exercisebank - manual v0.2.3 (build 131)

Andreas Strauman

February 26, 2019

If you found any bugs or want new functionality, to contribute, view the commented source, get latest version of this package or get in touch with me, you can do all of that at https://github.com/Strauman/exercisebank/. If you have questions of functionality, kindly direct them to the community

http://tex.stackexchange.com. The author is active on this site regularly. If you feel up for it, you can always find the latest development version online, and I always need people to test – it saves me a lot of time!

An extra special thanks to @tristelune1who really helps out with this package!

Contents

1	Mo	tivation														
2	Flo	Flow/Moderate start														
	2.1	Select														
	2.2	Exclude														
	2.3	Displaying numbers														
	2.4	Multiple														
	2.5	Mixnmatch														
	2.6	Solutions														
	2.7	Using \At														
		2.7.1 Making your own front page for a set														
		2.7.2 Printing the file name beneath the problem header														
	2.8	Dynamic figure path														
	2.9	Points and tags for exercises														
3	Ref	erence														
	3.1	Environments														
		$\mathtt{intro}^{ ightarrow P.9} \ldots \ldots$														
		$\mathtt{problem}^{ ightarrow P.9}$														
		$\mathtt{solution}^{ ightarrow P.9}$														
		$\DisplaySolutions^{ ightarrow P.9}$														
		\SolutionsOnlv ^{-P.9}														

3.2	Making sets	10
J. <u>-</u>	\makesetdefaults \cdot P.10 \\\	10
	\spritesets^\frac{10}{2} \cdots \cdot	10
	\makeset - P. 10	10
	\advarphi about $^{\rightarrow P.10}$	10
	\buildall \rightarrow P.10	10
	\sprite ^{-\text{P.}11}	11
	\exec^-P.11	11
	\DeclareExerciseCommand \text{\rightarrow} P. 11 \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	11
	\exclude \(^{-P.11}\)	11
	\select - P.11	11
	\buildset ^{-P.11}	11
	D 10	12
	\buildsets \rightarrow P.12 \\ \tag{P.12} \\ \tag{P.12} \\ \tag{P.13} \\	12
	\buildtags \cdot P.12 \\ \tag{P.12}	12
	\pplabel \rightarrow P.12 \\	12
	\ppref^-P.12	12
	$\protect\operatorname{\begin{subarray}{c} \protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\protect\prote$	12
	$\pref^{ ightarrow P.12}$	12
	$\backslash \mathtt{pgref}^{ ightarrow P.12}$	12
	$\backslash ext{HideTags}^{ ightarrow P.12}$	12
	\ShowAllTags - P. 12	12
3.3	Configuration and options	13
	$\$ \ShowNumbers $^{ op P.13}$	13
	$\ShowTags^{\rightarrow P.13}$	13
	$\$ ShowFilenames $^{\rightarrow P.13}$	13
	\exercisebanksetup $^{\rightarrow P.13}$	13
3.4	Internationalization	15
	\t translateExBank $^{ op P.15}$	15
3.5	Problem options: points and tagging	16
	\nextproblem \rightarrow P.16 \\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	16
	\totalpoints P.16	16
	\exercisepoints \rightarrow P.16	16
3.6	Triggers	17
0.0	\Trigger \(^{\text{P}.17}\)	17
	\extra{P: 17} \extra{P: 17} \cdots \c	17
3.7	General reference	18
5.1	\ownLineNoSpacesGotIt \to P. 18 \\ \tag{P. 18}	18
	\setExercisesDir \cdot P. 18 \\\	
	\extra \text{extra is solution} \text{extra is in \$^{1.18}\$	18
	\exp@isin \	18
	\\exercisebankversion^\text{P.18}\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	18
	\exercisebankbuild $^{\rightarrow P.18}$	18
	\@rigid ^{→P.18}	18
	\exerciseFile \(^{\text{P}.18}\)	18
3.8	Counters	19
3.9	Lengths and margins	19
	\pMarginBelow → P. 19	19
	\pMarginAbove ^{→P.19}	19
	\pMarginLeft ^{→P.19}	19

4	Changelog																	21
	3.10 Macro definitions																	20
	$\backslash \mathtt{introOutdent}^{ ightarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarroptarro$																	19
	$\ppMargin^{ ightarrow P.19}$																	19
	\ppMarginAbove → P.19																	19
	$\protect\operatorname{\mathtt{NpMarginBelow}}^{ ightarrow P.19}$																	19

1 Motivation

Exercises are saved as separate files containing part problems. These files can be used to make sets, and you can cherry-pick or exclude certain part problems as you see fit. This makes it easier to maintain and keep your exercises flexible as the syllabus changes.

2 Flow/Moderate start

I suspect that working with this package will break you current flow. So let's go throught it. Most likely you would want to put all your exercises in a folder. To set the default folder, use \exercisebanksetup \(^{\text{P.}13}\). In these examples we use exercises/.

Let's build all of them first. In the main file, (the one where you include this package):

```
main.tex

\documentclass{article}
\usepackage{exercisebank}
\exercisebanksetup{exercise directory=exercises}
\makeset{myExerciseSet}{myexercise}
\begin{document}
\buildset{myExerciseSet}
\end{document}
\end{document}
```

This builds the entire set, and adds Problem header and partproblem counters ((1a) and (1b)) by default.

2.1 Select

Now, let's build only the second problem.

```
main.tex

\documentclass{article}
\usepackage{exercisebank}
\exercisebanksetup{exercise directory=exercises}
\makeset{myExerciseSet}{\select{myexercise}{2}}
\begin{document}
\buildset{myExerciseSet}
\end{document}
```

This should only build the intro and the one exercise you \selected!

Now, say you want to hide the intro. Well all you have to do in this case is make the package treat the intro as a problem in regards to what is \selected . Just add the optional argument $[\langle intro \rangle]$ to \selected . That is switch

```
\makeset{myExerciseSet}{\select{myexercise}{2}}
```

with

```
\makeset[intro]{myExerciseSet}{\select{myexercise}{3}}
```

Notice that there are 3 'partproblems' now since we have to count the intro!

2.2 Exclude

But what if you have an exercise with 12 partproblems, and you only want to exclude the 7th partproblem? Well, then **Exclude** is here to rescue the day for you.

```
\makeset{myExerciseSet}{\exclude{soManyExercises}{7}}
```

Here it's important to note that the [intro] argument would not make the intros disappear. If we wanted to only exclude the intro from our previous example file exercises/myexercise.tex we would do

```
\makeset[intro]{myExerciseSet}{\exclude{myexercise}{1}}
```

So we're excluding the partproblem 1. But that's the intro when we send the [intro] optional argument

2.3 Displaying numbers

If you have many part problems, counting the problem numbers can be a real hassle. Just use \ShowNumbers, and a big number will appear in front of every part problem!

2.4 Multiple

In \makeset you can just separate exercises with commas! Here is an example: Let's say you have two files with exercises. One located in exercises/circuits/RLC.tex and one in exercises/ohm/ohmsGeneralLaw.tex, and you want to include partproblem 1 through 5 from RLC.tex and all of the exercises from ohmsGeneralLaw.tex.

```
\makeset{myExerciseSet}{\select{circuits/RLC}{1,...,5}, ohmsGeneralLaw}
```

This will divide it up with problem headers. So that what is in the RLC.tex-file will be Problem 1, and ohmsGeneralLaw.tex Problem 2.

2.5 Mixnmatch

What if you want to make both of them the same exercise? Well, then you pass the [nohead] argument to \makeset:

```
\makeset[nohead]{myExerciseSet}{\phead, \select{circuits/RLC}{1,...,5}, ohmsGeneralLaw}
```

The \phead command makes a problem header. You can pass them as much as you want:

```
\makeset[nohead]{myExerciseSet}{\phead, \select{circuits/RLC}{1,...,5},
ohmsGeneralLaw, \phead, someOtherExercise, moreExercises}
```

2.6 Solutions

The last thing to cover then is solutions. In your exercise files you just use the solution environment below the problem P,9 environment:

```
\begin{problem}
Some problem
\end{problem}
\begin{solution}
Solution goes here
\end{solution}
```

They are hidden by default, so you would have to use **\DisplaySolutions** in your main file to display them.

2.7 Using \At

2.7.1 Making your own front page for a set

To create your own front page for each set, you could use the front page P.14 key:

```
\exercisebanksetu{front page={path/to/file.tex}}
```

To illustrate how the \At command works, you could use the following command to execute macros \At\StartBuildset{\(\rangle FrontPage Contents\)\}. Anything you send in to \At\StartBuildset will be executed before the first problem starts:

```
\At\StartBuildset{
   \input{myFrontpage}
}
```

2.7.2 Printing the file name beneath the problem header

Maybe you want to see what files are what problems. One way to do that is hook into the \At\VeryBeginProblem and use \exerciseFile \P.18. This is the command that the headers call, so anything you put in there will be executed right after the headers.

```
\At\VeryBeginProblem{
   \exerciseFile\\
}
```

Note that the \At\BeginProblem is executed before the headers.

2.8 Dynamic figure path

Exercisebank automatically allows you to **\input** and **\includegraphics** from the same as exercise is in. E.g. if you have a declared the option

```
\exercisebanksetup{exercise directory=exercises}
```

and you have a file exercises/somedir/myexercise.tex, you can put a figure in exercises/somedir/or make a directory with the same name as the file exercises/somedir/myexercise/. Then if you put a figure exercises/somedir/myfig.png or exercises/somedir/myexercise/myfig.png you can just do

```
\includegraphics{myfig}
```

You can change the root dir by doing

\exercisebanksetup{figure root directory \(^{\text{P.}}\)14=figures}. See the figure root directory \(^{\text{P.}}\)14=key for more info.

2.9 Points and tags for exercises

By default since version v0.2.1 there are now points and tags available through the \nextproblem \frac{P. 16}{P. 16} command. To assign a points to a part problem you'd do

```
\nextproblem{points=3,tag=difficult}
\begin{problem}
This problem is worth 3 points and has the `difficult' tag.
\end{problem}
```

Then to build all exercises that has the 'difficult' and e.g. the 'easy' tag one would use the $\buildtags^{\rightarrow P.12}$ command.

```
\makeset{myExerciseSet}{ohmsGeneralLaw}
\buildtags{dificult,easy}{myExerciseSet}
```

That covers the basics. Enjoy

```
\begin{problem},\end{problem},
\begin{solution},\end{solution},
\begin{intro} and \end{intro} has to be on their own line without any spaces!
```

3 Reference

3.1 Environments

\DisplaySolutions

Turns on the solutions, so they are shown.

\SolutionsOnly

New:v0.2.3 2019/02/26 Displays only solutions (if there are any) to the part problem

```
\begin{problem}
⟨environment content⟩
\end{problem}
```

Inside the \keyRef{exercise directory}, you keep your exercises. Inside the exercise file you'd use a problem environment to write your partproblems. It might be a little confusing that you're using \begin{problem} instead of \begin{partproblem} when you're writing a partproblem, but it's less typing.

```
\begin{solution} \\ \langle environment\ content \rangle \\ \end{solution} \end{solution}
```

Things inside here is only visible if \DisplaySolutions \rightarrow P.9 are given before \begin{document}

\end{solution} has to be on it's own line without any leading spaces!

\begin{intro}
⟨environment content⟩
\end{intro}

Sometimes you'd want to introcude your exercises and tell a little bit about it. Maybe have a figure there also. Those things should go inside this environment. This can be treated as a problem in terms of counting. See \makeset^{P.10} for more info.

3.2 Making sets

 $\mbox{\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\mbox{$\$

New:v0.2.1 2018/09/24 Sets the default arguments to all makeset-keys. e.g.

```
\makesetdefaults{intro}
```

Will effectively make all

```
\makeset{...}{...}
```

into

```
\makeset[intro]{...}{...}
```

However, you can override this;

```
\makesetdefaults{intro}
\makeset[nointro]{...}{...}
```

(the $[\langle nointro \rangle]$ overrides the default $\langle intro \rangle$ setting)

```
\spritesets{\langle setlist \rangle}
```

This is a command that is used by sprite to determine what sets are shown in sprite. If this is not given, sprite uses all sets given in \makset

```
\mbox{\ \ \ \ \ \ \ \ \ \ \ } \{\langle filable \rangle\}
```

 $\frac{\text{U} \text{v}0.2.0}{2018/07/21}$

This command is the one you use to make a set! Later you use **\buildset** to build the sets you make. The $\langle filable \rangle$ argument is either the name of the file relative to the \setExercisesDir-path (default is nothing, so it's in the root path), or you could use the \setect or \exclude to respectively cherry pick or exclude exercises. (See their docs).

 $\lceil \langle intro \rangle \rceil$ this counts the intro environment as a part problem, so that you can \select or \exclude the intro

 $\lceil \langle nohead \rangle \rceil$ prevents the builder from adding a problem header. This is handy if you want to create an exercise that is composed of multiple parts. You can use the **\phead** to insert the problem header where you want it

```
\makeset[nohead]\{\phead, \select{myexercise}{1,2,3}}
```

$\about{\langle text \rangle}$

This contains information about an exercise set. It is intended to be on the top of an exercise, explaining short what the exercise is about. It's only visible when using \sprite

\buildall

New:v0.2.3 2019/02/26 Build all sets defined with \makeset

```
\sprite[\langle PiP \rangle]
```

 $\frac{\text{U} \text{v}0.1.1}{2018/04/13}$

This is a way to visualize all exercises. It takes one optional argument which is how many pages inside one page. Defaults to 4

If \sprite is used, it should be the only command in \begin{document}\end{document}

 $\ensuremath{\mbox{\rm exec}} \{\langle macros \rangle\}$

Uv0.2.1 2018/09/24 You can use this in \makeset to execute commands between problems. E.g. to insert a new page in between two problems when using nohead:

```
\makeset[nohead]{2}{\phead,my/exercise,\exec{\clearpage},next/exercise}
```

 $\frac{\text{U} \text{v}0.2.1}{2018/09/24}$

Now, use similar to newcommand. Does not support default arguments yet, but plans to. The old way of defining still works:

```
\DelcareExerciseCommand{\pbreak}\brackets{\clearpage}
```

and

This can be used later in makesets. E.g. \DelcareExerciseCommand{\pbreak}{\clearpage} will make \pbreak behave like \clearpage in the set:

```
\makeset[nohead]{%
  \phead,
  myExercise,
  \pbreak,
  myExerciseOnNewPage%
}
```

 $\ensuremath{\comma}$ $\ensuremath{\comma}$

 $\frac{\text{U} \text{v}0.2.0}{2018/07/21}$

As you can see in the intro section of the documentation, this is for excluding partproblems To be used in \makeset^P. 10

 $\frac{\text{U}\text{v}0.2.0}{2018/07/21}$

As you can see in the intro section of the documentation, this is for cherry picking partproblems To be used in \makeset^P. 10

 $\buildset[\langle intro-nohead-nointro \rangle] \{\langle setname \rangle\}$

Uv0.2.3 2019/02/26 This command runs the set given. The set has do be defined by \makeset. E.eg

```
\makeset{myExerciseSet}{exercisefile1, \select{exercisefile2}{1,2}}
\!begin{document}
\buildset{myExerciseSet}
\!end{document}
```

\setName

This variable prints out the name of your set that you sent to **\buildset**. The following example prints "Exercise set number 1" and "Exercise set number 2" on the top of each set

```
\At\StartBuildset{
   Exercise set number \setName
}
   %... \makesets here ...%
\begin{document}
   \buildset{1}{myexercise}
   \buildset{2}{myexercise}
\end{document}
```

$\begin{tabular}{l} \begin{tabular}{l} \begin{tabu$

 $\frac{\text{U} \text{v} 0.2.1}{2018/09/24}$

This command will generate multiple sets:

```
\buildsets{set,set2,set3}
```

$\buildtags{\langle tagslist \rangle}{\langle setslist \rangle}$

Uv0.2.2 2018/10/04 This command will generate multiple sets:

```
\buildsets{tag,tag2,tag3}{set,set2,set3}
```

$\mathbf{pplabel}\{\langle label \rangle\}$

Labels a partproblem. You can reference to it later using $\prescript{pref}{\langle label \rangle}$

$\pref{\langle label \rangle}$

 $\frac{\text{U}\text{v}0.2.0}{2018/07/21}$

Reference a partproblem created by $\plant {label} \$. This prints e.g. 1c)

$\protect\operatorname{\{\langle label\rangle\}}$

New:v0.2.3 2019/02/26 Reference a partproblem created by $\place{length} \place{length} \place{length}$

$\mathbf{pref}\{\langle label \rangle\}$

Reference a partproblem created by $\protect\operatorname{pplabel}{\langle label \rangle}$. This prints e.g. 1

$\proonup {\langle label \rangle }$

New:v0.2.3 2019/02/26 Reference a partproblem created by $\plus \{\langle label \}\rangle$. This prints e.g. 1, but have global search.

$\HideTags{\langle list \rangle}$

 $\frac{\text{U} \text{v}0.2.3}{2019/02/26}$

Hide all exercises containing the list of tags when building a set.

\ShowAllTags

New:v0.2.3 2019/02/26 Reset tags set by \HideTags

3.3 Configuration and options

You can do a lot of configurations on this package, and probably even more to come in later versions!

\ShowNumbers

 $\frac{\text{U} \text{v}0.2.1}{2018/09/24}$

Shows the numbers in fron of the part problems and intros that should be used with \exclude and \select.

\ShowTags

 $\frac{\text{U}\text{v}0.2.3}{2019/02/26}$

Shows the tags in front of the part problems much like \ShowNumbers

\ShowFilenames

 $\frac{\text{U} \text{v}0.2.3}{2019/02/26}$

Shows the path+filename to the current exercise file

```
\ensuremath{\mbox{exercisebanksetup}\{\langle [\langle key/values \rangle ]\rangle\}}
```

 $\frac{\text{U} \text{v}0.2.1}{2018/09/24}$

Here is a list of the different keys and their meaning

```
part problems = \langle On/Off \rangle \qquad (\langle default \rangle = On)
```

This is whether or not to do part problems. E.g. 1a), 1b) etc. If this is turned Off, then the part problems will be treated as problems

```
tighten paragraphs=\langle True/False \rangle (\langle default \rangle=True)
```

Disabling this will prevent the package from attempting to prevent part problems to scatter across pages

```
problem header=\langle macro \rangle (\langle default \rangle=see below)
```

This sets the problem header. To access the translation of the problem text, use \Otr{Problem}, and the problem counter is accessed with \theproblemcounter.

Defaults to

{\normalfont\Large\bfseries\@tr{Problem} \theproblemcounter}.

```
problem needs space=\langle dimension \rangle (\langle default \rangle = 0.2 \rangle)
```

How much space has to be left on the page for a problem to start

```
no needspace=\langle bool \rangle (\langle default \rangle=false)
```

Don't use \needspace command (only used in problem needs space)

```
part problem header=\langle macro \rangle (\langle default \rangle=see below)
```

This sets the problem header. To access the current problem, use \theproblemcounter, and then the current part problem \thepartproblemcounter. To make it a letter, as per default use \alph{partproblemcounter}

Default is:

\large\textbf{(\theproblemcounter\alphpartproblemcounter})

This sets the suffix problem header, and defaults to be the number of points the current exercise is worth. Default is $\langle empty \rangle$

```
solution header=\langle string \rangle \qquad \qquad (\langle default \rangle = see below)
```

\large{\textbf\@tr{Solution:}} \@tr is the translation macro

```
exercise directory=\langle dir \rangle (\langle default \rangle = ./)
```

This key is used for setting the default exercise directory.

```
figure root directory=\langle dir \rangle (\langle default \rangle = \langle exercise \ directory \rangle)
```

Exercisebank automatically allows you to \input and \includegraphics from the same folder folder that your exercise is in, as well as a folder with the same name as the exercise file. This is elaborated in the intro section. However, you might want to put the figures inside a different directory. For example if you have one directory containing your problems called exercises/, set with exercise directory, and a file containing the exercise: exercises/faradaysLaw/ACGenerate.tex. Then by default figures in the directories exercises/faradaysLaw/ and exercises/faradaysLaw/ACGenerate/ can be included by just doing \includegraphics. And if you want to change the root of this directory to be figures, such that exercisebank looks for figures in figures/faradaysLaw/ and figures/faradaysLaw/ACGenerate/ You would use this option in the setup: \exercisebanksetup{figure root directory=figures}

```
\exercisebanksetup{
  exercise directory=exercises,
  part problems=Off,
  solution header={\textbf{SOL:}}
}
```

```
use margins=\langle True/False \rangle
```

 $(\langle default \rangle = True)$

Whether or not to put the part problem labels and the problem headers outside the normal margins.

```
front page=\langle file \rangle (\langle default \rangle=)
```

Path to a front page that will be loaded at every \buildset Where to load the front page. The commands \setName^P.12 is available.

```
style margins=\langle true-false \rangle (\langle default \rangle=true)
```

Whether or not to put problem headers and part problem headers out in the margins.

```
show lonely part problems=\langle true-false \rangle (\langle default \rangle = false)
```

Whether or not to show part problems if there is only one part problem within the problem.

```
current points style=\langle style \rangle (\langle default \rangle=see below)
```

This is how the points will be shown in the part problem headers. the default code is by <a>@thorstengrote (see example below)

```
~\ifnum\exb@currentPoints=\z@%
   \ifnum\totalpoints=\z@\else%
   \phantom{0p}%
   \fi%
\else%
   \exb@currentPoints p%
\fi~\ignorespaces
```

disable points= $\langle bool \rangle$

 $(\langle default \rangle = false)$

Whether or not to disable the point system.

3.4 Internationalization

 $\verb|\translateExBank{|\langle \mathit{Translation}\ key/vals\rangle|}|$

This is to translate the text inside the package. As of now the available key/values are

- Problem
- Solution

The Norwegian translation would then be done with

\translateExBank{Problem=Oppgave, Solution=L\psining}

3.5 Problem options: points and tagging

\nextproblem

 $\frac{\text{U} \text{v}0.2.3}{2019/02/26}$

Prior to a problem environment in an exercise file you can pass options using the \nextproblem command. If you e.g. wanted to hide one regardless of what set it is you'd do

```
\nextproblem{hide}
\begin{problem}
This problem will be hidden because of the \nextproblem command
\end{problem}
```

you can also tag problems using this:

```
\nextproblem{tag=hard}
\begin{problem}
    This problem is hard
\end{problem}
\nextproblem{tag=hard}
\begin{problem}
    This problem is also hard
\end{problem}
\nextproblem{tag=easy}
\begin{problem}
This problem is easy
\end{problem}
```

And you could now build, say, only easy problems using \buildtags{hard}{SETNAME}, where SETNAME is chosen by a \makeset command.

You can also have multiple tags per exercise

```
\nextproblem{tag={tag1,tag2}}
\begin{problem}
This problem is easy
\end{problem}
```

```
\mathsf{head} = \langle text \rangle \tag{(\langle default \rangle =)}
```

Set the part problem header for the next problem.

```
solution only = \langle true - false \rangle \qquad (\langle default \rangle =)
```

hide next problem unless \DisplaySolutions are on

Here are the \nextproblem keys:

```
points = \langle number \rangle \qquad (\langle default \rangle = 0)
```

The number of points the next exercise is worth. you can retrieve the total points using \totalpoints

\totalpoints

Contains the total number of points for all exercises in the current set

\exercisepoints

New:v0.2.3 2019/02/26 Contains the total number of points in the current exercise (or "Problem")

3.6 Triggers

 $\Trigger{\langle Any\ Macro \rangle}$

Uv0.2.1 2018/09/24 See $\At^{\rightarrow P.18}$

Available triggers:

\Trigger\PartProblemHeaderSuffix:

Triggers after the part problem header. anything added to this trigger will happen within the header \Trigger\PostPPHeader:

Triggers right after the part problem header has been printed. It is also triggered after the PP header for SolutionsOnly. \Trigger\BeginPartproblem:

Triggers before a partproblem is inserted

\Trigger\VeryBeginPartproblem:

Triggers right after \BeginPartproblem. This is so that the user can do stuff before the actual headers start. The partproblem headers are invoked by \At\VeryBeginPartproblem \Trigger\InputExercise:

Triggers before a file is included

\Trigger\BeginProblem:

Triggers before a file is included, but only if problem headers are to be written (no [nohead] given)

\Trigger\EndProblem:

Triggers right after problem is included if [nohead] not given

\Trigger\BeginBuildset:

Triggers right before a set has begun building (not if \sprite is used). You might want to put your set-header here

\Trigger\EndBuildset:

Triggers when a set has stopped building (not if \sprite is used)

\exb@ClearHook

Deletes all information from a hook. Note that if preceded by **\rigid**, then the ENTIRE hook will be cleared. Note that the necessary hooks might not be registered as rigid. Thus show caution when deleting hooks

3.7 General reference

\ownLineNoSpacesGotIt

This is to annoy the user enough to get his attention about the requirements of the problem P.9, solution P.9 and intro P.9 environments.

L

DEPRECATED! use \exercisebanksetup P. 13 with exercise directory instead!

$\st Exercises Dir{\langle directory \rangle}$

\ \setExercisesDir is deprecated! use \exercisebanksetup $^{-P.13}$ with exercise directory $^{-P.14}$ instead!

This is the directory, relative to the file you included the package, where the package should be looking for exercises. Default is the same directory as your main file (the one you build).

```
\verb|\ext{\constant}| \langle haystack \rangle \} \{ \langle needle \rangle \} \{ \langle True \rangle \} \{ \langle False \rangle \}
```

 $\langle haystack \rangle$ is a comma separated list of anything $\langle needle \rangle$ is an integer Executes $\langle True \rangle$ if $\langle needle \rangle$ is found in $\langle haystack \rangle$ else executes $\langle False \rangle$

\exercisebankversion

New:v0.2.3 2019/02/26 Prints the current version and build to the error log

\exercisebankbuild

New:v0.2.3 2019/02/26 Prints the current build number to the error log

This package also includes some extra stuff. For example the \At and \Trigger

$\At{\langle AnyMacro \rangle}$

 $\frac{\text{U} \text{v}0.2.1}{2018/09/24}$

Here you can send any macro because it isn't evaluated! For example \At\BeginSomething is fine and even if \BeginSomething is not defined. Also and when using \Trigger it just ignores it if it didn't exist. It's pretty similar in function as to \AtBeginDocument.

```
\At\BeginSomething{DoSomething}
Which is triggered with
\Trigger\BeginSomething, this evaluates to DoSomething
```

\@rigid

New:v0.2.3 2019/02/26 Used to make \At so that the contents won't be deleted with \ClearHook. Note that the necessary hooks might not be registered as rigid. Thus show caution when deleting hooks

\exerciseFile

This is a 'read-only' macro that contains the name of the current exerciseFile

3.8 Counters

problemcounter-counter holds the current problem number and partproblemcounter-counter holds the current partproblem number.

3.9 Lengths and margins

Note that these are all $\texttt{textbf}\{lengths\}$ and should be used as e.g.

\setlength{\pMarginBelow}

\pMarginBelow

Distance below Problem # header

\pMarginAbove

Distance above Problem # header

\pMarginLeft

Problem header: distance from the default left margin

\ppMarginBelow

Part problem: distance from the end of the part problem to the next item

\ppMarginAbove

Part problem: distance above the start of the part problem to the previous item

\ppMargin

Part problem: how far away from the text the part problem labels are (horisontally).

\introOutdent

The offset of margins for intros

3.10 Macro definitions

```
\texttt{\embed{Qrigid}}^{\to\,P.\,18}
\At^{\rightarrow P.18}
\verb|\DeclareExerciseCommand|^{\rightarrow\,P.\,11}
\DisplaySolutions^{\rightarrow P.9}
\backslash \mathtt{HideTags}^{
ightarrow P.12}
\ShowAllTags^{
ightarrow P.12}
\ShowFilenames \rightarrow P.13
{\ShowNumbers}^{
ightarrow P.13}
\ShowTags^{
ightarrow P. 13}
\SolutionsOnly^{\rightarrow P.9}
\Trigger^{
ightarrow P.17}
\about^{\rightarrow P. 10}
\buildset<sup>→P.11</sup>
\begin{tabular}{ll} \buildsets \end{tabular} 
ightarrow P.12 \end{tabular}
\verb|\buildtags|^{\rightarrow P.12}
\backslash \texttt{exb@ClearHook}^{\rightarrow P.17}
\exb@isin P.18
\backslash \mathtt{exclude}^{\rightarrow\,\mathrm{P.}\,11}
\backslash \mathtt{exec}^{\rightarrow\,\mathrm{P.}\,11}
\backslash \texttt{exerciseFile}^{\rightarrow P.18}
\ensuremath{\backslash} \mathtt{exercisebankbuild}^{
ightarrow P.\,18}
\verb|\exercisebanksetup|^{\to\,P.\,13}
\ensuremath{\backslash} \mathtt{exercisebankversion}^{
ightarrow P.\,18}
\backslash \texttt{exercisepoints}^{
ightarrow P.\,16}
\introOutdent
\mbox{\mbox{\tt makeset}}^{
ightarrow P.~10}
\mbox{\mbox{$\backslash$}}makesetdefaults^{
ightarrow P.\,10}
\verb|\nextproblem|^{\to\,P.\,16}
\verb|\countineNoSpacesGotIt|^{-P.18}
\pMarginAbove
\pMarginBelow
\pMarginLeft
\project{\mathsf{pgref}}^{\to\,\mathrm{P.}\,12}
\ppMargin
\ppMarginAbove
\ppMarginBelow
\project{\mathsf{ppgref}}^{\to\,\mathrm{P.}\,12}
\texttt{\basel{localize} P.12} $$ \properties \end{substrate} \label{eq:localize}
\texttt{\pref}^{\to\,P.\,12}
\pref^{\rightarrow P.12}
\slashselect^{
ightarrow P.\,11}
\ \setExercisesDir^{
ightarrow P.18}
\strut_{
m Name}^{
ightarrow P.12}
\sprite<sup>→P.11</sup>
\sl pritesets ^{
ightarrow P.10}
```

4 Changelog

$v0.0.2b11 \ 2018/04/02$

- Updated documentation syntax.

$v0.0.3b38 \ 2018/04/03$

- Updated triggers doc
- added trigger \VeryBeginPartproblem

v0.0.3b40 2018/04/03

- _ Added examples that uses the $\At^{\rightarrow P.18}$ command.
- Making front page and other snacks

$v0.0.4b44 \ 2018/04/03$

Changed design of part problems. (Looks much better now!)

$v0.0.5b46 \ 2018/04/03$

Fixed partproblems and solutions to fit on pages using \filbreak.

v0.1.0 2018/04/08

- Fixed title of documentation to match actual package.
- Fixed weird paragraph styling when displaying solutions
- Added a few package options. More to come!

$v0.1.1 \ 2018/04/13$

- _ Added $\ensuremath{\backslash} \text{exec}^{\to P. 11}$, which allows the user to execute macros between problems
- Bug fix: $\Lambda t^{-P.18}$ would cause crash due to latexmk multiple builds
- Bug fix: \sprite → P.11 wouldn't build correctly
- _ Bug fix: misc bugs involving \makeset → P.10, \buildset → P.11, nohead and ?? → P.??

v0.1.2 2018/04/17

- $\begin{array}{lll} \text{Fixed} & \text{bug} & \text{that} & \text{\$select}^{\rightarrow P.\,11} & \text{and} \\ \text{\$\texttt{\ensuremath{}}} & \text{$\text{$\text{$}$}} & \text{$\text{$}$} & \text{$
- Added \ShowNumbers \(^{P. 13}\) for displaying numbers related to use in \select \(^{P. 11}\) and \exclude \(^{P. 11}\)

v0.1.3 2018/04/20

- $^-$ Added custom dynamic figure path figure root directory $^{
 m P.\,14}$.
- Fixed bugs related to ?? and the commands used in \makeset^{→ P. 10}-lists.

V0.1.4 2018/04/28

- Updated margins a lot!
- Fixed sneaky space in translation
- Fixed paragraph tightening when displaying solutions
- Introduced $\DeclareExerciseCommand \rightarrow P.11$
- Fixed bug with \exec^{→P.11}
- Iteration over items now uses a more lighweight approach.
 - For commands that takes 'lists' as arguments (\makeset \times P. 10, \select \times P. 11 and
- \exclude^{→ P. 11}), the last item of the list can be terminated with new line or spaces without problems.
- For commands that takes 'lists' as arguments,
- the entries in the list are now trimmed whitespaces on both sides.

v0.2.0 2018/07/21

- _ Fixed bug where \ppref^{→P. 12} did not reference letter in part problem.
- _ Introducing \buildsets \buildsets \cdot P. 12-command for building more than one set at a time.
- Ability to add front page with the front $page^{-P.14}$ setup-key.
- You can now remove the forced margin setup with style margins P. 14.

v0.2.1 2018/09/24

Added options for individual part problems using the **\nextproblem**-command

- Added tagging for part problems using using
- the \nextproblem-command and \buildtags-commands.
- Fixed problems related to \ShowNumbers not showing correctly.
- Fixed \exec so that it now can take paragraphs (made it \long)
- Added point system
- Fixed bug where vertical space would remain when intro environment hidden
- \DeclareExerciseCommand now takes args
- _ Keys sent to \makesetcan now be sent to \buildset and \buildsets
- Introducing \makesetdefaults

$v0.2.2 \ 2018/10/04$

- Made trailing commas ignored in all lists
- _ (\makeset,\buildset,\select,\exclude, etc.)
- Fixed bug where tags wouldn't hide.

$v0.2.3 \ 2019/02/26$

- Added possibility of custom part problem header from \nextproblem
- _ Added possibility of showing problem only when \DisplaySolutionsactive
- Corrected use of the length \ppMarginBelow
- _ Fixed bug where \pheadand \ShowFilenamescrash
- Introduced \SolutionsOnly
- _ Fixed bug where part problem header repeats if solution is itemize.
 - Introduced the \@rigidcommand for the
- Atfunctionality. Also the \ClearHookfor deleting a hook
- \buildsetnow gives error if set does not exist.
- Made \HideTagscummulative.
- Created \ShowAllTagsfor clearing tags list
- $_{\rm }$ Raises error when pdfTeX(or pdfLaTeX) is not used
- Allow underscore for files in \makeset
- Added \exercisepoints for getting total num-
- ber of points in an exercise/problem.
- added \pgrefand \ppgref
- Margins now more manageable

- Prevent overwriting of \graphicspath
- Set (append) to \input@pathno matter what.
- Added command \buildallto build all sets
- Moved tag placement for when \ShowTagsactive
- Adjusted margins.
- Activated \ppMarginAbove(it now does something)
- _ Added \exercisebankversionand \exercisebankbuild
- Part problem header now showing if only one part problem is displayed
- Possibility to toggle whether part problem
- header showing if only one part problem is displayed show lonely part $\mathsf{problems}^{\to\,P.\,14}$
- Fixed TeX capacity exceeded error for long exercises.