

$1.2^{\circ}3'4''$  Some text  
 $4\text{ m Sv}^{-1}$   
More text  
 $4\text{ m Sv}^{-1}$   
Still red here! 1, 2, 3 and 4  
Still red here!

Unsemantic:  $\text{m}^2\text{ s}$   
 $\mu\text{m}^2$

Semantic again:  $0.094\pi\text{ mm mrad}$

$0.094\frac{1}{3}\text{ mm mrad}$

$0.094\pi/\text{mm mrad}^3$

## 1 Numbers

### 1.1 General

$12\,345.678\,90$   
 $1 \pm 2\text{i}$   
 $0.3 \times 10^{45}$   
 $1.654 \times 2.34 \times 3.430$

$123$   
 $1234$   
 $12\,345$   
 $0.123$   
 $0.1234$   
 $0.123\,45$   
 $3.45 \times 10^{-4}$   
 $-10^{10}$

$123 \times 10^4$   
 $123(3) \times 10^4$

$123(2)$   
 $123 \pm 2\text{i}$   
 $123 + 234\text{i}$   
 $(123 + 234\text{i}) \times 10^3$   
 $(123(1) + 234(1)\text{i}) \times 10^3$   
 $3\text{i}$   
 $(3\text{i}) \times 10^4$

Pretty nonsensical stuff?  
1234.1234

$3\xi$   
 $3\xi$

1.23(1)  
1.23(1)

## 1.2 Parsing numbers

**1.2.1** input-digits, input-decimal-markers, input-signs, input-exponent-markers

**1.2.2** input-symbols, input-ignore

**1.2.3** input-comparators

$<10$   
 $\leq 0.12$

**1.2.4** input-open-uncertainty, input-close-uncertainty, input-uncertainty-signs

9.99(9)  
9.99(9)  
9.99(9)  
123.0(45)  
12.3(60)

**1.2.5** input-complex-roots

$9.99 + 88.8i$   
 $9.99 + 88.8i$

**1.2.6** input-protect-tokens

**1.2.7** parse-numbers

$\sqrt{2}$

### **1.3 Post-processing numbers**

#### **1.3.1 round-mode, round-precision**

1.234 56  
14.23  
0.123 45(9)  
1.235  
14.230  
0.123 45(9)  
1.23  
14.2  
0.123 45(9)

#### **1.3.2 round-integer-to-decimal**

1  
1

#### **1.3.3 round-minimum**

0.01  
0.00  
0.01  
<0.01

#### **1.3.4 round-half**

0.06  
0.05  
0.06  
0.04

#### **1.3.5 add-decimal-zero, add-integer-zero**

123.0  
456  
0.789  
123  
456  
0.789

### **1.3.6 minimum-integer-digits**

123  
123  
123  
123  
0123

### **1.3.7 explicit-sign, retain-explicit-plus**

345  
+345

### **1.3.8 retain-unity-mantissa, retain-zero-exponent**

$1 \times 10^4$   
 $10^4$   
444  
 $444 \times 10^0$

### **1.3.9 scientific-notation, fixed-exponent**

0.001  
0.0100  
1200  
 $1 \times 10^{-3}$   
 $1.00 \times 10^{-2}$   
 $1.200 \times 10^3$   
 $1 \times 10^{-3}$   
 $10.0 \times 10^{-3}$   
 $1.200 \times 10^3$   
 $0.000\,01 \times 10^2$   
 $0.000\,100 \times 10^2$   
 $12.00 \times 10^2$

### **1.3.10 omit-uncertainty**

0.01(2)  
0.01

## 1.4 Printing numbers

### 1.4.1 group-digits, group-four-digits,group-seperator

12 345.678 90  
12345.67890  
12345.678 90  
12 345.67890

12345.67890  
12345.678 90  
12 345.67890

1 234 567 890.123 456 789 0

12 345  
12,345  
12 345

### 1.4.2 group-minimum-digits

1234  
1 234  
1234.5678  
1 234.567 8

### 1.4.3 output-complex-root,output-decimal-marker,copy-complex-root,copy-decimal-marker

1.23  
1,23  
 $1 + 2i$   
 $1 + 2i$   
 $1 + 2j$

### 1.4.4 complex-root-position

$67 - 0.9i$   
 $67 - i0.9$   
 $67 - 0.9i$

#### 1.4.5 exponent-base, exponent-product

$1 \times 10^2$

$1 \cdot 10^2$

$1 \times 2^2$

#### 1.4.6 output-exponent-marker

1e2

1E2

#### 1.4.7 separate-uncertainty, uncertainty-separator, output-open-uncertainty, output-close-uncertainty

1.234(5)

1.234(5)

$1.234 \pm 0.005$

$1.234 \pm 0.005$

1.234 [5]

8.2(13)

8.2(13)

$8.2 \pm 1.3$

$8.2 \pm 1.3$

1.200(1)

$1.200 \pm 0.001$

#### 1.4.8 bracket-numbers, open-bracket, close-bracket

$1 \times 10^{10}$

$(2i) \times 10^{10}$

$(1 + 2i) \times 10^{10}$

$1 + 2i \times 10^{10}$

#### 1.4.9 negative-color

−15 673

−15 673

#### 1.4.10 bracket-negative-numbers

−15 673

(15 673)

## 1.5 Multi-part Numbers

### 1.5.1 input-product,input-quotient

$1 \times 2 \times 3$

## 1.6 Lists and ranges of numbers

### 1.6.1 list-final-separator,list-pair-separator,list-separator

0.1, 0.2 and 0.3

[0.1](#), [0.2](#) and [0.3](#)

0.1; 0.2 and 0.3

0.1, 0.2, 0.3

0.1 and 0.2 and finally 0.3

0.1 and 0.2

0.1, and 0.2

## 1.7 range-phrase

5 to 100

5–100

[5–100](#)

## 1.8 Angles

### 1.8.1 number-angle-product

$2.67^\circ$

$2.67^\circ$

### 1.8.2 arc-separator

$6^\circ 7' 6.5''$

$6^\circ 7' 6.5''$

### 1.8.3 add-arc-degree-zero,add-arc-minute-zero,add-arc-second-zero

$-1^\circ$

$-2'$

$-3''$

$-1^\circ$

$-0^\circ 2'$

$-0^\circ 3''$

$-1^\circ 0'$

Table 1: SI base units		
Unit	Macro	Symbol
ampere	<code>\ampere</code>	A
candela	<code>\candela</code>	cd
kelvin	<code>\kelvin</code>	K
kilogram	<code>\kilogram</code>	kg
metre	<code>\metre</code>	m
mole	<code>\mole</code>	mol
second	<code>\second</code>	s

Table 2: Coherent derived units					
Unit	Macro	Symbol	Unit	Macro	Symbol
becquerel	<code>\becquerel</code>	Bq	newton	<code>\newton</code>	N
degreeCelsius	<code>\degreeCelsius</code>	°C	ohm	<code>\ohm</code>	Ω
coulomb	<code>\coulomb</code>	C	pascal	<code>\pascal</code>	Pa
farad	<code>\farad</code>	F	radian	<code>\radian</code>	rad
gray	<code>\gray</code>	Gy	siemens	<code>\siemens</code>	S
hertz	<code>\hertz</code>	Hz	sievert	<code>\sievert</code>	Sv
henry	<code>\henry</code>	H	steradian	<code>\steradian</code>	sr
joule	<code>\joule</code>	J	tesla	<code>\tesla</code>	T
katal	<code>\katal</code>	kat	volt	<code>\volt</code>	V
lumen	<code>\lumen</code>	lm	watt	<code>\watt</code>	W
lux	<code>\lux</code>	lx	weber	<code>\weber</code>	Wb

$-2'$   
 $-0'3''$   
 $-1^{\circ}0''$   
 $-2'0''$   
 $-3''$   
 $45.697^{\circ}$   
 $45.697^{\circ}$

#### 1.8.4 angle-symbol-over-decimal

$45.697^{\circ}$   
 $6^{\circ}7'6.5''$   
 $45^{\circ}697$   
 $6^{\circ}7'6''.5$   
 $6^{\circ}7'6''.5$

Table 3: Non-SI units

Unit	Macro	Symbol
day	<code>\day</code>	d
degree	<code>\degree</code>	°
hectare	<code>\hectare</code>	ha
hour	<code>\hour</code>	h
litre	<code>\litre</code>	L
liter	<code>\liter</code>	L
arcminute	<code>\arcminute</code>	'
minute	<code>\minute</code>	min
arcsecond	<code>\arcsecond</code>	"
tonne	<code>\tonne</code>	t

Table 4: Experimental Non-SI units

Unit	Macro	Symbol
dalton	<code>\dalton</code>	Da
electronvolt	<code>\electronvolt</code>	eV

Table 5: Other non-SI units

Unit	Macro	Symbol
bel	<code>\bel</code>	B
decibel	<code>\decibel</code>	dB
neper	<code>\neper</code>	Np

Table 6: Other non-SI units

Unit	Macro	Symbol	Power	Unit	Macro	Symbol	Power
yocto	<code>\yocto</code>	ym	ym	deca	<code>\deca</code>	dam	dam
zepto	<code>\zepto</code>	zm	zm	hecto	<code>\hecto</code>	hm	hm
atto	<code>\atto</code>	am	am	kilo	<code>\kilo</code>	km	km
femto	<code>\femto</code>	fm	fm	mega	<code>\mega</code>	Mm	Mm
pico	<code>\pico</code>	pm	pm	giga	<code>\giga</code>	Gm	Gm
nano	<code>\nano</code>	nm	nm	tera	<code>\tera</code>	Tm	Tm
micro	<code>\micro</code>	µm	µm	peta	<code>\peta</code>	Pm	Pm
milli	<code>\milli</code>	mm	mm	exa	<code>\exa</code>	Em	Em
centi	<code>\centi</code>	cm	cm	zetta	<code>\zetta</code>	Zm	Zm
deci	<code>\deci</code>	dm	dm	yotta	<code>\yotta</code>	Ym	Ym

Table 7: Abbreviated units

Unit	Macro	Symbol
fg	\fg	fg
pg	\pg	pg
ng	\ng	ng
ug	\ug	μg
mg	\mg	mg
g	\g	g
kg	\kg	kg
pm	\pm	pm
nm	\nm	nm
um	\um	μm
mm	\mm	mm
cm	\cm	cm
dm	\dm	dm
m	\m	m
km	\km	km
as	\as	as
fs	\fs	fs
ps	\ps	ps
ns	\ns	ns
us	\us	μs
ms	\ms	ms
s	\s	s
fmol	\fmol	fmol
pmol	\pmol	pmol
nmol	\nmol	nmol
umol	\umol	μmol
mmol	\mmol	mmol
mol	\mol	mol
kmol	\kmol	kmol
pA	\pA	pA
nA	\nA	nA
uA	\uA	μA
mA	\mA	mA
A	\A	A
kA	\kA	kA
ul	\ul	μL
ml	\ml	mL
l	\l	L
hl	\hl	hL
uL	\uL	μL
mL	\mL	mL
L	\L	L
hL	\hL	hL
mHz	\mHz	mHz
Hz	\Hz	Hz
kHz	\kHz	kHz
MHz	\MHz	MHz
GHz	\GHz	GHz
THz	\THz	THz
mN	\mN	mN
N	\N	N
kN	\kN	kN
MN	\MN	MN

Table 8: Binary prefixes

Unit	Macro	Symbol	Power
kibi	<code>\kibi</code>	Kim	Kim
mebi	<code>\mebi</code>	Mim	Mim
gibi	<code>\gibi</code>	Gim	Gim
tebi	<code>\tebi</code>	Tim	Tim
pebi	<code>\pebi</code>	Pim	Pim
exbi	<code>\exbi</code>	Eim	Eim
zebi	<code>\zebi</code>	Zim	Zim
yobi	<code>\yobi</code>	Yim	Yim

2 Units

2.1 Using units

kg kg kg  
a  
a  
a  
e  
e  
  
a  
a  
  
kg m s<sup>-1</sup>  
kg m s<sup>-1</sup>  
kg m s<sup>-1</sup>  
kg m s<sup>-1</sup>  
kg m s<sup>-1</sup>  
  
~~kg m s<sup>-1</sup>~~  
~~kg m s<sup>-1</sup>~~  
~~kg m s<sup>-1</sup>~~  
~~kg m s<sup>-1</sup>~~  
~~kg m s<sup>-1</sup>~~

2.1.1 forbid-literal-units, inter-unit-product

F<sup>2</sup> lm cd  
F<sup>2</sup> · lm · cd  
F<sup>2</sup> · lm · cd

### 2.1.2 per-mode, per-symbol, bracket-unit-denominator

$$\text{J mol}^{-1} \text{K}^{-1}$$

$$\text{m s}^{-2}$$

$$\frac{\text{J}}{\text{mol K}}$$

$$\frac{\text{J}}{\text{mol K}}$$

$$\frac{\text{m}}{\text{s}^2}$$

$$\text{A mol}^{-1} \text{s}$$

$$\text{A s mol}^{-1}$$

$$\text{J}/(\text{mol K})$$

$$\text{m/s}^2$$

$$\text{J div}(\text{mol K})$$

$$\text{J/mol K}$$

$$\text{J/mol/K}$$

$$\text{J}/(\text{mol K})$$

$$\frac{\text{J}}{\text{mol K}}$$

$$\text{J}/(\text{mol K})$$

$$\frac{\text{J}}{\text{mol K}}$$

$$\text{J}/(\text{mol K})$$

$$\text{J}/(\text{mol K})$$

### 2.1.3 sticky-per

$$\text{Pa Gy}^{-1} \text{H}$$

$$\text{Pa Gy}^{-1} \text{H}^{-1}$$

### 2.1.4 qualifier-mode, qualifier-phrase

$$\text{kg}_{\text{pol}}^2 \text{mol}_{\text{cat}}^{-1} \text{h}^{-1}$$

$$\text{kg}(\text{pol})^2 \text{mol}(\text{cat})^{-1} \text{h}^{-1}$$

$$\text{kg}_{\text{pol}}^2 \text{mol}_{\text{cat}}^{-1} \text{h}^{-1}$$

$$\text{kg pol}^2 \text{mol cat}^{-1} \text{h}^{-1}$$

$$\text{dBi}$$

$$\text{kgpol}^2 \text{molcat}^{-1} \text{h}^{-1}$$

$$\text{kgbypol}^2 \text{molbycat}^{-1} \text{h}^{-1}$$

### 2.1.5 prefixes-as-symbols

$$\text{mL mol}^{-1} \text{dA}$$

$$\text{mL mol}^{-1} \text{dA}$$

$$\text{kg}^2 \text{ds}$$

$\text{Mg}^2 \text{ ds}$   
 $\text{Mg}^2 \text{ ds}$   
 $\mu\text{g}^2 \text{ ds}$   
 $\mu\text{g}^2 \text{ ds}$   
 $\text{Mg}^{-2} \text{ ds}$   
 $\text{Mg}^{-2} \text{ ds}$   
 $\mu\text{g}^{-2} \text{ ds}$   
 $\mu\text{g}^{-2} \text{ ds}$

### 2.1.6 parse-units

## 2.2 Numbers with units

### 2.2.1 allow-number-unit-breaks

### 2.2.2 number-unit-product

$2.67 \text{ F}$   
 $2.67 \text{ F}$   
 $2.67\text{F}$   
 $2.67 \text{ F}$   
 $2.67 \text{ F}$   
 $2.67 \times \text{F}$   
 $2.67 \times \text{F}$

### 2.2.3 multi-part-units

$(12.3 \pm 0.4) \text{ kg}$   
 $(12.3 \pm 0.4) \text{ kg}$   
 $12.3 \text{ kg} \pm 0.4 \text{ kg}$   
 $12.3 \pm 0.4 \text{ kg}$

$1.234 \pm 0.005 \times 10^{-4}$   
 $(1.234 \pm 0.005) \times 10^{-4} \text{ m}$

### 2.2.4 product-units

$2 \text{ m} \times 3 \text{ m} \times 4 \text{ m}$   
 $(2 \times 3 \times 4) \text{ m}$   
 $2 \times 3 \times 4 \text{ m}^3$   
 $2 \text{ m} \times 3 \text{ m} \times 4 \text{ m}$   
 $2 \times 3 \times 4 \text{ m}$

### 2.2.5 list-units,range-units

2 T, 4 T, 6 T and 8 T  
(2, 4, 6 and 8) T  
2 T, 4 T, 6 T and 8 T  
2, 4, 6 and 8 T  
2 °C to 4 °C  
(2 to 4) °C  
2 °C to 4 °C  
2 to 4 °C

### 2.2.6 exponent-to-prefix

1700 g  
 $1.7 \times 10^3$  g  
1700 g  
1.7 kg  
 $1.700 \times 10^3$  g  
 $1.7 \times 10^3$  g

## 3 Tabular material

Table 9: Standard behaviour of the S column type.

Some Values
2.3456
34.2345
−6.7835
90.473
5642.5
$1.2 \times 10^3$
$10^4$

Table 10: Detection of surrounding material in an S column.

Some Values
12.34
975.31
44.268 <sup>a</sup>

Table 11: Controlling complex alignment with the tablenum macro.

Heading	Heading	Heading	Heading
Info	More info		
Info	More info	88.999	aaa
	12.34		bbb
	333.5567	33.435	ccc
	4563.21		ddd

### 3.0.1 table-parse-only

Table 12: Parsing without aligning in an S column.

Decimal-centred	Simple centring
12.345	12.345
6.78	6.78
−88.8(9)	−88.8(9)
$4.5 \times 10^3$	$4.5 \times 10^3$

### 3.0.2 table-number-alignment

Table 13: Aligning the S column.

Some Values	Some Values	Some Values	Some Values
2.3456	2.3456	2.3456	2.3456
34.2345	34.2345	34.2345	34.2345
56.7835	56.7835	56.7835	56.7835
90.473	90.473	90.473	90.473

### 3.0.3 table-figures-decimal, table-figures-exponent, table-figures-integer, table-figures-uncertainty

Table 14: Reserving space in S columns.

Values	Values	Values	Values	Values	Values
2.3	2.3	2.3(5)	$2.3 \pm 0.5$	2.3	$2.3 \times 10^8$
34.23	34.23	34.23(4)	$34.23 \pm 0.04$	34.23	34.23
56.78	56.78	56.78(3)	$56.78 \pm 0.03$	−56.78	$56.78 \times 10^3$
3.76	3.76	3.76(2)	$3.76 \pm 0.02$	±3.76	$10^6$

### 3.0.4 table-comparator

Table 15: Reserving space for comparators in `S` columns.

Values	Values
2.3	$<2.3 \times 10^8$
34.23	$=34.23$
56.78	$\geq 56.78 \times 10^3$
3.76	$\gg 10^6$

### 3.0.5 table-format

Table 16: Using the `table-format` option.

Values	Values	Values	Values	Values
2.3	2.3	2.3(5)	2.3	$2.3 \times 10^8$
34.23	34.23	34.23(4)	34.23	34.23
56.78	56.78	56.78(3)	$-56.78$	$56.78 \times 10^3$
3.76	3.76	3.76(2)	$\pm 3.76$	$10^6$

### 3.0.6 table-space-text-pre, table-space-text-post

Table 17: Text before and after numbers.

Values
2.3456
34.2345 <sup>a</sup>
56.7835
now 90.473

### 3.0.7 table-align-comparator, table-align-exponent, table-align-uncertainty

Table 18: The `table-align-exponent` option

Header	Header
$1.2 \times 10^3$	$1.2 \times 10^3$
$1.234 \times 10^{56}$	$1.234 \times 10^{56}$

Table 19: The `table-align-uncertainty` option

Header	Header
1.2 $\pm 0.1$	1.2 $\pm 0.3$
1.234 $\pm 0.005$	1.234 $\pm 0.005$

Table 20: The `table-align-comparator` option

Header	Header
> 1.2	>1.2
<12.34	<12.34

**3.0.8 table-omit-exponent**Table 21: The `table-omit-exponent` option

Header	Header / 1
$1.2 \times 10^3$	1.2
$3 \times 10^2$	0.3
$1.0 \times 10^4$	10

**3.0.9 table-align-text-pre,table-align-text-post****3.0.10 table-auto-round**Table 22: The `table-auto-round` option.

Header	Header
1.2	1.2
1.2345	1.2345

**3.0.11 parse-numbers**

Table 23: Aligning without parsing.

Some values	Some values	Some values	Some values
2.35	2.35	2.35	2.35
34.234	34.234	34.234	34.234
56.783	56.783	56.783	56.783
3.762	3.762	3.762	3.762
$\sqrt{2}$	$\sqrt{2}$	$\sqrt{2}$	$\sqrt{2}$

### 3.0.12 table-text-alignment

Table 24: Aligning text in **S** columns.

Values	Values	Values
992.435	992.435	992.435
7734.2344	7734.2344	7734.2344
56.7834	56.7834	56.7834
3.7462	3.7462	3.7462