The cooking-units package*

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Abstract

x g 1–c kg This package enables user to globally format units, to switch between them and since v1.10 you can also change your recipes for a given number of persons. It should be used for light-hearted things like cookery books (and not e.g. scientific texts).[1]
Please read through the section “Important Changes”

Contents

*This document corresponds to Benedikt Vitecek v1.30, dated 2018/04/20.
[1]I did hide some grammatical and spelling errors for easter egg hunters ☺.

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60 Eier
62 Eier

1 Introduction

While writing on a cookery book I used – for reasons whatsoever – three different units for weight: kilogram (kg), gram (g) and decagram (dag, or older: dkg). Later my mother told me that she doesn't like it if a cookery book uses more than two different units (for weight in this case). Happily I hardly used Decagram and therefore didn't have many problems changing the units. But, well ... I am using LaTeX and changing those units by hand seemed not very LaTeXlike, so I started writing some code to convert units. I expanded the code, rewrote it in LaTeX3 (which is much more pleasant than LaTeX 2_ε) and here it is.

1.1 Important Changes

Language I am now using the translations package and I hope it makes things easier. As such, declaring the used language through class options shouldn't be necessary anymore.

Phrases This package now supports the usage of "phrases" (words used instead of certain integers) (which I think are called "counting measures" in english, but I am not sure).

`\cutext` and `\Cutext` If no translation is found for a specific language, `\cutext` and `\Cutext` are replaced by `\cunum` with a warning is given.

Commands Currently, it seems that allowing ⟨*label*⟩ to be set by arrow-brackets was not the best idea as it leads to problems if they are made active (e.g. babel and option `spanish`). As such, `<` is not allowed as a "special-sign" anymore as this package tries to "fix" this idea (at least make it work). If any problems occur (for this specific case or in general) please feel free to contact me.

1.2 Supported languages

- German
- English
- French (currently suboptimal[2])

Have another language to add or a correction of an existing one? See **??** for more details. Wanna just check the existing translations? See **??**.

[2] You can only get limited information from the internet.

2 The Commands

This package offers the following commands for unit printing (and converting):

- `\cunum<`⟨*label*⟩`>[`⟨*options*⟩`]{`⟨*amount*⟩`}[`⟨*space*⟩`]{`⟨*unit-key*⟩`}`
- `\cutext<`⟨*label*⟩`>[`⟨*options*⟩`]{`⟨*amount*⟩`}{`⟨*unit-key*⟩`}`
- `\Cutext<`⟨*label*⟩`>[`⟨*options*⟩`]{`⟨*amount*⟩`}{`⟨*unit-key*⟩`}`
- `\cuam<`⟨*label*⟩`>[`⟨*options*⟩`] {`⟨*amount*⟩`}`
- `\cusetup{`⟨*options*⟩`}`

Numbers and units are printed using `\cunum`. The numerical part can interpret `_` and `/` as (mixed) fractions and `--` as a separator for ranges; to convert units use the option ⟨*old-unit*⟩`=`⟨*new-unit*⟩[3]. It furthermore allows the sign `?` to be used as a placeholder for not known amounts and raises a warning to remind that this amount needs a check-up[4]. `[`⟨*space*⟩`]` adds a space between the number and the unit using `\phantom`.

For a list of predefined units have a look at **??**.

⟨*label*⟩ is explained in **??**.

1 kg	`\cunum{1}{kg}\\`
2.3 kg	`\cunum{2.3}{kg}\\`
2.3 kg	`\cunum{2,3}{kg}\\`
2–3 kg	`\cunum{2--3}{kg}\\`
2.5–3.5 kg	`\cunum{2.5--3.5}{kg}\\`
2500–3500 g	`\cunum[kg=g]{2.5--3,5}{kg}\\`
392 °F	`\cunum[C=F]{200}{C}\\`
356–392 °F	`\cunum[C=F]{180--200}{C}\\`
½ m	`\cunum{1/2}{m}\\`
1 ½ m	`\cunum{1_1/2}{m}\\`
1 ½ m	`\cunum[m=cm]{1_1/2}{m}\\`
? ℓ	`\cunum{?}{l}\\`
50 dag	`\cunum{50}{dag}\\`
5 dag	`\cunum{5}[0]{dag}\\`
1.12 m	`\cunum{1.1234}{m}`

Decimal numbers are automatically rounded to 2 digits after the colon, temperatures (`C`, `F`, `K` and `Re`) are automatically rounded to integers.[5]

`\cutext` and `\Cutext` print the number and the written name of the unit. Since v1.10 it works similar[6] to `\cunum`: it allows the conversion between units and interprets the numerical part (again `_` and `/` are used for (mixed) fractions and `--` for ranges). Furthermore, if the package option `use-numerals` is used, integers below a specific integer (by default 13; see `use-numerals-below`) are written out with `\Cutext` capitalizing the first letter (using package fmtcount).

[3] New keys can be added and defined, see **??** and **??** for further information.
[4] You can customize this behavior, see **??**
[5] You can – of course – change this behavior, see **??**.
[6] One could also say “exactly like”.

1 litre	`\cutext{1}{l}\\`
1 litre	`\Cutext{1}{l}\\`
1–2 litres	`\Cutext{1--2}{l}\\`
12 litres	`\cutext{12}{l}\\`
13 litres	`\Cutext{13}{l}`

and using package option `use-numerals=true`

one litre	`\cutext{1}{l}\\`
One litre	`\Cutext{1}{l}\\`
one–two litres	`\cutext{1--2}{l}\\`
One–two litres	`\Cutext{1--2}{l}\\`
twelve litres	`\cutext{12}{l}\\`
13 litres	`\Cutext{13}{l}`

Furthermore, since v1.10 `\cutext` and `\Cutext` also allow their units to be changed (this behavior can be altered using `cutext-change-unit`):

	`\cusetup{l=ml}`
1000 millilitres	`\cutext{1}{l}\\`
1000 millilitres	`\Cutext{1}{l}\\`
1000–2000 millilitres	`\cutext{1--2}{l}\\`
12000 millilitres	`\cutext{12}{l}\\`
13000 millilitres	`\Cutext{13}{l}\\`
? litres	`\Cutext{?}{l}\\`
½ litres	`\Cutext{1/2}{l}\\`

`\cuam` works like `\cunum`, but without a unit, so changing units doesn't affect it. Like `\cunum` `_` and `/` are used to imply a (mixed) fraction and `--` is used for ranges.

3	`\cuam{3}\\`
2–3	`\cuam{2--3}\\`
⅔	`\cuam{2/3}\\`
1⅔	`\cuam{1_2/3}`

Furthermore it allows the concept of "phrases" (replacing a positive integer by a word, such as "12" becoming "dozen"[7]) which can be activated by the option `use-phrases` (as I don't know any english phrases, I switched the language to german for the following examples)

	`\cusetup{use-phrases=true}`
11	`\cuam{11}\\`
1 Dutzend	`\cuam{12}\\`
13	`\cuam{13}\\`
2 Dutzend	`\cuam{24}\\`
1–2 Dutzend	`\cuam{12--24}\\`
12–13	`\cuam{12--13}\\`
18	`\cuam{18}\\`
5 Dutzend	`\cuam{60}`

[7] At least I think

3 Label & refs: Changing the amount of the recipe

What if you don't want to change units, but the amounts of the recipe because you cook not for 4 persons, but for 2 and don't like to do the math? Simple, use the following commands:

- `\culabel{`⟨*label*⟩`}{`⟨*number of persons*⟩`}`
- `\curef{`⟨*label*⟩`}`

The first one is the important one: It defines a ⟨*label*⟩ for a recipe which is initially for ⟨*number of persons*⟩. Afterwards ⟨*label*⟩ can be used to tell the commands from **??** that the given amounts are for ⟨*number of persons*⟩. Each ⟨*label*⟩ must be unique and an error is raised if a ⟨*label*⟩ is already defined.

If you would like to print the number of persons this recipe is for, use `\curef`, which is fully expandable.

The following example uses `\culabel` to specify that the recipe is initially intended for 2 persons:

recipe for 2 persons:
10–20 dag flour,
½ ℓ water,
10 gramme nuts,
2–3 eggs,
180 °C (356 °F) open fire

```
\culabel{recipe}{2}
recipe for \curef{recipe} persons:\\
\cunum<recipe>{10--20}{dag} flour,\\
\cunum<recipe>{1/2}{l} water,\\
\cutext[ref=recipe]{10}{g} nuts,\\
\cuam<recipe>{2--3} eggs,\\
\cunum{180}{C} (\cunum[C=F]{180}{C})
open fire
```

In combination with the option `set-number-of-persons` and `recalculate-amount` you can have this recipe changed to four persons:

```
\culabel{recipe}{2}
%% adding options:
\cusetup{set-number-of-persons=4,recalculate-amount=true}
```

recipe for 4 persons:
20–40 dag flour,
1 ℓ water,
20 gramme nuts,
4–6 eggs,
180 °C (356 °F) open fire

```
recipe for \curef{recipe} persons:\\
\cunum<recipe>{10--20}{dag} flour,\\
\cunum<recipe>{1/2}{l} water,\\
\cutext[ref=recipe]{10}{g} nuts,\\
\cuam<recipe>{2--3} eggs,\\
\cunum{180}{C}
(\cunum[C=F]{180}{C}) open fire
```

Note that fractions are automatically evaluated and that only values with a ⟨*label*⟩ are changed (`\cunum{180}{C}` for example stays the same which also makes sense as the heat should be the same).

4 Some Interesting options

This package has some options which might be of interest and to highlight them, this section exists. All options can be found in **??**.

4.1 Numerals

use-numerals
use-numerals-below
print-numerals

As seen above, you can use the *package*-option `use-numerals` to print integers used by `\cutext` and `\Cutext` below `use-numerals-below` (13 by default) by fmtcount. You can still decide if numerals should be printed or not with `print-numerals`.

Note: `use-numerals` is a package option as it needs to load fmtcount which is not loaded by default.

4.2 Phrases

use-phrases

In (I presume) all languages there exist phrases for a given amount or a number of things (think it is called "counting measurement"). In German you may say instead of "12": "ein Dutzend". Using this option you can tell this package to replace predefined integers used in `\cuam` by phrases for the currently used language (to define new ones, see **??**)

Using (for example) language `ngerman` (or `naustrian`, etc.) with package option `use-phrases=true` gives:

```
                          \cusetup{use-phrases=true}
1 Dutzend                 \cuam{12}\\
2 Dutzend                 \cuam{24}\\
1–2 Dutzend               \cuam{12--24}\\
12–13                     \cuam{12--13}\\
18                        \cuam{18}\\
5 Dutzend                 \cuam{60}
```

This of course also works with the *package*-option `use-numerals`:

```
                          \cusetup{use-phrases=true}
ein Dutzend               \cuam{12}\\
zwei Dutzend              \cuam{24}\\
ein–zwei Dutzend          \cuam{12--24}\\
12–13                     \cuam{12--13}\\
18                        \cuam{18}\\
fünf Dutzend              \cuam{60}
```

Note: Currently only the lower-case variant for `use-numerals` is supported. Furthermore this feature is only available for `\cuam`.

4.3 Rounding temperatures

By default temperatures are rounded to integers (using `round-to-int = true`). Since 1.30 it is possible to round amounts to a negative precision. If you want to round temperatures to the tens see the following example (`set-option-for-`⟨*unit*⟩ is described in **??**).

180 °C	`\cunum{180}{C}\\`
356 °F	`\cunum[C=F]{180}{C}\\`
144 °Ré	`\cunum[C=Re]{180}{C}\\`
453 K	`\cunum[C=K]{180}{C}\\`
	`\cusetup{set-option-for-C={round-precision=-1}}`
	`\cusetup{set-option-for-F={round-precision=-1}}`
	`\cusetup{set-option-for-Re={round-precision=-1}}`
	`\cusetup{set-option-for-K={round-precision=-1}}`
180 °C	`\cunum{180}{C}\\`
360 °F	`\cunum[C=F]{180}{C}\\`
140 °Ré	`\cunum[C=Re]{180}{C}\\`
450 K	`\cunum[C=K]{180}{C}\\`

5 Predefined units & some notes

In **??** and you can find all predefined units which can be transformed into each other (sorted by group). Other predefined units (which cannot be used for transformation) are shown in **??**. **??** pretty much exists just for fun.

Table 1: This table shows all units which can be transformed into each other, sorted by group. The columns "default" show the abbreviations used if for given language no translation is defined. The translations used for `\cutext` and `\Cutext` are shown in **??**. Note that "electron volt" exists just for fun.

description	key	default	description	key	default
kilogramme	`kg`	kg	metre	`m`	m
decagramme	`dag`	dag	decimetre	`dm`	dm
gramme	`g`	g	centimetre	`cm`	cm
ounce	`oz`	oz	millimitre	`mm`	mm
pound	`lb`	lb	inch	`in`	in
stick (of butter)	`stick`	stick			
day	`d`	d	litre	`l`	l
hour	`h`	h	decilitre	`dl`	dl
minute	`min`	min	centilitre	`cl`	cl
second	`s`	s	millilitre	`ml`	ml
calorie	`cal`	cal	degree Celsius	`C`	°C
kilocalorie	`kcal`	kcal	degree Fahrenheit	`F`	°F
joule	`J`	J	degree Réaumur	`Re`	°Ré
kilojoule	`kJ`	kJ	kelvin	`K`	K
electron volt	`eV`	eV			

6 Defining units

New units can be defined using

- `\declarecookingunit`

Table 2: A (not only) spoonful of (more or less) country and language dependent units. Please note that sometimes a translation is nearly impossible as a unit (e.g. “saltspoonful”) may not exist in another language (like german; at least I never heard of it). So please only use units known to you.

description	key	symbol
pinch	`pn`	pinch
tablespoon	`EL`	EL
teaspoon	`TL`	TL
dessertspoonful	`dsp`	dsp.
coffeespoonful	`csp`	csp.
saltspoonful	`ssp`	ssp.
Messerspitze (point of a knife)	`Msp`	Msp.

Table 3: List of (not really) nonsense units (exist just for fun, there will be no support for those units; unless – of course – you really want it).

unit-key	symbol
`eVc-2`	$^{eV}/_{c^2}$
`hbareV-1`	$^{\hbar}/_{eV}$
`chbareV-1`	$^{c\hbar}/_{eV}$
`(chbareV-1)3`	$^{c^3\hbar^3}/_{eV^3}$

- `\newcookingunit`
- `\providecookingunit`

`\declarecookingunit` `\declarecookingunit[`⟨*symbol*⟩`]{`⟨*unit-key*⟩`}`
`\newcookingunit` `\newcookingunit[`⟨*symbol*⟩`]{`⟨*new-unit-key*⟩`}`
`\providecookingunit` `\providecookingunit[`⟨*symbol*⟩`]{`⟨*new-unit-key*⟩`}`

These commands define the unit ⟨*unit-key*⟩. If the key is not the same as the printed symbol use `[`⟨*symbol*⟩`]`. Note that ⟨*unit-key*⟩ should neither contain `/` nor `,`.

`\newcookingunit` raises an error if the unit is already defined, `\declarecookingunit` creates or (if given) overwrites ⟨*symbol*⟩ and `\providecookingunit` does nothing if the unit is already defined.

All units have male gender `m` by default.

Some examples:

```
\declarecookingunit{kg}
\declarecookingunit{g}
\declarecookingunit[Msp.] {Msp}
\declarecookingunit[\ensuremath{{}^{\circ}}\kern-\scriptspace C] {C}
```

Note: The definition of the printed degree Celsius is directly copied and pasted from (a maybe older version of) siunitx

7 Defining options to change units

Options (to change units) can be newly defined or added to already existing keys (units) using

- \cudefinekeys
- \cudefinesinglekey
- \cuaddkeys
- \cuaddsinglekeys
- \cuaddtokeys

I apologize for the (name) inconsistency between \cudefinekeys and \cudefinesinglekey (although they are named similarly, they work different).

\cudefinekeys
\cudefinesinglekey

```
\cudefinekeys{⟨unit-key-1⟩}
  {
    {⟨unit-key-2⟩} {⟨1 unit-key-1 are ... unit-key-2⟩}
    {⟨unit-key-3⟩} {⟨1 unit-key-1 are ... unit-key-3⟩}
    {⟨unit-key-4⟩} {⟨1 unit-key-1 are ... unit-key-4⟩}
    ...
  }
\cudefinesinglekey{⟨unit-key-1⟩}
  {
    {⟨unit-key-2⟩} {⟨1 unit-key-2 are ... unit-key-1⟩}
    {⟨unit-key-3⟩} {⟨1 unit-key-3 are ... unit-key-1⟩}
    ...
  }
```

If you define new units (see **??**) and cannot add them to already existing keys you can use \cudefinekeys bzw. \cudefinesinglekey to define new keys.

\cudefinekeys takes {⟨*unit-key-1*⟩} as a "basis", defines a key with the name ⟨*unit-key-1*⟩ and adds the values ⟨*unit-key-1*⟩, ⟨*unit-key-2*⟩, ⟨*unit-key-3*⟩, etc. Furthermore this command also defines the keys ⟨*unit-key-2*⟩, ⟨*unit-key-3*⟩, etc. with the same values as ⟨*unit-key-1*⟩. Please note that ⟨...⟩ has to be a number.

Sometimes it is not that easy and the conversion of one unit into another needs are more complicated formula (see for example temperatures). If that is the case use \cudefinesinglekey. As the name says it defines *only* the key ⟨*unit-key-1*⟩ with the values ⟨*unit-key-1*⟩, ⟨*unit-key-2*⟩, etc. The advantage of this command is that now ⟨...⟩ can be a formula and the numerical input can be placed explicitly using `#1`.

Example: This example defines following keys with their respective value:

- the key `kg` with the values `kg`, `dag`, `g` and `oz`
- the key `dag` with the values `kg`, `dag`, `g` and `oz`
- the key `g` with the values `kg`, `dag`, `g` and `oz`
- the key `oz` with the values `kg`, `dag`, `g` and `oz`
- the key `d` with the values `d`, `h`, `min` and `s`

- ...

$1\,\mathrm{kg} = 1\,\mathrm{kg}$	$1\,\mathrm{kg} = 100\,\mathrm{dag}$	$1\,\mathrm{kg} = 1000\,\mathrm{g}$
$1\,\mathrm{kg} = 35.273\,99\,\mathrm{oz}$	$1\,\mathrm{kg} = 2.204\,622\,6\,\mathrm{lb}$	

```
\cudefinekeys {kg}
  {
    {dag}{ 100 } %% 1 kg are 100 dag
    {g}  { 1000 } %% 1 kg are 1000 g
    {oz} { 35.27399 }  %% 1 kg are 35.27399 oz
    {lb} { 2.204 622 6 } %% 1 kg are  2.204 622 6 lb
  }

\cudefinekeys {d}
  {
    {h}  { 24 } %% 1 day are 24 hours
    {min}{ 1440 } %% 1 day are 1440 minutes
    {s}  { 86400 } %% 1 day are 86400 seconds
  }
```

To convert degree Fahrenheit to degree Celsius, kelvin and degree Réamur one needs the formulas[8]

$$T_C = (T_F - 32) \cdot \frac{5}{9}$$
$$T_K = (T_F - 459.67) \cdot \frac{5}{9}$$
$$T_{Re} = (T_F - 32) \cdot \frac{4}{9}$$

with T_F being the input temperature in degree Fahrenheit and T_C being the same temperature in degree Celsius, etc. Using `\cudefinesinglekey` the key `F` with values `C`, `K` and `Re` is defined:

```
\cudefinesinglekey {F}
  {
    {C}  { ( #1 - 32 ) *  5/9 } %% see formulas above
    {K}  { ( #1 + 459.67 ) *  5/9 }
    {Re} { ( #1 - 32 ) * 4/9 }
  }
```

This defines the key `F` with the values `F`, `C`, `K` and `Re`.

[8] See Wikipedia.

\cuaddkeys
\cuaddsinglekeys

```
\cuaddkeys{⟨unit-key-1⟩}
  {
    {⟨unit-key-2⟩} {⟨1 unit-key-1 are ... unit-key-2⟩}
    {⟨unit-key-3⟩} {⟨1 unit-key-1 are ... unit-key-3⟩}
    {⟨unit-key-4⟩} {⟨1 unit-key-1 are ... unit-key-4⟩}
    ...
  }
\cuaddsinglekeys{⟨unit-key-1⟩}
  {
    {⟨unit-key-2⟩} {⟨1 unit-key-2 are ... unit-key-1⟩}
    {⟨unit-key-3⟩} {⟨1 unit-key-3 are ... unit-key-1⟩}
    ...
  }
```

These commands add ⟨*unit-key-2*⟩, etc. to the already defined key ⟨*unit-key-1*⟩.

`\cuaddkeys` takes the already defined key `{`⟨*unit-key-1*⟩`}` as a "basis", and adds ⟨*unit-key-2*⟩, ⟨*unit-key-3*⟩, etc. to its values. Furthermore it adds those new values to other keys linked to ⟨*unit-key-1*⟩ and defines the new keys ⟨*unit-key-2*⟩, etc. with the same values as ⟨*unit-key-1*⟩.

If the conversion is more complicated use `\cuaddsinglekeys`. It adds ⟨*unit-key-2*⟩, etc. as values to ⟨*unit-key-1*⟩. The numerical input can be placed using `#1` (see `\cudefinesinglekey`). This command neither defines new keys nor does it add values to other keys than ⟨*unit-key-1*⟩.

Example: Suppose you are British (I am sorry, I can't think of another reason to use those units) and you want to implement 'stone' (yes, I was surprised myself that such a unit exists, but it even appears in a Sherlock Holmes story). You exactly know that 1 st equals 14 lb, well ... now you have two choices. `\cuaddkeys` or `\cuaddtokeys` (use the one best fitting). This example uses the first, the next the latter one.

```
\newcookingunit{st} %% defining new unit 'stone'
\cuaddkeys{lb}  %% adding st to lb (could also add to kg, dag and oz)
  {
    {st} { 1/14 }  %% 1 lb are 1/14 st as 14 lb are 1 st
  }
```

0.07 st	`\cunum[lb=st]{1}{lb}\\`
14 lb	`\cunum[st=lb]{1}{st}\\`
6350.29 g	`\cunum[st=g]{1}{st}\\`
6.35 kg	`\cunum[st=kg]{1}{st}\\`
0.16 st	`\cunum[kg=st]{1}{kg}\\`
101.6 kg	`\cunum[st=kg]{16}{st}`

Example: Now you want to add degree Rømer and convert Celsius to degree Rømer:

$$T_{R\o} = T_C * \frac{21}{40} + 7.5$$

```
%% defining new unit 'degree R{\o}mer'
\newcookingunit [\ensuremath{ {} ^ { \circ } }\kern-\scriptspace R{\o}] {Ro}
\cuaddsinglekeys {C} %% adds value 'Ro' to 'C'.
  {
```

```
    {Ro} { #1 * 21/40 + 7.5 }
  }
\cusetup %% round to integer automatically
  {
    set-option-for-Ro = { round-to-int = true }
  }
```

10 °C	`\cunum{10}{C}\\`
13 °Rø	`\cunum[C=Ro]{10}{C}`

`\cuaddtokeys` `\cuaddtokeys {⟨unit-key-1⟩} {⟨unit-key-2⟩} {⟨1 unit-key-2 are ... unit-key-1⟩}`

Works similar to `\cuaddkeys` regarding the definition of keys.

Example: Continuing the example from before, this time with `\cuaddtokeys`:

```
\newcookingunit{st} %% defining (again) new unit 'stone'
\cuaddtokeys {lb} {st} { 14 }  %% 1 st are 14 lb
```

0.07 st	`\cunum[lb=st]{1}{lb}\\`
14 lb	`\cunum[st=lb]{1}{st}\\`
6350.29 g	`\cunum[st=g]{1}{st}\\`
6.35 kg	`\cunum[st=kg]{1}{st}\\`
0.16 st	`\cunum[kg=st]{1}{kg}\\`
101.6 kg	`\cunum[st=kg]{16}{st}`

8 Language support

Unit names and symbols depend on the language. To change the name depending on the language you can use `\cudefinename` and to only change symbols use `\cudefinesymbol`.

`decimal-mark`
`one(m)`
`one(f)`
`one(n)`

Those are special keys (as they cannot be used as units). Not only are printed units language depending, but as is the decimal mark (“.” or “,”). To set the decimal mark use `decimal-mark` (see examples below).

Furthermore if you are using the package-option `use-numerals` you may also use the keys `one(m)`, `one(f)` and `one(n)`. If you use this option, integers below a certain value (see option `use-numerals-below`) are written-out. The only problem is the written-out “1” mostly depends on the gender of the following word (e.g. “ein Baum” (m), “eine Pflanze” (f) and “ein Auto” (n)). To set the written-out 1 to be correct with the gender of the used unit, use these keys (see also examples below)

\cudefinename

```
\cudefinename{⟨Language⟩}
  {
    {⟨unit-key-1⟩} [⟨symbol-1⟩] {⟨singular-1⟩} [⟨plural-1⟩] <⟨gender⟩>
    {⟨unit-key-2⟩} [⟨symbol-2⟩] {⟨singular-2⟩} [⟨plural-2⟩] <⟨gender⟩>
    ...
  }
```

This command defines the names (and optionally the symbol) of the units printed in \cutext and \Cutext (and \cunum regarding the symbol) for the specific ⟨*Language*⟩. For details regarding ⟨*language*⟩ see the translations documentation.

If the plural form of the name differs from the singular form use [⟨*plural*⟩] to specify the plural form, if no [⟨*plural*⟩] is given the plural will be set equal to its singular. The singular form is only used if the number in \cutext and \Cutext is equal to 1.

⟨*gender*⟩ can be m (maskulin), f (feminin) or n (neutrum). If not given m is used as default.

```
\cudefinename {English}
  {
    {kg}  {kilogramme}
    {oz}  {ounce}
    {h}   {hour} [hours]
    {C}   {degree\space Celsius} [degrees\space Celsius]
    {decimal-marker} {.}
    {one(m)} {one}
    {one(f)} {one}
    {one(n)} {one}
 }

\cudefinename {German}
  {
    {kg}  {Kilogramm} <n>
    {oz}  {Unze} <f>
    {d}   {Tag} [Tage]
    {h}   {Stunde} [Stunden] <f>
    {C}   {Grad\space Celsius}
    {decimal-marker} {,}
    {one(m)} {ein}
    {one(f)} {eine}
    {one(n)} {ein}
  }
```

\cudefinesymbol

```
\cudefinesymbol{⟨Language⟩}
  {
    {⟨unit-key-1⟩} {⟨symbol-1⟩}
    {⟨unit-key-2⟩} {⟨symbol-2⟩}
    ...
  }
```

This command defines the symbols of the units printed in \cunum for the specific ⟨*language*⟩. It works similar as \cudefinename, but only the symbols (and no names) can be set. For details regarding ⟨*language*⟩ see the translations documentation.

```
\cudefinesymbol {English}
```

```
  {
    {decimal-mark} {.}
    {one(m)} {one}
    {one(f)} {one}
    {one(n)} {one}
  }
\cudefinesymbol {German}
  {
    {decimal-mark} {,}
    {one(m)} {ein}
    {one(f)} {eine}
    {one(n)} {ein}
  }
\cudefinesymbol {French}
  {
    {l} {L}
    {dl} {dL}
    {cl} {cL}
    {ml} {mL}
    {decimal-mark} {.}
    {one(m)} {un}
    {one(f)} {une}
    {one(n)} {un}
  }
```

Example: Imagine that instead of the abbreviation "dag" for "decagramme" you want to use "ducks" (because ... I don't know). You can easily do this via

```
\cudefinesymbol {English}
  {
    {dag} {ducks}
  }
```

As you can see it may be a bit suboptimal as there is no plural version allowed. You do it anyway and end up with:

12 ducks weed	`\cunum{12}{dag} weed\\`
3 ducks nuts	`\cunum{3}[0]{dag} nuts\\`
10 ducks duckmeat	`\cunum{10}{dag} duckmeat`

8.1 Phrases

Each language has synonyms for certain (integer) numbers. This package supports those phrases and they can be implemented with the following command and used by `\cuam`:

\cudefinephrase

```
\cudefinephrase{⟨Language⟩}
  {
    {⟨integer-1⟩}   {⟨phrase-1⟩} [⟨phrase-1-plural⟩] <⟨gender-1⟩>
    {⟨integer-2⟩} * {⟨phrase-2⟩} [⟨phrase-2-plural⟩] <⟨gender-2⟩>
    ...
  }
```

This command pairs for a given `{⟨Language⟩}` (see package translations) the number `{⟨integer-1⟩}` with `{⟨phrase-1⟩}` (& plural and gender). The package then checks if the amount given in `\cuam` is either this number or a *multiple* of it.

If the behavior of checking for a multiple is not wanted, you can use the optional star `*` for a given `{⟨integer⟩}`

⟨*gender*⟩ can be `m`, `f` or `n`. It is `m` by default.

Afterwards the numbers are ordered from highest to lowest so that the phrase with the highest number is used (if used at all).

Furthermore, it chooses star (`*`) phrases over non-star phrases.

Note: Numbers with the optional star `*` are stored as negative numbers.

Example: The following example creates some phrases for the language "German":

```
\cudefinephrase {German}
  {
    { 12 }  {Dutzend} <n> %% implemented by default
    { 60 }  {Schock} <n>
    { 6  }* {halbes\ Dutzend} <n>
  }
```

Let's just use them (german language activated!):

	`\cusetup{use-phrases=true}`
1 Dutzend	`\cuam{12}\\`
2 Dutzend	`\cuam{24}\\`
1 Schock	`\cuam{60}\\`
2 Schock	`\cuam{120}\\`
1 halbes Dutzend	`\cuam{6}\\`
18	`\cuam{18}`

As you can see, "Schock" (60) is preferred over "Dutzend" (12) as it linked to the higher number. Furthermore, for 6 the phrase "halbes Dutzend" (half a dozen) is used, but because it is a star version it is *not* used for 18.

9 Options

Options in cooking-units can mostly be set globally using `\cusetup` or locally using the optional argument of the respective command (but *not* as a package option). The only exception is the option given in **??** which needs to be used as a package option.

9.1 Load time options

use-numerals `\usepackage[use-numerals=⟨true/false⟩]{cooking-units}`

If set to `true` loads package fmtcount and uses `\numberstringnum` for `\cutext` and `\Numberstringnum` for `\Cutext` to write-out numbers below `use-numerals-below` (13 by default), integers above are printed as numbers. You can decide to not print any numerals by setting `print-numerals` to `false`.

Note: `use-numerals` is a package option as it needs to load fmtcount which is not loaded by default.

Note: Please note the keys `one(m)`, `one(f)` and `one(n)` to change the printed "one" (as "one" is in many languages dependent on the gender of the following word. E.g in German: Masculine: ein Baum, Feminin: eine Pflanze, Neutrum: ein Auto).

one kilogramme	`\cutext{1}{kg}\\`
One kilogramme	`\Cutext{1}{kg}\\`
two kilogramme	`\cutext{2}{kg}\\`
Two kilogramme	`\Cutext{2}{kg}\\`
twelve kilogramme	`\cutext{12}{kg}\\`
13 kilogramme	`\cutext{13}{kg}\\`
13 kilogramme	`\cutext{13}{kg}\\`
14 kilogramme	`\Cutext{14}{kg}`

9.2 Normal options

Options in this subsection can only be set as local options or using `\cusetup`, but *not* as load time options.

\cusetup Options can be set using `\cusetup{`⟨*options*⟩`}`.

9.2.1 Unit Specific options

<unit> ⟨*unit-key-1*⟩ = ⟨*unit-key-2*⟩

Change ⟨*unit-key-1*⟩ to ⟨*unit-key-2*⟩ (see **??** to define new options).

<group> ⟨*group*⟩ = ⟨*unit-key*⟩

Changes each unit contained in ⟨*group*⟩ to ⟨*unit-key*⟩ (⟨*unit-key*⟩ must be part of ⟨*group*⟩).

⟨*group*⟩	default ⟨*unit-key*⟩s
`weight`	kg, dag, g, oz, lb, stick
`length`	m, dm, cm, mm, in
`volume`	l, dl, cl, ml
`temperature`	C, F, K, Re
`energy`	cal, kcal, J, kJ, eV
`time`	d, h, min, s

```
                                \cusetup{weight=g}
1000 g                          \cunum{1}{kg}\\
10 g                            \cunum{1}{dag}\\
1 g                             \cunum{1}{g}\\
28.35 g                         \cunum{1}{oz}\\
453.59 g                        \cunum{1}{lb}\\
113.4 g                         \cunum{1}{stick}\\
```

`add-unit-to-group`

```
add-unit-to-group =
  {
    ⟨group1⟩ = {⟨unit-key-list⟩},
    ⟨group2⟩ = {⟨unit-key-list⟩},
    ...
  }
```

Adds each ⟨*unit-key*⟩ in ⟨*unit-keys-list*⟩ to ⟨*group*⟩.

Example: This example adds the unit `st` to the group `weight` and `Ro` to `temperature`.

```
\cusetup
  {
    add-unit-to-group = { weight = {st} , temperature = {Ro} }
  }
```

```
                                \cusetup{weight=g}
1000 g                          \cunum{1}{kg}\\
10 g                            \cunum{1}{dag}\\
1 g                             \cunum{1}{g}\\
28.35 g                         \cunum{1}{oz}\\
453.59 g                        \cunum{1}{lb}\\
113.4 g                         \cunum{1}{stick}\\
6350.29 g                       \cunum{1}{st}
```

`set-option-for-<unit-key>`
`add-option-for-<unit-key>`

```
set-option-for-⟨unit-key⟩ = {⟨ key1 = value1, ... ⟩}
add-option-for-⟨unit-key⟩ = {⟨ key1 = value1, ... ⟩}
```

Sets and adds ⟨*key1=value1,...*⟩ to a specific ⟨*unit-key*⟩, `erase-all-options` (see below) is used to erase all options for all ⟨*unit-key*⟩s.

You may want to attach some options to a special ⟨*unit-key*⟩. Those options are automatically activated if (and only if) the specific ⟨*unit-key*⟩ is used (or changed into this unit). Setting options overwrites old options. Adding options, well ... adds the options to the old ones.

You can "delete" the options by setting an empty value for a specific ⟨*unit-key*⟩ (or use `erase-all-options` (or `erase-all-options-for`) (see below) to erase all options for all ⟨*unit-key*⟩s)

Example: The following rounds the values to integers for `F`, `C`, `K` and `Re`:

```
\cusetup
  {
    set-option-for-F  = { round-to-int = true } ,
    set-option-for-C  = { round-to-int = true } ,
    set-option-for-K  = { round-to-int = true } ,
    set-option-for-Re = { round-to-int = true }
  }
```

`set-option-for`
`add-option-for`

```
set-option-for =
  {
    ⟨unit-key1⟩ = {⟨keys=vals⟩},
    ⟨unit-key2⟩ = {⟨keys=vals⟩},
    ...
  }
add-option-for =
  {
    ⟨unit-key1⟩ = {⟨keys=vals⟩},
    ⟨unit-key2⟩ = {⟨keys=vals⟩},
    ...
  }
```

Sets/adds each ⟨*keys=vals*⟩ to the specific ⟨*unit-key*⟩. Works pretty much the same way their `set-option-for-`⟨*unit-key*⟩ and `add-option-for-`⟨*unit-key*⟩ counterparts.

Example: The following example does the same as the example above:

```
\cusetup
  {
    set-option-for =
      {
        F  = { round-to-int = true } ,
        C  = { round-to-int = true } ,
        K  = { round-to-int = true } ,
        Re = { round-to-int = true }
      }
  }
```

`erase-all-options`
`erase-all-options-for`

```
erase-all-options
erase-all-options-for = {⟨unit-key1, unit-key2, ...⟩}
```

Erase options added to units. `erase-all-options` erases all options for *all* ⟨*unit-key*⟩s.

`erase-all-options-for` is used to remove added options from the specified ⟨*unit-key*⟩s.

Example: The following code erases all attached options from `C`, `F`, `K` and `Re`:

```
\cusetup{ erase-all-options-for = {C, F, K, Re} }
```

9.2.2 Command behavior

cutext-to-cunum

`cutext-to-cunum = ⟨true/false⟩`

Want to get rid of all \cutext and \Cutext? Set this option to `true` and all \cutext and \Cutext are changed into \cunum.

1 kilogramme	`\cutext{1}{kg}\\`
2 kilogramme	`\Cutext{2}{kg}\\`
½ kilogramme	`\cutext{1/2}{kg}\\`
? kilogramme	`\cutext{?}{kg}\\`
1000–2000 gramme	`\cutext[kg=g]{1--2}{kg}\\`
	`\cusetup{cutext-to-cunum=true}`
1 kg	`\cutext{1}{kg}\\`
2 kg	`\Cutext{2}{kg}\\`
½ kg	`\cutext{1/2}{kg}\\`
? kg	`\cutext{?}{kg}\\`
1000–2000 g	`\cutext[kg=g]{1--2}{kg}`

cutext-change-unit

`cutext-change-unit = ⟨true/false⟩`

Set this option to `true` if you do *not* want the units of \cutext and \Cutext to be changed. Set to `true` by default

1000 gramme	`\cutext[kg=g]{1}{kg}\\`
½ kilogramme	`\cutext[kg=g]{1/2}{kg}\\`
1000–2000 gramme	`\cutext[kg=g]{1--2}{kg}\\`
	`\cusetup{cutext-change-unit=false}`
1 kilogramme	`\cutext[kg=g]{1}{kg}\\`
½ kilogramme	`\cutext[kg=g]{1/2}{kg}\\`
1–2 kilogramme	`\cutext[kg=g]{1--2}{kg}`

cuam-version
cutext-version

`cuam-version = ⟨old/new⟩`
`cutext-version = ⟨old/new⟩`

Since v1.10 this package also parses and checks the input of \cutext and \Cutext and \cuam. If you want to restore the old behavior, set this option to `old`, but note that then you can neither change the amounts for a given number of persons nor change the unit of \cutext and \Cutext. Both of them are set to `new` by default.

9.2.3 Hooks

commands-add-hook
cunum-add-hook
cutext-add-hook
Cutext-add-hook
cuam-add-hook

`commands-add-hook = {⟨code⟩}`
`cunum-add-hook = {⟨code⟩}`
`cutext-add-hook = {⟨code⟩}`
`Cutext-add-hook = {⟨code⟩}`
`cuam-add-hook = {⟨code⟩}`

Adds ⟨*code*⟩ to the respective command (or in case of the first key: to *all* commands). The hook is executed *after* setting the keys, but *before* parsing and processing the input.

Please be carful with spaces, they will be printed.

Example: You would like to count how often all commands of this package are used. Simply add:

```
\newcounter{CookingUnitsCounter} %% or however you like it
\cusetup{commands-add-hook={\stepcounter{CookingUnitsCounter}}}
   %% beware of spaces inside the add-hook keys.
```

to your preamble. The following table lists how often each command is used in this documentation (with help of totalcount):

command	times
\cunum	??
\cutext	??
\Cutext	??
\cuam	??
total	??

9.2.4 Input and Outputs

`expand-both` `expand-amount` `expand-unit`

`expand-both` = ⟨*n/o/f/x*⟩
`expand-amount` = ⟨*n/o/f/x*⟩
`expand-unit` = ⟨*n/o/f/x*⟩

By default the commands \cunum, \cutext and \Cutext and \cunum do *not* expand their input. You can change the expansion behavior of the ⟨*amount*⟩ and/or ⟨*unit-key*⟩ using the options specified above. The meaning of the available values are the same as specified in the LaTeX3 document "interface3".

It is set to `n` by default.

`set-special-sign` `add-special-sign`

`set-special-sign` = {⟨*character(s)*⟩}
`add-special-sign` = {⟨*character(s)*⟩}

Allows ⟨*character(s)*⟩ to be used in the first mandatory argument of \cunum, \cuam, \cutext and \Cutext without raising an error (you can customize this behavior, see `set-unknown-message`). By default it is set to `?`. Please note that the sign `<` is not allowed as a special sign.

? kg	\cunum{?}{kg}\\
10?–20? kg	\cunum[g=kg]{10?--20?}{kg}\\
	\cusetup{add-special-sign={xX}}
x kg	\cunum{x}{kg}\\
X–? kg	\cunum{X--?}{kg}\\
	\cusetup{set-special-sign={}}
1 kg	\cunum{1}{kg}\\
1–2 kg	\cunum{1--2}{kg}

`set-unknown-message`

`set-unknown-message` = ⟨*error/warning/none*⟩

Using a special sign (`?` by default) causes a warning to be raised. Set this option to `error` if you want an error (as an extra emphasis), `warning` if you want a warning (default) and `none` if you don't want to know anything about it.

`set-cutext-translation-message` `set-cutext-translation-message = ⟨error/warning/none⟩`

If a translation for \cutext and \Cutext is not available the commands are replaced by \cunum. Currently – if this is happening – a warning is shown, you may change the behavior of the message (error, warning or not showing at all) using this option.

`print-numerals` `print-numerals = ⟨true/false⟩`

If the package option `use-numerals` is set to `true` you can deactivate the printing of numerals by setting `print-numerals` to `false` and activate them by setting it to `true`.

Note that this option is automatically set to `true` if `use-numerals` is used.

```
one kilogramme                  \cutext{1}{kg}\\
two kilogramme                  \cutext{2}{kg}\\
twelve kilogramme               \cutext{12}{kg}\\
13 kilogramme                   \cutext{13}{kg}\\
                                \cusetup{print-numerals=false}
1 kilogramme                    \cutext{1}{kg}\\
2 kilogramme                    \cutext{2}{kg}\\
12 kilogramme                   \cutext{12}{kg}\\
13 kilogramme                   \cutext{13}{kg}\\
```

`use-numerals-below` `use-numerals-below = ⟨integer⟩`

Only usable if the package option `use-numerals` is active. Prints the name of the numbers for integers used in \cutext and \Cutext smaller than ⟨*integer*⟩. ⟨*integer*⟩ is by default 13. Package fmtcount is used for this purpose. You can deactivate the printing of numerals by `print-numerals=false`.

```
one kilogramme                  \cutext{1}{kg}\\
two kilogramme                  \cutext{2}{kg}\\
twelve kilogramme               \cutext{12}{kg}\\
13 kilogramme                   \cutext{13}{kg}\\
                                \cusetup{use-numerals-below=10}
one kilogramme                  \cutext{1}{kg}\\
two kilogramme                  \cutext{2}{kg}\\
12 kilogramme                   \cutext{12}{kg}\\
13 kilogramme                   \cutext{13}{kg}\\
                                \cusetup{use-numerals-below=0}
1 kilogramme                    \cutext{1}{kg}\\
2 kilogramme                    \cutext{2}{kg}\\
12 kilogramme                   \cutext{12}{kg}\\
13 kilogramme                   \cutext{13}{kg}\\
                                \cusetup{use-numerals-below=12001}
one thousand gramme             \cutext[kg=g]{1}{kg}\\
two thousand gramme             \cutext[kg=g]{2}{kg}\\
twelve thousand gramme          \cutext[kg=g]{12}{kg}\\
13000 gramme                    \cutext[kg=g]{13}{kg}\\
```

parse-number

`parse-number = ⟨true/false⟩`

If set to `false` prints the number of `\cunum`, `\cutext`, `\Cutext` and `\cuam` as they are (after some ... well ... parsing due to "_"). Is set to `true` by default.

```
                                \cusetup{parse-number=false}
1 kg                            \cunum[kg=g]{1}{kg}\\
1–2 kg                          \cunum{1--2}{kg}\\
1———-2 kg                       \cunum{1----------2}{kg}\\
1.2 kg                          \cunum{1.2}{kg}\\
1,2 kg                          \cunum[kg=g]{1,2}{kg}\\
1/2 kg                          \cunum{1/2}{kg}\\
1_2/3 kg                        \cunum{1_2/3}{kg}\\
1/2_3 kg                        \cunum{1/2_3}{kg}\\
someweirdstuff kg               \cunum{someweirdstuff}{kg}\\
1 kilogramme                    \cutext{1}{kg}\\
100 kilogramme                  \cutext{100}{kg}\\
gjfak kilogramme                \cutext{gjfak}{kg}\\
12 kilogramme                   \cutext[kg=g]{12}{kg}\\
1———-2                          \cuam{1----------2}\\
1,2                             \cuam{1,2}\\
1_1/2                           \cuam{1_1/2}\\
kwflk                           \cuam{kwflk}\\
```

range-sign

```
range-sign = {⟨string⟩}
cunum-range-sign = {⟨string⟩}
cutext-range-sign = {⟨string⟩}
```

The second sets the *printed* range sign used in `\cunum` (and `\cuam`) to ⟨*string*⟩, the third sets the printed range sign used in `\cutext` and `\Cutext` to ⟨*string*⟩. Using the first option sets the range signs for both `\cunum` (and `\cuam`) and `\cutext`/`\Cutext` to ⟨*string*⟩.

The default for ⟨*string*⟩ is `--` (for both).

```
                                \cusetup{cunum-range-sign={~to~}}
1 to 2 kg                       \cunum{1--2}{kg}\\
1 to 2                          \cuam{1--2}\\
1–2 kilogramme                  \cutext{1--2}{kg}\\
1–2 kilogramme                  \Cutext{1--2}{kg}

                                \cusetup{cutext-range-sign={~to~}}
1–2 kg                          \cunum{1--2}{kg}\\
1–2                             \cuam{1--2}\\
1 to 2 kilogramme               \cutext{1--2}{kg}\\
1 to 2 kilogramme               \Cutext{1--2}{kg}

                                \cusetup{range-sign={~to~}}
1 to 2 kg                       \cunum{1--2}{kg}\\
1 to 2                          \cuam{1--2}\\
1 to 2 kilogramme               \cutext{1--2}{kg}\\
1 to 2 kilogramme               \Cutext{1--2}{kg}
```

`use-phrases` `use-phrases = ⟨true/false⟩`

Setting this option to `true` replaces certain integers (see **??** for more information) with their phrase counterpart. This option is set to `false` by default.

Example: For the German language:

12	`\cuam{12}\\`
12–24	`\cuam{12--24}\\`
36	`\cuam{36}\\`
	`\cusetup{use-phrases=true}`
1 Dutzend	`\cuam{12}\\`
1–2 Dutzend	`\cuam{12--24}\\`
3 Dutzend	`\cuam{36}\\`
	`\cusetup{use-phrases=true,print-numerals=true}`
ein Dutzend	`\cuam{12}\\`
ein–zwei Dutzend	`\cuam{12--24}\\`
drei Dutzend	`\cuam{36}\\`

9.2.5 Rounding options

`round-precision` `round-precision = ⟨integer⟩`

Rounds the amount automatically to ⟨*integer*⟩ digits after the colon. Note that units like `C`, `F`, `K` and `Re` are still rounded to integers due to `set-option-for-⟨unit-key⟩`.

	`\cusetup{round-precision=5}`
1.23457 kg	`\cunum{1.23456789}{kg}\\`
0.01259 kg	`\cunum[g=kg]{12.587}{g}\\`
194 kg	`\cunum{194}{kg}\\`
392–410 °F	`\cunum[C=F]{200--210}{C}\\`
−273 °C	`\cunum[K=C]{0.0012}{K}\\`
	`\cusetup{round-precision=1}`
1.2 kg	`\cunum{1.23456789}{kg}\\`
12.6 kg	`\cunum{12.58}{kg}\\`
0.2 kg	`\cunum[g=kg]{194}{g}\\`
392–410 °F	`\cunum[C=F]{200--210}{C}\\`
−273 °C	`\cunum[K=C]{0.0012}{K}`

Note: Also negative numbers are allowed.

	`\cusetup{erase-all-options}`
	`\cusetup{set-option-for-C={round-precision=-1}}`
	`\cusetup{set-option-for-F={round-precision=-1}}`
−270 °C	`\cunum{-271,2}{C}\\`
−270 °C	`\cunum[K=C]{0.0012}{K}\\`
180 °C	`\cunum{185}{C}\\`
360–390 °F	`\cunum[C=F]{180--200}{C}\\`

round-to-int

`round-to-int = ⟨true/false⟩`

Rounds the amount to an integer if set `true`.

```
                                \cusetup{round-to-int=true}
1 kg                            \cunum{1.23456789}{kg}\\
13 kg                           \cunum{12.58}{kg}\\
0–0 kg                          \cunum[g=kg]{194--294}{g}\\
1235 g                          \cunum[kg=g]{1.23456789}{kg}
```

round-half

`round-half = ⟨default/commercial⟩`

This option is only important for half-way numbers (e.g. 0.005). By setting it to `default` the value will be rounded to the nearest even number. Setting it to `commercial` rounds the value away from zero.

It is set to `default` by ... default.

Note: `default` actually refers to the fact that it is the default rounding algorithm used by `\fp_eval:n { round( ) }` without a third argument.

```
                                \cusetup{round-half=default}
0 kg                            \cunum{0.005}{kg}\\
−0 kg                           \cunum{-0.005}{kg}\\
1.24 kg                         \cunum{1.245}{kg}\\
                                \cusetup{round-half=commercial}
0.01 kg                         \cunum{0.005}{kg}\\
−0.01 kg                        \cunum{-0.005}{kg}\\
1.25 kg                         \cunum{1.245}{kg}
```

9.2.6 Fractions

eval-fraction

`eval-fraction = ⟨true/false⟩`

This option takes `true` or `false` as values. If set to `true` fractions are evaluated. Please note that divisions through zero are not allowed.

```
                                \cusetup{eval-fraction=true}
0.33 kg                         \cunum{1/3}{kg}\\
0.5 kg                          \cunum{1/2}{kg}\\
500 g                           \cunum[kg=g]{1/2}{kg}\\
1.5 kg                          \cunum{1_1/2}{kg}\\
1500 g                          \cunum[kg=g]{1_1/2}{kg}\\
−1500 g                         \cunum[kg=g]{-1_1/2}{kg}\\
1 ?/2 kg                        \cunum[kg=g]{1_?/2}{kg}\\
```

fraction-command

`fraction-command = ⟨\command⟩`

Sets the command used for printing fractions equal to ⟨`\command`⟩. ⟨`\command`⟩ has to take two arguments. By default it is equal to `\sfrac` from xfrac.

Please note that the amount is *not* printed inside a math environment by default.

```
                                \newcommand\myfrac[2]{#1/#2}
                                \cusetup{fraction-command=\myfrac}
1/8                             \cuam{1/8}\\
1/2 kg                          \cunum{1/2}{kg}\\
4/5 °C                          \cunum{4/5}{C}\\
1 2/3 kg                        \cunum{1_2/3}{kg}\\
                                \cusetup{fraction-command=\nicefrac}
1/8                             \cuam{1/8}\\
1/2 kg                          \cunum{1/2}{kg}\\
4/5 °C                          \cunum{4/5}{C}\\
1 2/3 kg                        \cunum{1_2/3}{kg}
```

`fraction-inline` `fraction-inline = {⟨input containing #1 and #2⟩}`

Similar to `fraction-command` only that you don't have to define a command to alter the output of the fraction.

```
                                \cusetup{fraction-inline={#1/#2}}
1/8                             \cuam{1/8}\\
1/2 kg                          \cunum{1/2}{kg}\\
4/5 °C                          \cunum{4/5}{C}\\
1 2/3 kg                        \cunum{1_2/3}{kg}\\
                                \cusetup{fraction-inline={\nicefrac{#2}{#1}}}
8/1                             \cuam{1/8}\\
2/1 kg                          \cunum{1/2}{kg}\\
5/4 °C                          \cunum{4/5}{C}\\
1 3/2 kg                        \cunum{1_2/3}{kg}
```

9.2.7 Spaces

`mixed-fraction-space` `mixed-fraction-space = ⟨length⟩`

Sets the length between the fraction and the number in a mixed-fraction, default is `0.1em` (because I said so; if someone has some literature or sources to look up the space, please let me know).

```
1 2/3                           \cuam{1_2/3}\\
1 2/3 kg                        \cunum{1_2/3}{kg}\\
10 2/3 kg                       \cunum{10_2/3}{kg}\\
                                \cusetup{mixed-fraction-space=1em}
1  2/3                          \cuam{1_2/3}\\
1  2/3 kg                       \cunum{1_2/3}{kg}\\
10  2/3 kg                      \cunum{10_2/3}{kg}\\
                                \cusetup{mixed-fraction-space=0em}
1 2/3                           \cuam{1_2/3}\\
1 2/3 kg                        \cunum{1_2/3}{kg}\\
10 2/3 kg                       \cunum{10_2/3}{kg}
```

`cutext-space` `cutext-space = {⟨string⟩}`

⟨*string*⟩ is inserted between the numeral part and the unit part when using `\cutext` and `\Cutext`. By default it is set to `\space`. Use this option if you want to e.g. insert an unbreakable space.

1 kilogramme	`\cutext{1}{kg}\\`
10 kilogramme	`\Cutext{10}{kg}\\`
	`\cusetup{cutext-space=~}`
1 kilogramme	`\cutext{1}{kg}\\`
10 kilogramme	`\Cutext{10}{kg}\\`
	`\cusetup{cutext-space={}}`
1kilogramme	`\cutext{1}{kg}\\`
10kilogramme	`\Cutext{10}{kg}\\`
	`\cusetup{cutext-space={qwe}}`
1qwekilogramme	`\cutext{1}{kg}\\`
10qwekilogramme	`\Cutext{10}{kg}\\`

`phrase-space` `phrase-space = {⟨string⟩}`

⟨*string*⟩ is inserted between the numeral part and the phrase part while using `\cuam`. By default it is set to `\space`. Use this option if you want to e.g. insert an unbreakable space.

(Switching to german)

1 Dutzend	`\cuam{12}\\`
12 Dutzend	`\cuam{144}\\`
	`\cusetup{phrase-space=~}`
1 Dutzend	`\cuam{12}\\`
12 Dutzend	`\cuam{144}\\`
	`\cusetup{phrase-space={}}`
1Dutzend	`\cuam{12}\\`
12Dutzend	`\cuam{144}\\`
	`\cusetup{phrase-space={qwe}}`
1qweDutzend	`\cuam{12}\\`
12qweDutzend	`\cuam{144}\\`

`amount-unit-space` `amount-unit-space = {⟨string⟩}`

Change the spacing for `\cunum` between the printed amount(s) and the unit. The default value is `\thinspace`.

```
                                \selectlanguage{ngerman}
1 kg                            \cunum{1}{kg}\\
½ kg                            \cunum{1/2}{kg}\\
1–2 kg                          \cunum{1--2}{kg}\\
                                \cusetup{amount-unit-space={\hspace{1em}}}
1  kg                           \cunum{1}{kg}\\
½  kg                           \cunum{1/2}{kg}\\
1–2  kg                         \cunum{1--2}{kg}\\
                                \cusetup{amount-unit-space={}}
1kg                             \cunum{1}{kg}\\
½kg                             \cunum{1/2}{kg}\\
1–2kg                           \cunum{1--2}{kg}\\
                                \cusetup{amount-unit-space={qwe}}
1qwekg                          \cunum{1}{kg}\\
½qwekg                          \cunum{1/2}{kg}\\
1–2qwekg                        \cunum{1--2}{kg}\\
```

9.2.8 label & refs

`recalculate-amount`

`recalculate-amount` = ⟨*true/false*⟩

Set this option to `true` if you want to change your recipes to the given number of people set by `set-number-of-persons`. Note that only those values who have a label are changed.

`set-number-of-persons`

`set-number-of-persons` = ⟨*integer*⟩

With this option you can determine the number of people your recipes are for. Note that this option only has an effect on those who have a ⟨*label*⟩ given. It is set to `4` by default. Please also note the use of `recalculate-amount`.

```
                                \culabel{anotherrecipe}{2}
2 persons                       \curef{anotherrecipe}~persons\\
1 kg                            \cunum<anotherrecipe>{1}{kg}\\
1                               \cuam<anotherrecipe>{1}\\
1 kilogramme                    \cutext<anotherrecipe>{1}{kg}\\
2 persons                       \curef{anotherrecipe}~persons\\

                                \cusetup{recalculate-amount=true}
4 persons                       \curef{anotherrecipe}~persons\\
2 kg                            \cunum<anotherrecipe>{1}{kg}\\
2                               \cuam<anotherrecipe>{1}\\
2 kilogramme                    \cutext<anotherrecipe>{1}{kg}\\
20 kilogramme                   \Cutext[ref=anotherrecipe]{10}{kg}\\

                                \cusetup{set-number-of-persons=3}
3 persons                       \curef{anotherrecipe}~persons\\
1.5 kg                          \cunum<anotherrecipe>{1}{kg}\\
1.5                             \cuam<anotherrecipe>{1}\\
1.5 kilogramme                  \cutext<anotherrecipe>{1}{kg}\\
15 kilogramme                   \Cutext[ref=anotherrecipe]{10}{kg}\\

                                \cusetup{set-number-of-persons=2}
2 persons                       \curef{anotherrecipe}~persons\\
1 kg                            \cunum<anotherrecipe>{1}{kg}\\
1                               \cuam<anotherrecipe>{1}\\
1 kilogramme                    \cutext<anotherrecipe>{1}{kg}\\
10 kilogramme                   \Cutext[ref=anotherrecipe]{10}{kg}\\

                                \cusetup{set-number-of-persons=1}
1 person                        \curef{anotherrecipe}~person\\
0.5 kg                          \cunum<anotherrecipe>{1}{kg}\\
0.5                             \cuam<anotherrecipe>{1}\\
0.5 kilogramme                  \cutext<anotherrecipe>{1}{kg}\\
5 kilogramme                    \Cutext[ref=anotherrecipe]{10}{kg}\\
```

`label` `label = {⟨string⟩*⟨integer⟩}`

The key-value version of `\culabel`. It defines the label ⟨*string*⟩ which is originally for ⟨*integer*⟩ people. Please note that the `*` is mandatory as it separates the string from the integer. Each label is defined globally and must be unique.

```
                                \cusetup{label=Toast*1}
1 person                        \curef{Toast}~person\\
2                               \cuam<Toast>{2}\\
2 dag                           \cunum<Toast>{2}{dag}\\
                                \cusetup{recalculate-amount=true}
4 persons                       \curef{Toast}~persons\\
8                               \cuam<Toast>{2}\\
8 dag                           \cunum<Toast>{2}{dag}
```

get-label `get-label = {⟨label⟩}`

The key-value version of \curef. Note that this key doesn't save the value inside a macro but rather prints it directly into the document.

	`\culabel{Schinken}{3}`
3	`\cusetup{get-label=Schinken}\\`
3	`\curef{Schinken}\\`
	`\cusetup{recalculate-amount=true}`
4	`\cusetup{get-label=Schinken}\\`
4	`\curef{Schinken}\\`

Note: \curef *is* expendable.

ref `ref = {⟨label⟩}`

Instead of using the first optional arguments of the commands in **??** you may use this option. It requires a valid value and throws an error if ⟨*label*⟩ is not defined.

	`\culabel{Kaese}{3}`
10 dm	`\cunum<Kaese>[m=dm]{1}{m}\\`
10 dm	`\cunum[ref=Kaese,m=dm]{1}{m}\\`
	`\cusetup{recalculate-amount=true}`
13.33 dm	`\cunum<Kaese>[m=dm]{1}{m}\\`
13.33 dm	`\cunum[ref=Kaese,m=dm]{1}{m}`

9.3 Weird options

check-temperature `check-temperature = ⟨true/false⟩`

Checks if the used temperature is below absolute zero. Currently `C`, `F`, `K` and `Re` are supported. While `\cunum{0}{K}` is ok, `\cunum{-1}{K}` raises an error, same for the others. Is set to `false` by default. To add new units see `add-temperature-to-check`.

add-temperature-to-check

```
add-temperature-to-check =
  {
    ⟨unit-key-1⟩ = ⟨minimum-value-1⟩ ,
    ⟨unit-key-2⟩ = ⟨minimum-value-2⟩ ,
    ...
  }
```

This option adds ⟨*unit-key-1*⟩ and so on to the list of units to be checked if `check-temperature` is active. The argument can be a comma-separated list of ⟨*unit-key*⟩ = ⟨*minimum-value*⟩. This sets the allowed minimum value of ⟨*unit-key*⟩ to ⟨*minimum-value*⟩.

Example: This package implements the allowed minimum values for the temperatures `C`, `F`, `K` and `Re` to be checked if `check-temperature` is active using:

```
\cusetup
  {
    add-temperature-to-check =
      {
        K = 0,
        C = -273.15 ,
        F = -459.67 ,
        Re = -218.52
      }
  }
```

If you want to add a new value, for example degree Rømer (which has be defined in another example) you can write:

```
\cusetup
  {
    add-temperature-to-check = { Ro = -135.90375 }
  }
```

`convert-to-eV` `convert-to-eV = ⟨true/false⟩`

Converts (nearly) every unit in **??** to electron volt or the respective derivative (if possible). Note that this option is: a) experimental and probably will forever be and b) just a joke, you are not supposed to use this units in a cookery book (and as you see this package doesn't support the arrangement of such huge numbers). Also you may want to check the values if you really want to use them, just to be sure (I've checked them several times and hope they are finally correct, but mistakes happen).

```
                                                \cusetup{convert-to-eV=true}
5609588650000000000000000000000000000 eV/Å³     \cunum{1}{kg}\\
130148929500000000 c³ħ³/eV³                     \cunum{1}{l}\\
62415091260000000000 eV                         \cunum{1}{J}\\
5067730.76 cħ/eV                                \cunum{1}{m}\\
0.02 eV                                         \cunum{1}{C}\\
1519267461000000 ħ/eV                           \cunum{1}{s}
```

`add-natural-unit` `add-natural-unit = ⟨unit-key⟩`

This option adds ⟨*unit-key*⟩ to the list of units `convert-to-eV` uses to determine how a unit is transformed if set to `true`.

`42` `42 = ⟨true/false⟩`

Take a good guess.

```
                                                \cusetup{42=true}
42 kg                                           \cunum{1}{kg}\\
42 g                                            \cunum[kg=g]{1}{kg}\\
42 J                                            \cunum{1.5}{J}\\
42 °C                                           \cunum{180}{C}\\
42 s                                            \cunum{15}{s}
```

10 Bugs & Feedback

Bug reports are always welcome. If you are sending a bug report please include a minimal working example showing the bug and a short description. If you use mail please add cooking-units to the e-mail header. GMX has the habit of putting e-mails into the spam account and adding cooking-units to the header makes it easier to recognize those e-mails. It can also take longer of GitHub, but I hope I figured out how to get a mail if a new issue is created (by not me).

Feedback and requests (commands, units, etc.) are also welcome. Please also add (if possible) an example of the desired output into the minimal example (and – if by mail – add cooking-units to the header).

Furthermore, as you can see I am not able to speak too many languages (german and english to be precise; I managed to add french with the help of the internet, which is not optimal) so if you are able to speak a language not yet implemented and would like to help you can send me the translations known to you. A list of all units (and their current translations) is given in **??**.

A Translations

This section contains the list of available translations. Each table shows the available translations regarding the unit symbol, the unit name (printed if `\cutext` or `\Cutext` is used) and the plural form (if different from the singular form). A second table shows the translations used for phrases (if given).

If a translation is not available a "—" is shown.

A.1 English

⟨*unit-key*⟩	printed unit	unitname	(plural)	gender
`kg`	kg	kilogramme		m
`dag`	dag	decagramme		m
`g`	g	gramme		m
`oz`	oz	ounce		m
`lb`	lb	pound	(pounds)	m
`C`	°C	degree Celsius	(degrees Celsius)	m
`F`	°F	degree Fahrenheit	(degrees Fahrenheit)	m
`Re`	°Ré	degree Réaumur	(degrees Réaumur)	m
`K`	K	kelvin		m
`d`	d	day	(days)	m
`h`	h	hour	(hours)	m
`min`	min	minute	(minutes)	m
`s`	s	second	(seconds)	m
`m`	m	metre	(metres)	m
`dm`	dm	decimetre	(decimetres)	m
`cm`	cm	centimetre	(centimetres)	m
`mm`	mm	millimitre	(millimitres)	m
`in`	in	inch	(inches)	m
`l`	ℓ	litre	(litres)	m
`dl`	dl	decilitre	(decilitres)	m
`cl`	cl	centilitre	(centilitres)	m
`ml`	ml	millilitre	(millilitres)	m
`cal`	cal	calorie	(calories)	m
`kcal`	kcal	kilocalorie	(kilocalories)	m
`J`	J	joule	(joules)	m
`kJ`	kJ	kilojoule	(kilojoules)	m
`eV`	eV	electron volt		m
`pn`	pinch	pinch	(pinches)	m
`EL`	tbsp.	tablespoon	(tablespoons)	m
`TL`	tsp.	teaspoon	(teaspoons)	m
`csp`	csp.	coffeespoonful		m
`dsp`	dsp.	dessertspoonful		m
`ssp`	ssp.	saltspoonful		m
`Msp`	Msp.	—		m
`decimal-mark`	—	.	—	m
`one(m)`	—	one	—	m
`one(f)`	—	one	—	m
`one(n)`	—	one	—	m

A.2 american

⟨*unit-key*⟩	printed unit	unitname	(plural)	gender
`kg`	kg	kilogram		m
`dag`	dag	decagram		m
`g`	g	gram		m
`oz`	oz	ounce		m
`lb`	lb	pound	(pounds)	m
`C`	°C	degree Celsius	(degrees Celsius)	m
`F`	°F	degree Fahrenheit	(degrees Fahrenheit)	m
`Re`	°Ré	degree Réaumur	(degrees Réaumur)	m
`K`	K	kelvin		m
`d`	d	day	(days)	m
`h`	h	hour	(hours)	m
`min`	min	minute	(minutes)	m
`s`	s	second	(seconds)	m
`m`	m	meter	(meters)	m
`dm`	dm	decimeter	(decimeters)	m
`cm`	cm	centimeter	(centimeters)	m
`mm`	mm	millimiter	(millimiters)	m
`in`	in	inch	(inches)	m
`l`	ℓ	liter	(liters)	m
`dl`	dl	deciliter	(deciliters)	m
`cl`	cl	centiliter	(centiliters)	m
`ml`	ml	milliliter	(milliliters)	m
`cal`	cal	calorie	(calories)	m
`kcal`	kcal	kilocalorie	(kilocalories)	m
`J`	J	joule	(joules)	m
`kJ`	kJ	kilojoule	(kilojoules)	m
`eV`	eV	electron volt		m
`pn`	pn.	pinch	(pinches)	m
`EL`	tbsp.	tablespoon	(tablespoons)	m
`TL`	tsp.	teaspoon	(teaspoons)	m
`csp`	csp.	coffeespoonful		m
`dsp`	dsp.	dessertspoonful		m
`ssp`	ssp.	saltspoonful		m
`Msp`	Msp.	—		m
`decimal-mark`	—	.	—	m
`one(m)`	—	one	—	m
`one(f)`	—	one	—	m
`one(n)`	—	one	—	m

A.3 German

⟨*unit-key*⟩	printed unit	unitname	(plural)	gender
`kg`	kg	Kilogramm		n
`dag`	dag	Dekagramm		n
`g`	g	Gramm		n
`oz`	oz	Unze		f
`lb`	lb	Pfund		n
`C`	°C	Grad Celsius		m
`F`	°F	Grad Fahrenheit		m
`Re`	°Ré	Grad Réamur		m
`K`	K	Kelvin		n
`d`	d	Tag	(Tage)	m
`h`	h	Stunde	(Stunden)	f
`min`	min	Minute	(Minuten)	f
`s`	s	Sekunde	(Sekunden)	f
`m`	m	Meter		n
`dm`	dm	Dezimeter		n
`cm`	cm	Centimeter		n
`mm`	mm	Millimeter		n
`in`	in	Zoll		m
`l`	l	Liter		m
`dl`	dl	Deziliter		m
`cl`	cl	Centiliter		m
`ml`	ml	Milliliter		m
`cal`	cal	Kalorie	(Kalorien)	f
`kcal`	kcal	Kilokalorie	(Kilokalorien)	f
`J`	J	Joule		m
`kJ`	kJ	Kilojoule		m
`eV`	eV	Elektronenvolt		n
`pn`	Prise	Prise	(Prisen)	f
`EL`	EL	Esslöffel		m
`TL`	TL	Teelöffel		m
`csp`	KL	Mokkalöffel		m
`dsp`	dsp.	—		m
`ssp`	ssp.	—		m
`Msp`	Msp.	Messerspitze	(Messerspitzen)	f
`decimal-mark`	—	,	—	m
`one(m)`	—	ein	—	m
`one(f)`	—	eine	—	m
`one(n)`	—	ein	—	m

⟨*Phrase-key*⟩	phrase	(plural)	gender
12	Dutzend		n,THEEND

Some further phrases, just to write them down (they are not implemented, as they are barely used).

⟨*number*⟩	name	Note		(plural)	gender
60	Schock	(5 Dutzend,	$12 * 5$)		n
144	Gros	(12 Dutzend,	$12 * 12$)		n
1728	Großgros	(12 Groß,	$12 * 144$)		n

Note that Großgros has other (probably more common) synonyms.

A.4 French

⟨*unit-key*⟩	printed unit	unitname	(plural)	gender
`kg`	kg	kilogramme	(kilogrammes)	m
`dag`	dag	décagramme	(décagrammes)	m
`g`	g	gramme		m
`oz`	oz	once		f
`lb`	lb	livre	(livres)	f
`C`	°C	degré Celsius	(degrés Celsius)	m
`F`	°F	kelvin	(kelvins)	m
`Re`	°Ré	échelle Réaumur	(degrés Réaumur)	m
`K`	K	degré Fahrenheit	(degrés Fahrenheit)	m
`d`	d	jour	(jours)	m
`h`	h	heure	(heures)	f
`min`	min	minute	(minutes)	f
`s`	s	seconde	(secondes)	f
`m`	m	mètre	(mètres)	m
`dm`	dm	décimètre	(décimètres)	m
`cm`	cm	centimètre	(centimètres)	m
`mm`	mm	millimètre	(millimètres)	m
`in`	po	pouce	(pouces)	m
`l`	L	litre	(litres)	m
`dl`	dL	décilitre	(décilitres)	m
`cl`	cL	centilitre	(centilitres)	m
`ml`	mL	millilitre	(millilitres)	m
`cal`	cal	calorie		m
`kcal`	kcal	kilocalorie	(kilocalories)	m
`J`	J	joule	(joules)	m
`kJ`	kJ	kilojoule	(kilojoules)	m
`eV`	eV	électron-volt	(électron-volts)	m
`pn`	pinch	pincée		f
`EL`	EL	cuillére à soupe		f
`TL`	TL	cuillére à café		f
`csp`	csp.	—		m
`dsp`	dsp.	—		m
`ssp`	ssp.	—		m
`Msp`	Msp.	—		m
`decimal-mark`	—	.	—	m
`one(m)`	—	un	—	m
`one(f)`	—	une	—	m
`one(n)`	—	un	—	m