1÷0
         ^
```

Preventing the build-up of a stack

```
      foo
DOMAIN ERROR: Divide by zero
foo[1] 1÷0
         ^
      )si
#.foo[1]*
#.foo[1]*
```

Including scope info in an error report

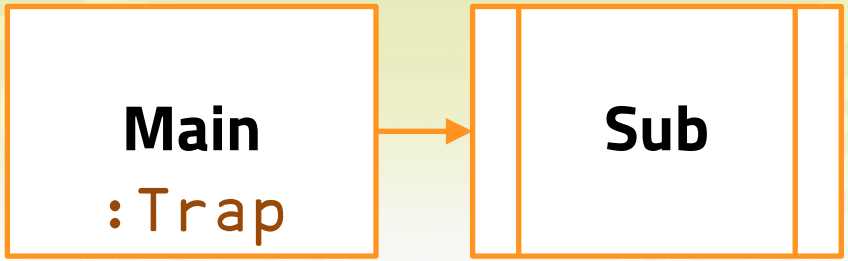
Including scope info in an error report

Including scope info in an error report

Main

```
:Trap
```

Including scope info in an error report



Including scope info in an error report

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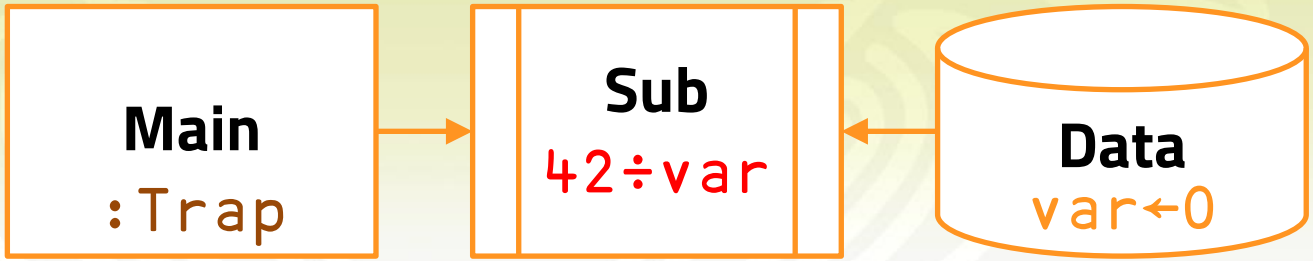
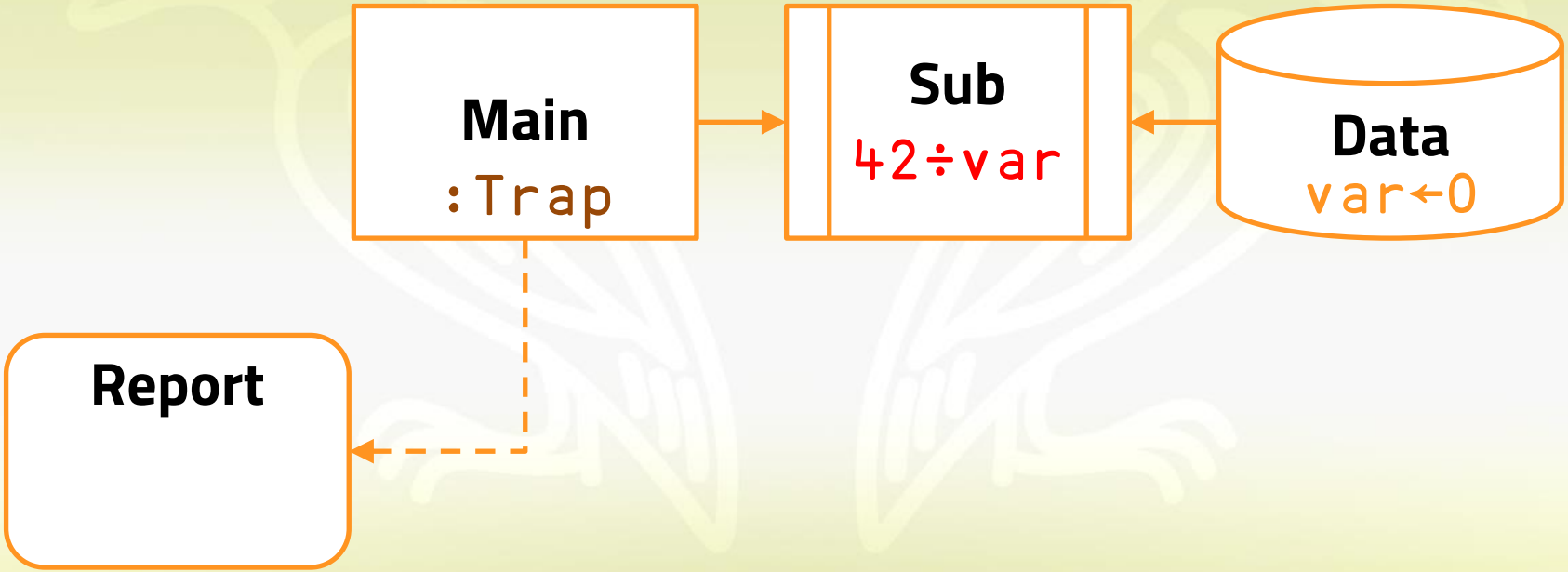
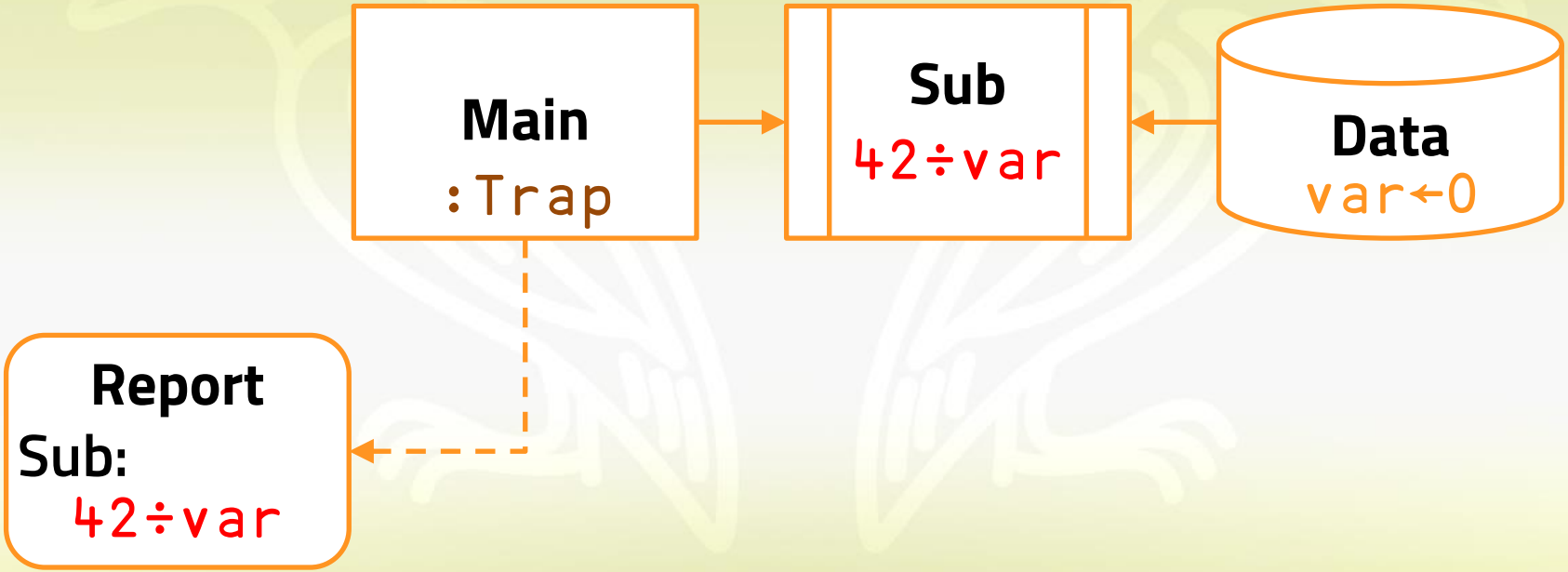


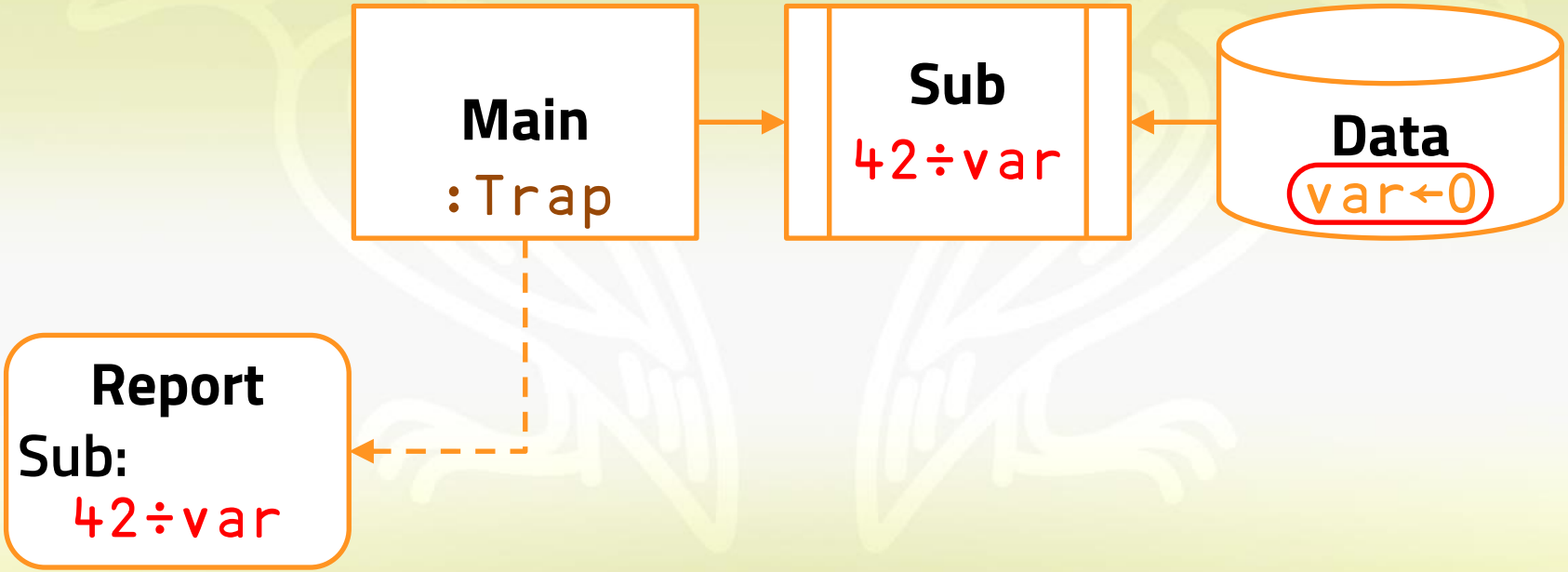
Including scope info in an error report



Including scope info in an error report



Including scope info in an error report



Trap Error

system variable

⎕TRAP

Trap Error

```
⍞TRAP ←
```

handler

Trap Error

```
⎕TRAP ←                    handler
                  handler  handler  handler
```

Trap Error

```
⎕TRAP ←                handler
          handler  handler  handler
                  ⊂handler
```

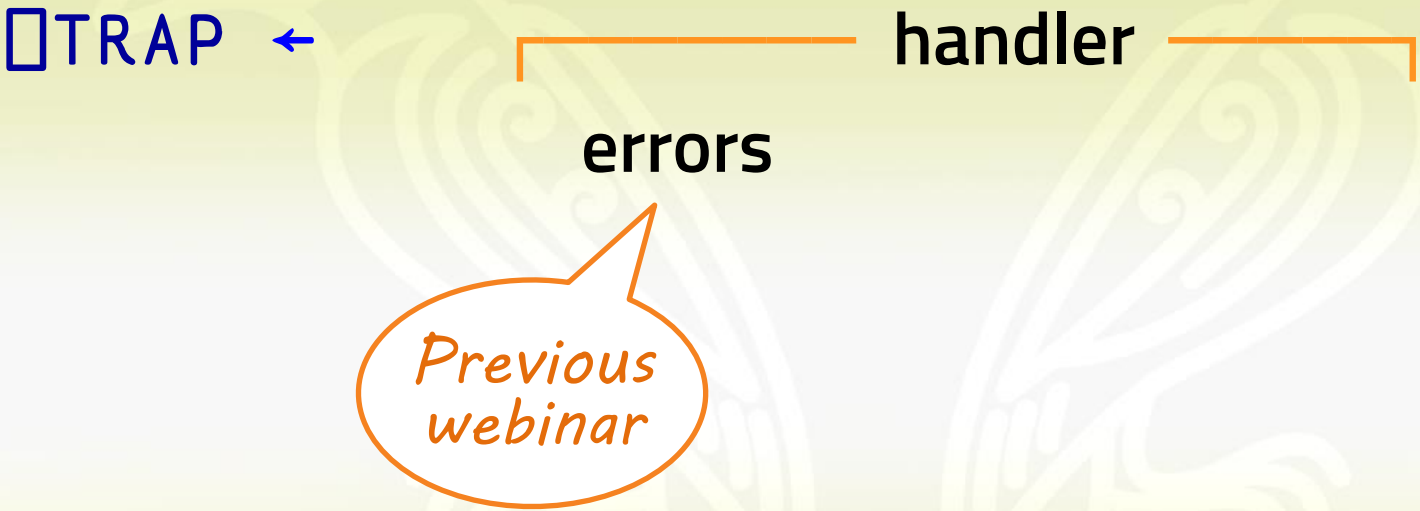
Trap Error

```
⎕TRAP ← handler
```

Trap Error

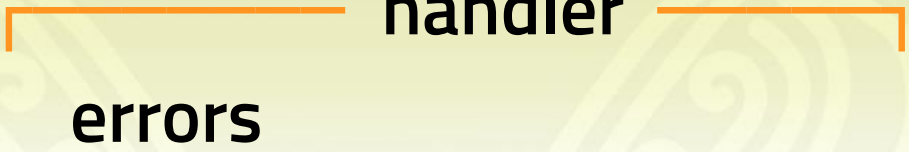
Trap Error

Trap Error



Trap Error

```
⍞TRAP ←
```



Trap Error

```
⍞TRAP ←
```

handler

errors action

Trap Error

```
⍞TRAP ←
```

handler

errors action code

Trap Error

```
⍞TRAP ←
```

handler

errors action code

errors action

Trap Error

```
⍞TRAP ←
```

handler

Execute there: **errors** `'E'` **code**

Trap Error

```
⍞TRAP ←
```

handler

Execute there:	**errors**	`'E'`	**code**
Cut stack first:	**errors**	`'C'`	**code**

Trap Error

```
⎕TRAP ← ┌──────────── handler ────────────┐
```

Execute there: **errors** `'E'` **code**

Cut stack first: **errors** `'C'` **code**

Next handler: **errors** `'N'`

Trap Error

```
⎕TRAP ←
```

handler

Execute there:	**errors**	`'E'`	**code**
Cut stack first:	**errors**	`'C'`	**code**
Next handler:	**errors**	`'N'`	
Stop looking:	**errors**	`'S'`	

Trap Error

```
⎕TRAP ←
```

handler

Execute there: **errors** `'E'` **code**

Trap Error: Execute there

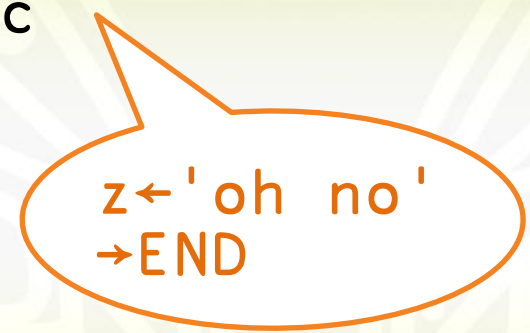
```
∇ z←Foo y;c;⎕TRAP
  c←'z←''oh no''◇→END'
  ⎕TRAP←11 'E' c

  z←4 3 5÷y
END:
  z←↑z'done'
∇
```

Trap Error: Execute there

```
∇ z←Foo y;c;⎕TRAP
  c←'z←''oh no''⋄→END'
  ⎕TRAP←11 'E' c

  z←4 3 5÷y
END:
  z←↑z'done'
∇
```

Trap Error: Execute there

```
∇ z←Foo y;c;⎕TRAP
  c←'z←''oh no''◇→END'
  ⎕TRAP←11 'E' c

  z←4 3 5÷y
END:
  z←↑z'done'
∇
```



Trap Error: Execute there

```
∇ z←Foo y;c;⎕TRAP
  c←'z←''oh no''⋄→END'
  ⎕TRAP←11 'E' c

  z←4 3 5÷y
END:
  z←↑z'done'
∇
```

Trap Error: Execute there

```
∇ z←Foo y;c;⎕TRAP
  c←'z←''oh no''⋄→END'
  ⎕TRAP←11 'E' c

  z←4 3 5÷y
END:
  z←↑z'done'
∇
```

Trap Error: Execute there

```
∇ z←Foo y;c;⎕TRAP
  c←'z←''oh no''⋄→END'
  ⎕TRAP←11 'E' c

  z←4 3 5÷y
END:
  z←↑z'done'
∇
```

Trap Error: Execute there

```
∇ z←Foo y;c;⎕TRAP
  c←'z←''oh no''⋄→END'
  ⎕TRAP←11 'E' c

  z←4 3 5÷y
END:
  z←↑z'done'
∇
```

Trap Error: Execute there

```
∇ z←Foo y;c;⎕TRAP
  c←'z←''oh no''⋄→END'
  ⎕TRAP←11 'E' c

  z←4 3 5÷y
END:
  z←↑z'done'
∇
```

Trap Error: Execute there

```
∇ z←Foo y;c;⎕TRAP
  c←'z←''oh no''◇→END'
  ⎕TRAP←11 'E' c

  z←4 3 5÷y
END:
  z←↑z'done'
∇
```

Trap Error: Execute there

```
∇ z←Foo y;c;⎕TRAP
  c←'z←''oh no''⋄→END'
  ⎕TRAP←11 'E' c

  z←4 3 5÷y
END:
  z←↑z'done'
∇
```

Trap Error: Execute there

```
∇ z←Foo y;c;⎕TRAP                    Foo 1
  c←'z←''oh no''◇→END'
  ⎕TRAP←11 'E' c

  z←4 3 5÷y
END:
  z←↑z'done'
∇
```

Trap Error: Execute there

```
∇ z←Foo y;c;⎕TRAP                    Foo 1
  c←'z←''oh no''◇→END'               4 3 5 0
  ⎕TRAP←11 'E' c                     d o n e

  z←4 3 5÷y
END:
  z←↑z'done'
∇
```

Trap Error: Execute there

```
∇ z←Foo y;c;⎕TRAP
  c←'z←''oh no''◇→END'
  ⎕TRAP←11 'E' c

  z←4 3 5÷y
END:
  z←↑z'done'
∇
```

```
      Foo 1
4 3 5 0
d o n e
      Foo 0
```

Trap Error: Execute there

```
∇ z←Foo y;c;⎕TRAP
  c←'z←''oh no''◇→END'
  ⎕TRAP←11 'E' c

  z←4 3 5÷y
END:
  z←↑z'done'
∇
```

```
      Foo 1
4 3 5 0
d o n e
      Foo 0
oh no
done
```

Trap Error: Execute there

Trap Error: Execute there

```
⎕TRAP←5 'E' '''Silly!'''
```

Trap Error: Execute there

```
⎕TRAP←5 'E' '''Silly!'''
```

Trap Error: Execute there

```
      ⎕TRAP←5 'E' '''Silly!'''
      'a'+'b'
DOMAIN ERROR
      'a'+'b'
         ^
```

Trap Error: Execute there

```
      ⎕TRAP←5 'E' '''Silly!'''
      'a'+'b'
DOMAIN ERROR
      'a'+'b'
         ^
      1 2+3 4 5
Silly!
```

Trap Error: ⎕TRAP value normalisation

```
⎕TRAP←5 'E' '''Silly!'''
```

Trap Error: ⎕TRAP value normalisation

```
      ⎕TRAP←5 'E' '''Silly!'''
      ⍴⎕TRAP
1
```

Trap Error: ⎕TRAP value normalisation

```
      ⎕TRAP←5 'E' '''Silly!'''
      ⍴⎕TRAP
1

      ⎕SE.Dyalog.Utils.repObj ⎕TRAP
```

Trap Error: ⎕TRAP value normalisation

```
      ⎕TRAP←5 'E' '''Silly!'''
      ⍴⎕TRAP
1

      ⎕SE.Dyalog.Utils.repObj ⎕TRAP
```

Trap Error: ⎕TRAP value normalisation

```
      ⎕TRAP←5 'E' '''Silly!'''
      ⍴⎕TRAP
1
      ⎕SE.Dyalog.Utils.repObj ⎕TRAP
,⊂(,5) 'E' '''Silly!'''
```

18·1:
]Repr

Trap Error: ⎕TRAP value normalisation

```
      ⎕TRAP←5 'E' '''Silly!'''
      ⍴⎕TRAP
1
      ⎕SE.Dyalog.Utils.repObj ⎕TRAP
,⊂(,5) 'E' '''Silly!'''
```

Trap Error: ⎕TRAP value normalisation

```
      ⎕TRAP←5 'E' '''Silly!'''
      ⍴⎕TRAP
1
      ⎕SE.Dyalog.Utils.repObj ⎕TRAP
,⊂(,5) 'E' '''Silly!'''
```

Trap Error: Resetting ⎕TRAP

```
⎕TRAP←5 'E' '''Silly!'''
```

Trap Error: Resetting ⎕TRAP

```
⎕TRAP←5 'E' '''Silly!'''
⎕TRAP←0
```

Trap Error: Resetting ⎕TRAP

```
      ⎕TRAP←5 'E' '''Silly!'''
      ⎕TRAP←0
Silly!
```

Trap Error: Resetting ⎕TRAP

```
      ⎕TRAP←5 'E' '''Silly!'''
      ⎕TRAP←0
Silly!
```

Trap Error: Resetting ⎕TRAP

```
⎕TRAP←5 'E' '''Silly!'''
```

Trap Error: Resetting ⎕TRAP

```
⎕TRAP←5 'E' '''Silly!'''
⎕TRAP←0⍴⎕TRAP
```

Trap Error: Resetting ⎕TRAP

```
⎕TRAP←5 'E' '''Silly!'''
⎕TRAP←0⍴⎕TRAP
⎕SE.Dyalog.Utils.repObj ⎕TRAP
```

Trap Error: Resetting ⎕TRAP

```
      ⎕TRAP←5 'E' '''Silly!'''
      ⎕TRAP←0⍴⎕TRAP
      ⎕SE.Dyalog.Utils.repObj ⎕TRAP
0⍴⊂(,0) ' ' (8⍴' ')
```

Trap Error: Resetting ⎕TRAP

```
      ⎕TRAP←5 'E' '''Silly!'''
      ⎕TRAP←0⍴⎕TRAP
      ⎕SE.Dyalog.Utils.repObj ⎕TRAP
0⍴⊂(,0) ' ' (8⍴' ')
```

Trap Error: Multiple handlers in one

```
∇ z←Foo y;c;⎕TRAP
  c←'z←''oh no''◇→END'
  ⎕TRAP←11 'E' c

  z←4 3 5÷y
END:
  z←↑z'done'
∇
```

Trap Error: Multiple handlers in one

```
∇ z←Foo y;c;⎕TRAP
  c←'z←''oh no''⋄→END'
  ⎕TRAP←11 'E' c

  z←4 3 5÷y
END:
  z←↑z'done'
∇
```

Trap Error: Multiple handlers in one

```
∇ z←Foo y;c;⎕TRAP                    Foo 1 2
  c←'z←''oh no''⋄→END'
  ⎕TRAP←11 'E' c

  z←4 3 5÷y
END:
  z←↑z'done'
∇
```

Trap Error: Multiple handlers in one

```
∇ z←Foo y;c;⎕TRAP
  c←'z←''oh no''◇→END'
  ⎕TRAP←11 'E' c

  z←4 3 5÷y
END:
  z←↑z'done'
∇
```

```
      Foo 1 2
LENGTH ERROR: Mismatche
Foo[2] z←4 3 5÷y
           ^
```

Trap Error: Multiple handlers in one

```
∇ z←Foo y;c;⎕TRAP
  c←'z←''oh no''⋄→END'
  ⎕TRAP←(11 5) 'E' c

  z←4 3 5÷y
END:
  z←↑z'done'
∇
```

Trap Error: Multiple handlers in one

```
∇ z←Foo y;c;⎕TRAP
  c←'z←''oh no''⋄→END'
  ⎕TRAP←(11 5) 'E' c

  z←4 3 5÷y
END:
  z←↑z'done'
∇
```

11 5::
DOMAIN
& LENGTH
ERROR

Trap Error: Multiple handlers in one

```
∇ z←Foo y;c;⎕TRAP                    Foo 1 2
  c←'z←''oh no''◇→END'
  ⎕TRAP←(11 5) 'E' c

  z←4 3 5÷y
END:
  z←↑z'done'
∇
```

11 5::
DOMAIN
& LENGTH
ERROR

Trap Error: Multiple handlers in one

```
∇ z←Foo y;c;⎕TRAP
  c←'z←''oh no''◇→END'
  ⎕TRAP←(11 5) 'E' c

  z←4 3 5÷y
END:
  z←↑z'done'
∇
```

```
      Foo 1 2
oh no
done
```

11 5::
DOMAIN
& LENGTH
ERROR

Trap Error: Multiple handlers in one

```
∇ z←Foo y;c;⎕TRAP
  c←'z←''oh no''◇→END'
  ⎕TRAP←(11 5) 'E' c

  z←4 3 5÷y
END:
  z←↑z'done'
∇
```

```
      Foo 1 2
oh no
done

      Foo 0
```

11 5::
DOMAIN
& LENGTH
ERROR

Trap Error: Multiple handlers in one

```
∇ z←Foo y;c;⎕TRAP
  c←'z←''oh no''◇→END'
  ⎕TRAP←(11 5) 'E' c

  z←4 3 5÷y
END:
  z←↑z'done'
∇
```

```
      Foo 1 2
oh no
done

      Foo 0
oh no
done
```

11 5::
DOMAIN
& LENGTH
ERROR

Trap Error: Multiple handlers in one

```
∇ z←Foo y;c;⎕TRAP
  c←'z←''oh no''⋄→END'
  ⎕TRAP←0 'E' c

  z←4 3 5÷y
END:
  z←↑z'done'
∇
```

Trap Error: Multiple handlers in one

```
∇ z←Foo y;c;⎕TRAP
  c←'z←''oh no''⋄→END'
  ⎕TRAP←0 'E' c

  z←4 3 5÷y
END:
  z←↑z'done'
∇
```

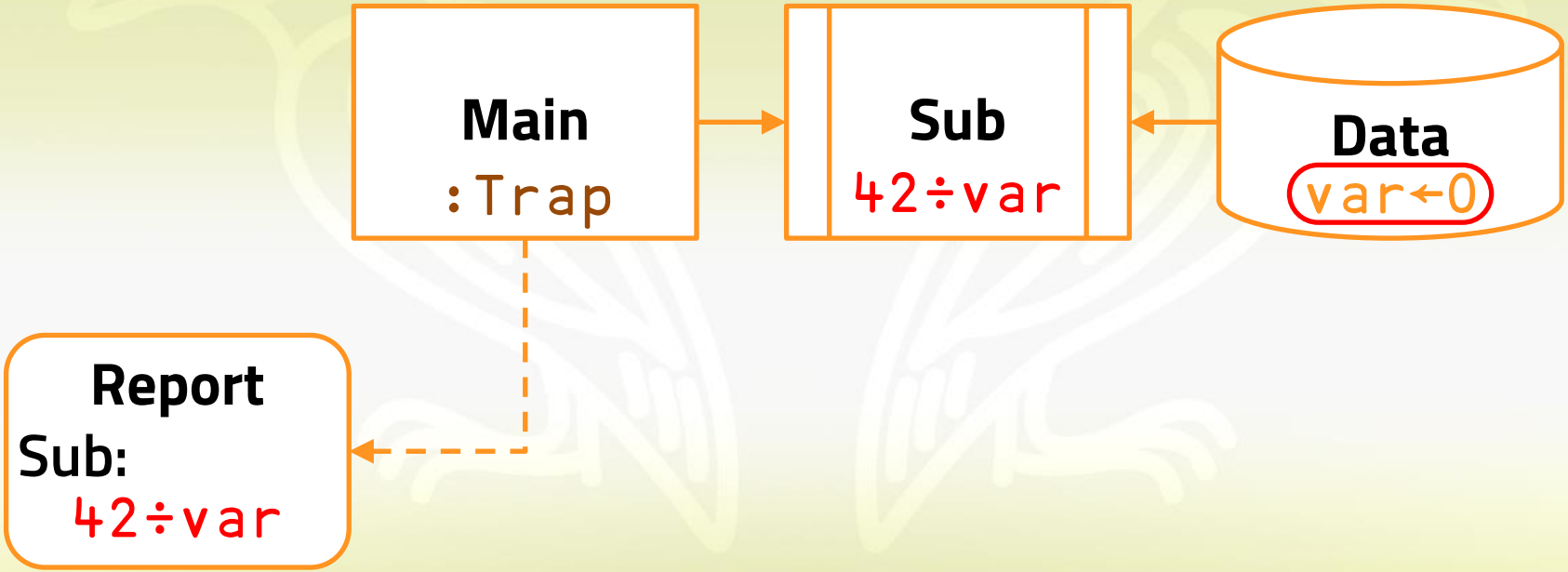
Trap Error: Multiple handlers in one

```
∇ z←Foo y;b;c;⎕TRAP
  b←'z←''bad''⋄→END' ⋄ c←'z←''count!''⋄→END'
  ⎕TRAP←(11 'E' b) (5 'E' c)

  z←4 3 5÷y
END:
  z←↑z'done'
∇
```

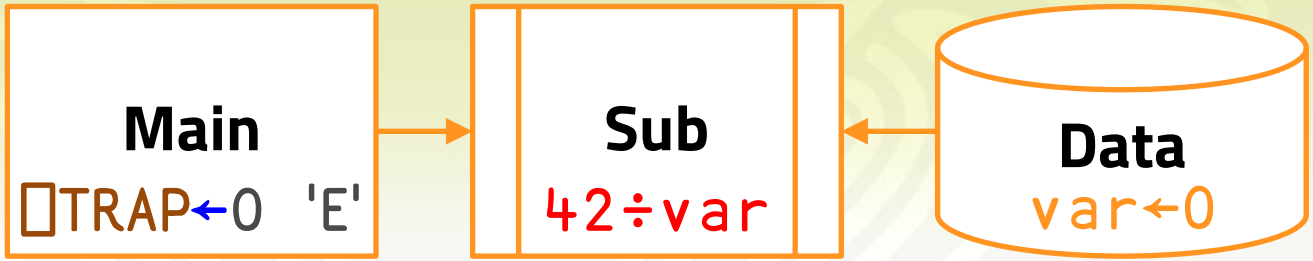
Trap Error: Multiple handlers in one

```
∇ z←Foo y;b;c;d;⎕TRAP
  b←'z←''bad''⋄→END' ⋄ c←'z←''count!''⋄→END'
  d←'z←''oh no''⋄→END'
  ⎕TRAP←(11 'E' b) (5 'E' c) (0 'E' d)

  z←4 3 5÷y
END:
  z←↑z'done'
∇
```

Trap Error: Use-case

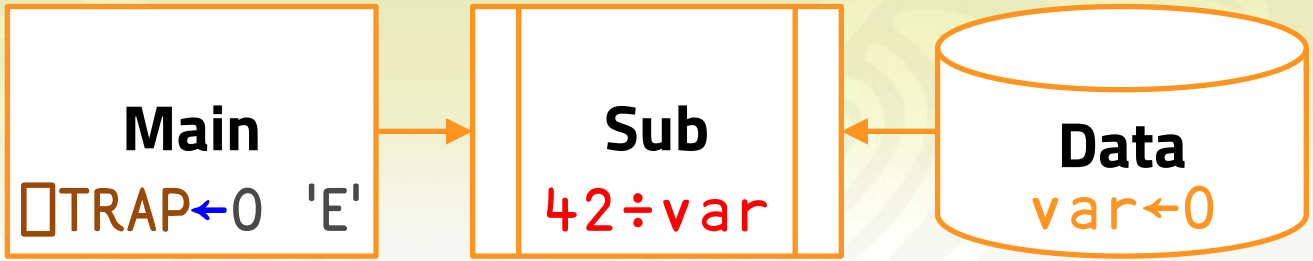


Trap Error: Use-case



Report
Sub:
42÷var

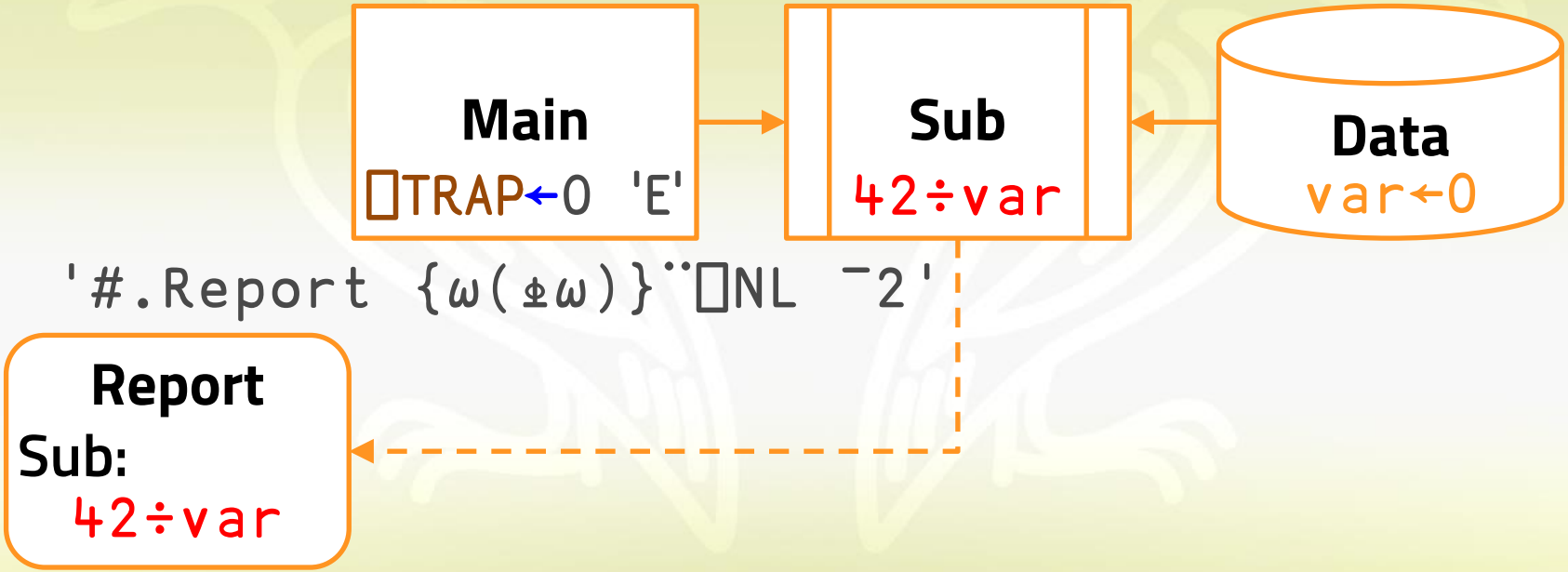
Trap Error: Use-case



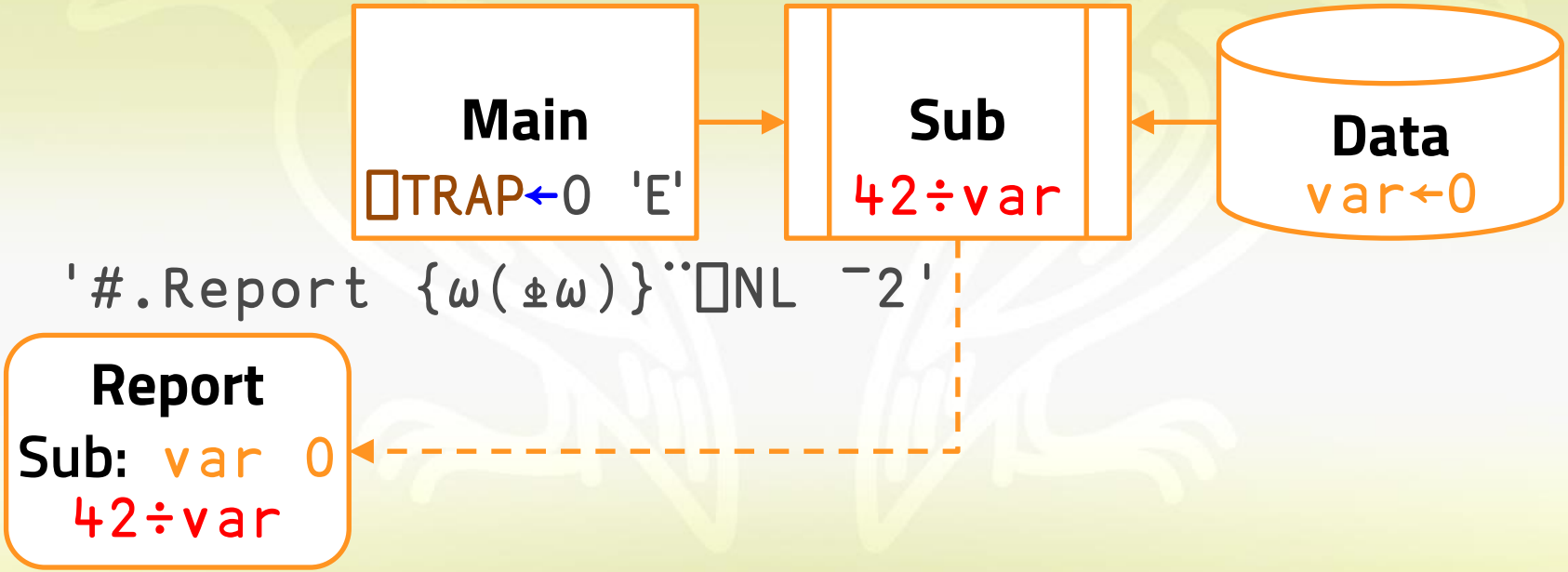

```
'#.Report {ω(⍎ω)}¨⎕NL ¯2'
```

Report
Sub:
42÷var

Trap Error: Use-case



Trap Error: Use-case



Trap Error: Use-case

```
⎕TRAP←0 'E' '#.Report {⍵(≢⍵)}¨⎕NL ¯2'
```

Trap Error: Use-case

```
⎕TRAP←0 'E' '#.Report {⍵(≢⍵)}¨⎕NL ¯2'

⎕TRAP←0 'E' 'err #.Report {⍵(≢⍵)}¨⎕NL ¯2'
```

Trap Error: Use-case

```
⎕TRAP←0 'E' '#.Report {⍵(⍎⍵)}¨⎕NL ¯2'

⎕TRAP←0 'E' '⎕EN #.Report {⍵(⍎⍵)}¨⎕NL ¯2'
```

Trap Error: Use-case

```
⎕TRAP←0 'E' '#.Report {⍵(↓⍵)}¨⎕NL ¯2'

⎕TRAP←0 'E' '⎕EN #.Report {⍵(↓⍵)}¨⎕NL ¯2'
```

Extended Diagnostic Message

niladic namespace-returning system function

⎕DMX

Extended Diagnostic Message

Extended Diagnostic Message

```
      )clear
clear ws
```

Extended Diagnostic Message

```
      )clear
clear ws
      p⎕DMX
```

Extended Diagnostic Message

```
      )clear
clear ws
      ⍴⎕DMX

      ≡⎕DMX
0
```

Extended Diagnostic Message

```
      )clear
clear ws
      ⍴⎕DMX

      ≡⎕DMX
0
      ⎕DMX
```

Extended Diagnostic Message

```
      )clear
clear ws
      ⍴⎕DMX

      ≡⎕DMX
0
      ⎕DMX
      {⎕NC'⍵'}⎕DMX
9
```

Extended Diagnostic Message

```
      )clear
clear ws
      ⍴⎕DMX
0
      ⎕DMX
      {⎕NC'⍵'}⎕DMX
9
```

Extended Diagnostic Message

```
      1÷0
DOMAIN ERROR: Divide by zero
      1÷0
       ^
```

Extended Diagnostic Message

```
      1÷0
DOMAIN ERROR: Divide by zero
      1÷0
        ^
      ⎕DMX
 EM          DOMAIN ERROR
 Message     Divide by zero
```

Extended Diagnostic Message

```
      ⎕DMX
EM        DOMAIN ERROR
Message   Divide by zero
```

Extended Diagnostic Message

```
      ⎕DMX.(2 2⍴'EM' EM 'Message' Message)
EM          DOMAIN ERROR
Message     Divide by zero

      ⎕DMX
EM          DOMAIN ERROR
Message     Divide by zero
```

Extended Diagnostic Message

```
⎕JSON⍠'Compact'0⊢⎕DMX
```

Extended Diagnostic Message

```
      ⎕JSON⍠'Compact'0⊢⎕DMX
{
  "Category": "General",
  "DM": [
    "DOMAIN ERROR",
    "      1÷0",
    "        ^"
  ],
  "EM": "DOMAIN ERROR",
  "EN": 11,
  "ENX": 1,
  "HelpURL": "https://help.dyalog.com/dmx/18.0/General/1",
```

Extended Diagnostic Message: use case

Extended Diagnostic Message: use case

```
      ⎕DMX.(EM,' caused by ',{⍵/⍨∨\⍵≠' '}2⊃DM)
DOMAIN ERROR caused by 1÷0
```

Extended Diagnostic Message: use case

```
      ⎕DMX.(EM,' caused by ',{⍵/⍨~⍵∨.\⍵≠' '}2⊃DM)
DOMAIN ERROR caused by 1÷0
      ⎕TRAP←0 'E' ⋄
⎕DMX.(EM,' caused by ',{⍵/⍨~⍵∨.\⍵≠' '}2⊃DM)
```

Extended Diagnostic Message: use case

```
      ⎕DMX.(EM,' caused by ',{⍵/⍨~⍵∨.\⍵≠' '}2⊃DM)
DOMAIN ERROR caused by 1÷0
      ⎕TRAP←0 'E' ⋄
⎕DMX.(EM,' caused by ',{⍵/⍨~⍵∨.\⍵≠' '}2⊃DM)

      ⍬+1 2
LENGTH ERROR caused by ⍬+1 2
```

Extended Diagnostic Message: use case

```
⎕TRAP⍴⍨←0
```

Extended Diagnostic Message: use case

```
      ⎕TRAP←0
      1÷0
DOMAIN ERROR: Divide by zero
      1÷0
        ^
      2×'A'
DOMAIN ERROR
      2×'A'
        ^
```

Extended Diagnostic Message: use case

```
⎕TRAP⍴⍨←0
```

Extended Diagnostic Message: use case

```
⎕TRAP←⍬
⎕NGET 'nope'
```

Extended Diagnostic Message: use case

```
      ⎕TRAP⍴⍨←0
      ⎕NGET'nope'
FILE NAME ERROR: nope: Unable to open file
("The system cannot find the file specified.")
      ⎕NGET'nope'
      ^
```

Extended Diagnostic Message: use case

aplcart.info

```
      ⎕TRAP←0
      ⎕NGET'nope'
FILE NAME ERROR: nope: Unable to open file
("The system cannot find the file specified.")
      ⎕NGET'nope'
      ^
```

Extended Diagnostic Message: use case

```
      ⎕TRAP⍴⍨←0
      ⎕NGET'nope'
FILE NAME ERROR: nope: Unable to open file
("The system cannot find the file specified.")
      ⎕NGET'nope'
      ^
```

aplcart.info

18·1:
]APLcart

Tell me about:

X,Y,Z:any M,N:num I,J:int A,B:Bool C,D:char f,g,h:fn ax:axis s:scal v:vec m:mat

⍬	Empty Numeric Vector
⊢Y	Same: Y
X dop Y⊢Z	Separate dyadic operator's right operand from its right argument (same as (X dop Y)Z)
X⊢Y	Right: Y
X⊢Y	Church Boolean false (X if false, else Y)
⊣Y	Same: Y
X⊣Y	Left: X
X⊣Y	Church Boolean true (X if true, else Y)
+Y	Conjugate ('Identity' if Y not complex)
+N	Mirror complex N across x-axis
M+N	Adding N to M

⍁ ? Tell me about: dmx ⊗ #

X,Y,Z:any M,N:num I,J:int A,B:Bool C,D:char f,g,h:fn ax:axis s:scal v:vec m:mat

▶ ⎕DMX

? Namespace containing details of most recent error in current thread

```
{r}←{msg} ⎕SIGNAL errno/{nvpairs}…
```

? Signal an error; nvpairs set ⎕DMX properties

```
{0::⎕DMX⍪⎕DMX.(⎕EX⎕NL)2 ⋄ .}Y
```

New root namespace (Y is ignored)

▶
```
⎕SIGNAL⊂⎕DMX.(('EN'EN)
('Message'(OSError{⍵,2⍕(×≢⍵)/''")
("',⍵←⊃⍬⍴2⍕⍺}Message)))
```

Re-signal last caught error to caller (works with any ⎕IO and ⎕ML)

▶
```
⎕DMX.(OSError{⍵,2⍕(×≢⊃⍬⍴2⍕⍺)/''")
("',⊃⍬⍴2⍕⍺}Message{⍵,⍺,⍨': '/⍨×≢⍺}⊃⍬⍴⎕DM,⊂'')
```

Construct first line of printed error message (works with any ⎕IO and ⎕ML)

≤⎡ ? Tell me about: dmx ⊗ #

X,Y,Z:any M,N:num I,J:int A,B:Bool C,D:char f,g,h:fn ax:axis s:scal v:vec m:mat

⎕DMX	Namespace containing details of most recent error in current thread
`{r}←{msg} ⎕SIGNAL errno/{nvpairs}…`	Signal an error; nvpairs set ⎕DMX properties
`{0::⎕DMX⊣⎕DMX.(⎕EX⎕NL)2 ⋄ .}Y`	New root namespace (Y is ignored)
`⎕SIGNAL⊂⎕DMX.(('EN'EN)('Message'(OSError{⍵,2⌽(×≢⍺)/'"')('"',⍺←⊃⍬⍴2⌽⍺}Message)))`	Re-signal last caught error to caller (works with any ⎕IO and ⎕ML)
`⎕DMX.(OSError{⍵,2⌽(×≢⊃⍬⍴2⌽⍺)/'"')('"',⊃⍬⍴2⌽⍺}Message{⍵,⍺,⍨': '/⍨×≢⍺}⊃⍬⍴DM,⊂'')`	Construct first line of printed error message (works with any ⎕IO and ⎕ML)

Showing 5 of 2557 Quiz

Extended Diagnostic Message: use case

Extended Diagnostic Message: use case

```
∇ err  ⍝ error handler


∇
```

Extended Diagnostic Message: use case

```
∇ err  ⍝ error handler
  ⎕DMX.(OSError{⍵,2⌽(×≢⊃⍬⍴2⌽⍺)/'"') ("',⊃⍬⍴
∇
```

Extended Diagnostic Message: use case

```
∇ err  ⍝ error handler
  ⎕DMX.(OSError{⍵,2⌽(×≢⊃⍬⍴2⌽⍺)/'"') ("',⊃⍬⍴
  ↑1↓⎕DMX.DM
∇
```

Extended Diagnostic Message: use case

```
∇ err  ⍝ error handler
  ⎕DMX.(OSError{ω,2⍕(×≢⊃⍵⍴2⍕⍺)/'"') ('"',⊃⍵⍴
  ↑1↓⎕DMX.DM
∇
⎕TRAP←0 'E' '#.err'
```

Extended Diagnostic Message: use case

```
      ∇ err  ⍝ error handler
        ⎕DMX.(OSError{⍵,2⍕(×≢⊃⍬⍴2⍕⍺)/'"') ("',⊃⍬⍴
        ↑1↓⎕DMX.DM
      ∇
      ⎕TRAP←0 'E' '#.err'
      1÷0
DOMAIN ERROR: Divide by zero
      1÷0
       ^
```

Extended Diagnostic Message: use case

```
      ∇ err  ⍝ error handler
        ⎕DMX.(OSError{ω,2⍕(×≢⊃⍵⍴2⍕⍺)/'"') ('",⊃⍵⍴
        ↑1↓⎕DMX.DM
      ∇
      ⎕TRAP←0 'E' '#.err'
      1÷0
DOMAIN ERROR: Divide by zero
      1÷0
       ^
```

???

Extended Diagnostic Message: use case

Extended Diagnostic Message: use case

```
∇ foo  ⍝ bad function
  1÷0
∇
```

Extended Diagnostic Message: use case

```
      ∇ foo  ⍝ bad function
        1÷0
      ∇
      foo
DOMAIN ERROR: Divide by zero
foo[1] 1÷0
         ^
```

Extended Diagnostic Message: use case

```
      ∇ foo  ⍝ bad function
        1÷0
      ∇
      foo
DOMAIN ERROR: Divide by zero
foo[1] 1÷0
         ^
      )si
#.foo[1]*
```

Extended Diagnostic Message: use case

```
      foo
DOMAIN ERROR: Divide by zero
foo[1] 1÷0
         ^
```

Extended Diagnostic Message: use case

```
      foo
DOMAIN ERROR: Divide by zero
foo[1] 1÷0
         ^
      )si
#.foo[1]*
#.foo[1]*
```

Trap Error

```
⍞TRAP ←
```

handler

Execute there: **errors** `'E'` **code**

Cut stack first: **errors** `'C'` **code**

Next handler: **errors** `'N'`

Stop looking: **errors** `'S'`

Trap Error

```
⍞TRAP ←
```

handler

Cut stack first: **errors** `'C'` **code**

Extended Diagnostic Message: use case

```
      foo
DOMAIN ERROR: Divide by zero
foo[1] 1÷0
         ^
      )si
#.foo[1]*
#.foo[1]*
```

Extended Diagnostic Message: use case

```
⎕TRAP←0 'E' '#.err'
```

Extended Diagnostic Message: use case

```
⎕TRAP←0 'C' '#.err'
```

Extended Diagnostic Message: use case

```
⎕TRAP←0 'C' '#.err'
)sic
```

Extended Diagnostic Message: use case

```
      ⎕TRAP←0 'C' '#.err'
      )sic
      foo
DOMAIN ERROR: Divide by zero
foo[1] 1÷0
         ^
```

Extended Diagnostic Message: use case

```
      ⎕TRAP←0 'C' '#.err'
      )sic
      foo
DOMAIN ERROR: Divide by zero
foo[1] 1÷0
         ^
      )si
```

Error Handling – Part 2

Execute there on error	`⎕TRAP←errors 'E' code`
Cut back and execute	`⎕TRAP←errors 'C' code`
Ext'd Diagnostic Message	`⎕DMX`

Error Handling – Part 2

Construct error message
aplcart.info?q=dmx 1

Execute there on error `⎕TRAP←errors 'E' code`

Cut back and execute `⎕TRAP←errors 'C' code`

Ext'd Diagnostic Message `⎕DMX`

Error Handling – Part 2

Construct error message
aplcart.info?q=dmx 1

Execute there on error `⎕TRAP←errors 'E' code`

Cut back and execute `⎕TRAP←errors 'C' code`

Ext'd Di…ge `⎕DMX`

Press F1 *for full docs!*

Upcoming webinars

Apr	22	BAA	open session
Apr	29	- - -	
May	6	BAA	open session
May	13	Dyalog	Drawing the Mandelbrot Set
May	20	BAA	open session
May	27	- - -	
Jun	5	BAA	open session
Jun	10	Dyalog	Error Handling – Part 3

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