# The `catechis` Package

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**Abstract**

The `catechis` package is a simple package which defines a number of highly customizable macros for writing catechisms. These include a numbered question environment; a command for comments and one for scripture citations; and special commands and lengths which can be easily altered for each, thus making, for example, the indentation of each question and answer easily altered according to situation and taste.

## Contents

## 1 Introduction

There is no package which provides appropriate commands for writing catechism questions and explanations. One-off hacks are, of course, quite easy to produce:

```
\begin{enumerate}
\item \textbf{Who made us?} \\ God made us.
\item \textbf{Why did God make us?} \\  God made us to know
Him, love Him, and serve Him, and by so doing to gain
everlasting life with Him in Heaven.
\end{enumerate}
```

However, this solution is far from satisfactory. It's unportable, fit really only for this one document; uncustomizable, because it's hard-wired to do only this one thing; unmodifiable, at least automatically, because it uses explicit visual formatting in the text (which itself it totally antithetical to LaTeX principles); and far too wordy. What is desired is something more along the lines of the following:

```
\catques{Who made us?}{God made us.}
\catques{Why did God make us?}{God made us to know Him, love
Him, and serve Him, and by so doing to gain everlasting life
with Him in Heaven.}
```

The `catechis` package was designed to provide just these such commands, with significant further additions useful for catechism writing, as well.

This document was produced in accordance with the LaTeX DOCSTRIP utility.

Any questions, comments, and improvements can be sent to the package author, Donald Goodman, at dgoodmaniii at gmail dot com.

## 2  Basic Usage

\catques

Basic usage is. . . well, it's basic. There's one basic command which answers most catechism needs: `\catques`. `\catques` is, as the name implies, the means of formatting most catechism questions. Its usage is simple:

> `\catques{`⟨*question text*⟩`}{`⟨*answer text*⟩`}`

And that's all there is to it. A question number will be generated, the question itself will be formatted, then a line break, and then the answer will be formatted. And you're done. The above, for example, looks like this:

1. **Who made us?**
   God made us.

2. **Why did God make us?**
   God made us to know Him, love Him, and serve Him, and by so doing to gain everlasting life with Him in Heaven.

Minus the indentation added by the `quote` environment I've wrapped it in here, of course.

That is, in a nutshell, all there is to the basic usage of the `catechis` package.

### 2.1  The List Hacks

The package also includes some ugly hacks on `enumerate` which, though ugly, do what they are supposed to do. That is, they alter the indentation and spacing of the `enumerate` environments to make it conform with those in traditional catechisms that have fallen under my gaze. What these means, practically, is merely the following:

1. The labels for the environments are altered appropriately; rather than beginning with arabic numerals, it begins with lower-case letters, then moves on to arabic numerals, then to romanettes.

2. The punctuation is different; first level is followed by a period, second is enclosed in parentheses, third is followed by a period.

3. The indentation is altered to make it work better with the question indentation used.

So enjoy the `enumerate`s, though they're really not anything remarkable.

## 2.2 Customization of Basic Usage

However, there's much more to it than that *if the user wants there to be.* In the tradition of Peter Wilson,[1] I endeavored to make the package as customizable as possible. Thus, more or less all of the formatting decisions (namely, all except those which are universal among all works of the type) have been placed inside command names or specially named lengths, to be altered by standard LaTeX `\renewcommand`s or `\setlength`s. Use of these commands can easily be found from any number of basic LaTeX tutorials.[2]

`\quesnumweight` For example, if you don't want the question number to be in bold (the default), you just have to redefine the macro `\quesnumweight`, and it will take on the weight you put there. If you wanted normal weight, just say:

    \renewcommand\quesnumweight{}

Your question number will now be weightless; that is, normal weight, not bolded. You've overridden the default. This command, like all such commands, will only take effect on those `\catques` commands issued *after* the formatting command is issued.

But though your question number will then be formatted as you like, you may not like the question itself. You may want the question itself to also be
`\questionweight` normal weight. Use the macro `\questionweight`. If you want to italicize them,
`\quesnumstyle` redefine the macros `\quesnumstyle` and `\questionstyle`. To do this, simply
`\questionstyle` place the name of the command you want to work on the unit in the argument of the macro; no braces are needed, being added by the package itself. Thus, issue the simple command `\renewcommand\questionstyle{\textit}`, and the question will become italicized.
`\answeight` Formatting the answer is predictable: use the macros `\answeight` and
`\ansstyle` `\ansstyle` in the same way.

If you want to change the spacing involved, you must begin to use `\setlength` commands instead, but the principle is identical. Say, for example, that you

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[1]Author of a number of highly customizable and versatile packages and classes, from `tocbibind` and `epigraph` to the monumental `memoir` class, which has a manual well worth the reading even if the class will not be used. His packages are masterpieces; no comparison is meant (or possible) between them and this rather hackish and inelegant one.

[2]The most useful, this author found, was the nearly ubiquitous *The Not-so-short Introduction to LaTeX 2ε*, available from CTAN.

don't like the amount of space put in between the questions by default (1em plus

2pt minus 2pt). All you have to do is change the length named `\questionskip`.
`\questionskip` is rubber by default, because otherwise the package would produce horrible `overfull vbox` errors every time it was used; this cannot be overriden without changing the internal definitions of the package itself. I did this so that unsuspecting newby users, God bless them, wouldn't unknowingly make it impossible for LaTeX to properly justify their pages. Thus, that plus 2pt minus 2pt rubber length is unchangeable. I may change this in future releases, but for now, it's there for good.

On the other hand, all other lengths are, by default, rigid, though they can be made rubber by defining them as such. If, for example, you want to change the space in between the questions and answers, just give a new length to
`\answerskip`, which defaults to 0em.

For the indentations, the lengths are again broken into those for questions and those for answers. Plus, indentation styles are provided, to allow for either hanging or normal indentation. First, the question indents.

The question indents depend upon the *style* of indentation for their implementation. By "style" I mean just "hanging" or "normal." The default for questions is "hanging"; that's how the second line of the question is indented inward while the first line is flush with the margin. If you don't like this behavior,
then simply redefine the command `\quesindentstyle` from `\hangindent` (the default) to `\parindent` (normal, paragraph-style indentation). For the answers, use
`\ansindentstyle`, which defaults to `\parindent`, rather than to `\hangindent` like its question counterpart.

Next, you have to modify the lengths (maybe). First, the basic answer indentation. By default, the answers are indented by a specific amount, namely
`\defanswerindent` minus `\answerindent`. This was to allow for the indentation to be easily set to be equal to the question number plus the space prior to the beginning of the question text. `\defanswerindent` is set to precisely that length, and `\answerindent` is initialized at 0. If you want, for example, the answers to be flush to the left margin along with the question number, simply define `\answerindent` to cancel out `\defanswerindent`:

```
\settowidth\answerindent{\quesnumweight{\quesnumstyle{\thequesnum.  }}}%
```

I wish it weren't that complicated, but that's what it takes; hopefully I'll be able to make it more intuitive later. For some reason simply issuing `\setlength\answerindent{\the\defanswerindent}` does not work; I hope to resolve this question soon.

Otherwise, however, simply set `\answerindent` equal to whatever you want to *subtract* from `\defanswerindent`, the default. If you want the indentation to be larger, make sure you define your `\answerindent` as a negative length.

Now for the paragraph indentations for questions and answers. We've already seen how to set indentation "style." To change actual indentation length
(whether hanging or normal) use the `\quesparindent` (which modifies an internal variable, `\defquesparindent`, in the same way as `\answerindent` does) and
`\ansparindent`, which works independently. By default, `\defquesparindent` is

set to equal the width of the question number plus the space preceeding the beginning of actual question text; since `\answerindent` takes care of this already for answers, it is initially set to zero. To cancel out `\defquesparindent`, simply redefine it as for cancelling `\defanswerindent` (replacing `\answerindent` with `\quesparindent`, of course). `\ansparindent` can be increased or decreased in the usual way.

`\rtanswerindent` The right indentation of the answers can also be changed with the predictably named length `\rtanswerindent`. It can be changed in the normal manner.

The `enumerate`s are not particularly customizable; this is because I found altering the default LaTeX code for them unbelievably hairy. Even as they are, they are remarkably ugly, and include one hack for getting the margins lined up properly that is quite probably the absolute worst piece of programming I've ever done. But struggle as I might (for hours) I couldn't get it to work without it, so... there we are.

`\listmarg` Still, there is one length which by necessity is customizable: `\listmarg`. This governs the left margin of the first level of the `enumerate`. Right now it's set as the difference between the value of `\defquesparindent` and the default indentation of the first level of `enumerate`. That is, `\leftmargini` (the indentation of the first level of a list) is defined as:

`\setlength\leftmargin{\the\defquesparindent+\the\listmarg}`

So if you change the value of `\defquesparindent`, you've changed the indentation of the lists. To repair this, you can either redefine `\@listi` entirely, or just `\leftmargini` individually, or you can simply alter the value of `\listmarg`. I recommend the latter; as it's more removed from internals, you're unable to accidentally hose the indentation on your non-catechism `enumerate`s.

So, if you want to alter the value of `\defquesparindent` and want that of `\listmarg` to match, try just running it and seeing how it works. Then redefine `\listmarg` as you think is necessary. It's that simple. Okay, so it's not simple; but it's much better than it was previously, I can tell you.

That essentially completes the discussion of the basic command of the `catechis` package. Now we may discuss some of its more advanced features.

# 3 Advanced Features

## 3.1 Comments

`\catcomment` Oftentimes in catechisms the answer, while giving the basic truth behind the subject, doesn't give enough information. For this sort of situation the `\catcomment` command was prepared. Basically, `\catcomment` places a comment (by default, in normal weight italic) wherever it happens to be issued, with the same left and right indentation as its parent element.

It's important that `\catcomment`s be issued as part of their parent element (normally, a `\catques` answer); that is, it should be issued *before* the closing brace (`}`) of whatever it's commenting on. Otherwise, the spacing will probably

look quite odd. This is because \catcomment doesn't issue any \pars; it's literally part of whatever it's issued in. But that's for the code section.[3]

By default, as said above, \catcomments are set in normal weight italic; their indentation will be identical to that of the parent element. I have not included any way to alter the indentation easily, as I didn't see any reasonable explanation for doing so. I'm willing, of course, to take contrary arguments.

\commentstyle
\commentweight

The macros \commentweight and \commentstyle can both be redefined to format the comments to your needs and tastes. They are redefined in the usual way.

## 3.2   Citations Lists

Most catechisms also include citation lists (usually Scriptural, entirely or nearly so) to justify their points, especially on the more important questions. So catechis includes a way to typeset such entries, as well.

\citetitle
citeword

The \citetitle command would normally be issued at the beginning of the section including citations. By default, it simply skips down 1em, then prints what's contained in the macro \citeword (by default, this is simply "Scripture") in small caps, centered, and then turns things back over to the user. If you want something other than "Scripture" to be printed as the title, simply redefine \citeword to something else (say, "Citations") by issuing the following:

\renewcommand\citeword{Citations}

\citetitlestyle
\citetitleweight

To alter the style in which the \citetitle is printed, just redefine the macros \citetitleweight and \citetitlestyle. By default, \citetitleweight is set to nothing (that is, normal weight) and \citetitlestyle to \textsc.

\scripture

Next, you simply issue the \scripture command repeatedly, once for each citation in your list. (In retrospect, this really should have been something more like \citation, but I'm afraid of conflicts with BibTeX, about which I know nothing.) \scripture takes two arguments, the first the citation itself and the second its source. It simply fills the current line with space, starts a new one, prints its first argument, fills the final line of that argument with space, and then prints its second argument left justified. So the command should be formatted like so:

\scripture{⟨*citation text*⟩}{⟨*source text*⟩}

Yes, you guessed it; the formatting can be customized. By default, the citation is printed in normal weight italics, and the source is printed in normal weight Roman. You can changed each one of these easily by redefining commands.

\citeweight
\citestyle
\citesize

The three macros in the left margin control the formatting of the citations. This time, however, the size can be individually controlled. This is because I was able to use \pars internally in the macros without hosing all the other formatting, since the citations are all set aside on their own and not dependent on their parent element. So enjoy; just redefine the commands as usual.

\sourceweight
\sourcestyle

The three macros in the left margin at this paragraph control the formatting

of the source. It's pretty tight, huh? Really, though, there isn't much to say; I'm only continuing to write so that this paragraph will fill up enough to offset the margin space used by by those commands.

\sourcesize

So that's the package. Please refer to Section 4 for visual examples of the default behavior of these macros. I pray that this package be useful to you and lead to the edification and salvation of souls.

# 4   Examples

This section is intended to demonstrate the default behavior of the macros. It also demonstrates the heavily modified `enumerate` environment that is employed, but not described here because it involves no new macros but those in standard LaTeX. So here it goes.

1. **Who made us?**
   God made us.

2. **Why did God make us?**
   God made us to know Him, love Him, and serve Him, and by so doing to gain Heaven.

3. **Are you going to write any actual examples, or just copy them all from other catechisms?**
   Wait for it; I'm going to write some of my own. The two above are from the Baltimore Catechism, verbatim or nearly so, for those who don't know.

4. **Did you make a package for writing catechisms? For serious?**
   Yes, I did. I had a number of reasons for this:
   a. I wanted to typeset one or two for myself.
      *This although I've already done so in a very hacked, difficult to read and difficult to write style. But at least I'm (hopefully) making it easier for others.*
      (1) There's one in *Thomistic Salvation*.
          *And it's not half bad. I think it addresses the issues it was meant to address pretty thoroughly, in a basic, catechism sort of way.*
      (2) There's also one in *Officium Parvum*.
          *This one could use some work. But it still isn't terrible.*
   b. It's a part of my plan to make a complete Catholic desktop (though what that plan is, exactly, is still somewhat up in the air).
      *I'm trying to flesh this idea out a little more. It will at least contain a couple of LaTeX packages and a multilingual Scripture-searching tool; hopefully also a Catholic calendar desklet and similar items.*

5. **All right, I guess so. But it still seems weird.**

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[3]*See* section 5, at 8.

Maybe. But I think (hope) it'll bear fruit.

*And I'm very hopeful. Hope is, after all, one of the three theological virtues, and mentioned repeatedly in the Scriptures as necessary for us to have.*

6. **Here's a really long question that I'm trying to make wrap onto another line so that we can see how that will behave. Will it behave well?**
   Yes, it will behave well. The algorithm is reasonably obedient and well-behaved.

7. **What about the Scripture citations you often see in catechisms? Can this hooty-falooty package of yours handle those?**
   I'm glad you asked. Yes, this package can easily handle those.
   *Even in conjunction with a catcomment, you'll notice; versatility (and ease of goal) is always the key.*

<div align="center">SCRIPTURE</div>

*In the beginning was the Word, and the Word was with God, and the Word was God.*
<div align="right">St. John 1:1.</div>

*Where wast thou when I laid up the foundations of the earth? tell me if thou hast understanding.*
<div align="right">Job 38:4</div>

8. **Finally, how do the labels work with the hacked `enumerate`s?**
   Well, they work all right, thanks to `varioref`; in fact, here's one: 4(a)(2).

9. **I want to see some double-digit question numbers.**
   I'm working on it; only one more question to go.

10. **Finally; do they indent properly and all, at least with the defaults?**
    Yes, they indent exactly as one would expect.
    *Although in this, my first real foray into serious LaTeX programming, I found that very little works as expected, and one must have a very thorough knowledge of internals to avoid being surprised and having to work quite hard to figure out some unexpected results.*

## 5   Implementation

Here's the specifications of the code. Bear with me; I'm really only an amateur LaTeX programmer (the code will reveal this to anyone with real experience), so it's probably pretty sloppy.

First we name the package.

```
1 \ProvidesPackage{catechis}
```

Then we call the packages that we're going to require. I call `calc` and `ifthen` reflexively; neither are used extensively, but both some. `varioref` is needed for hacking `enumerate`; I needed its `\labelformat` command.

```
2 \RequirePackage{calc}
3 \RequirePackage{ifthen}
4 \RequirePackage{varioref}
```

Now we delcare some default settings that may be redeclared by the user; the user just has to \renewcommand them. These are almost all visual formatting issues best hidden from the author.

```
5  \newcommand\quesnumweight{\textbf}%
6  \newcommand\questionweight{\textbf}%
7  \newcommand\answeight{}%
8  \newcommand\quesnumstyle{}%
9  \newcommand\questionstyle{}%
10 \newcommand\ansstyle{}%
11 \newcommand\quesindentstyle{\hangindent}%
12 \newcommand\ansindentstyle{\parindent}%
13 \newcommand\commentweight{}\newcommand\commentstyle{\textit}%
14 \newcommand\citeweight{}\newcommand\citestyle{\textit}%
15 \newcommand\sourceweight{}\newcommand\sourcestyle{}%
16 \newcommand\citetitleweight{}\newcommand\citetitlestyle{\textsc}
17 \newcommand\citeword{Scripture}
18 \newcommand\citesize{\small}
19 \newcommand\sourcesize{\small}
```

Now we declare the necessary lengths. Once again, these are formatting issues best hidden from the author.

```
20 \newlength\questionskip
21 \setlength\questionskip{1em} % Space b/f questions; in macros, rubber
22 \newlength\answerskip
23 \setlength\answerskip{0pt} % Space before answers
24 \newlength\answerindent\newlength\rtanswerindent
25 \setlength\rtanswerindent{0em} % Right indentation of answers
26 \newlength\defanswerindent % Used internally only, below
27 \newlength\defquesparindent % Default question parindent
28 \newlength\quesparindent % Customizable question parindent
29 \newlength\ansparindent % Customizable answer parindent
30 \setlength\ansparindent{0em} % Initialize to zero
31 \newlength\listindent\newlength\listmarg
32 \newlength\perwidth\settowidth\perwidth{.}%
```

Now we delcare the counter for the questions. Obvious enough.

```
33 \newcounter{quesnum}
```

Now we begin to define the commands for the catechism questions. The first is, obviously, \catques; within \catques we also redefine all the enumerate macros, so that it won't hose the enumerates in other, non-catechism parts of the document.

```
34 \newcommand\catques[2]{%
35 \refstepcounter{quesnum}%
36 \renewcommand\theenumi{\alph{enumi}}%
37 \labelformat{enumi}{\thequesnum(\theenumi)}%
38 \renewcommand\theenumii{\arabic{enumii}}%
```

```
39 \labelformat{enumii}{\thequesnum(\theenumi)(\theenumii)}%
40 \renewcommand\theenumiii{\roman{enumiii}}%
41 \labelformat{enumiii}{\thequesnum(\theenumi)(\theenumii)(\theenumiii)}%
42 \renewcommand\theenumiv{\Alph{enumiv}}%
43 \labelformat{enumiv}{\thequesnum(\theenumi)(\theenumii)(\theenumiii)%
44 (\theenumiv)}%
45 \setlength\leftmarginiii{2em}%
46 \setlength\leftmarginiv{2em}%
47 \renewcommand\@listi{%
48 \setlength\listmarg{\the\labelsep+\the\labelwidth + \the\perwidth}
49 \setlength\leftmargin{\the\defquesparindent + \the\listmarg}%
50 \setlength\parsep{0em}%
51 \setlength\itemsep{0em plus 2pt minus 2pt}%
52 \setlength\topsep{0em}
53 \setlength\partopsep{0em}
54 \setlength\parskip{0em}
55 }% end redef of \@listi
56 \renewcommand\@listii{%
57 \setlength\leftmargin{0em+\the\labelwidth}%
58 \setlength\parsep{0em}%
59 \setlength\itemsep{0em plus 2pt minus 2pt}%
60 \setlength\topsep{0em}
61 \setlength\partopsep{0em}
62 \setlength\parskip{0em}
63 }% end redef of \@listii
64 \renewcommand\@listiii{%
65 \setlength\leftmargin{0em+\the\labelwidth}%
66 \setlength\parsep{0em}%
67 \setlength\itemsep{0em plus 2pt minus 2pt}%
68 \setlength\topsep{0em}
69 \setlength\partopsep{0em}
70 \setlength\parskip{0em}
71 }% end redef of \@listiii
72 \renewcommand\@listiv{%
73 \setlength\leftmargin{0em+\the\labelwidth}%
74 \setlength\parsep{0em}%
75 \setlength\itemsep{0em plus 2pt minus 2pt}%
76 \setlength\topsep{0em}
77 \setlength\partopsep{0em}
78 \setlength\parskip{0em}
79 }% end redef of \@listiv
80 \begingroup\par\setlength\parskip{\the\questionskip plus 2pt minus 2pt}%
81 \settowidth\defquesparindent{% This sucks; but for some reason the
82 % indentation eats closing spaces, so...
83 \quesnumweight{\quesnumstyle{\thequesnum.  }}}%
84 \ifthenelse{\quesindentstyle=\hangindent}{%
85 \setlength\parindent{0pt}}{\hangafter=1}%
86 \setlength\quesindentstyle{\the\defquesparindent-\the\quesparindent}%
87 \quesnumweight{\quesnumstyle{\thequesnum\@.}}  %
88 \questionweight{\questionstyle{#1}}\hfill\par\endgroup%
```

```
89 \begingroup\par\setlength\parskip{\the\answerskip}%
90 \ifthenelse{%
91 \ansindentstyle=\hangindent}{%
92 \setlength\parindent{0pt}}{\hangafter=1}%
93 \setlength\ansindentstyle{\the\ansparindent}%
94 \settowidth\defanswerindent{%
95 \quesnumweight{\quesnumstyle{\thequesnum.  }}}%
96 \setlength\leftskip{\the\defanswerindent-\the\answerindent}%
97 \setlength\rightskip{\the\rtanswerindent}%
98 \answeight{\ansstyle{#2}}\hfill\par\endgroup%
99 }%
```

My, wasn't that messy? Now, on to the \catcomment command. Now we define the \catcomment command. It's pretty simple, actually, thanks to lacking the identation issues that \cateques was so plagued by.

```
100 \newcommand\catcomment[1]{%
101 \hspace*{\stretch{1}}\\\small\commentweight{\commentstyle{#1}}%
102 \hspace*{\stretch{1}}\normalsize%
103 }%
```

Now we begin the commands for citing Scriptural citations. In lists, that is. Not too complex, either.

```
104 \newcommand\citetitle{%
105 \vspace*{1em}%
106 \begin{center}\citetitleweight{\citetitlestyle{\citeword}}\end{center}
107 }% end the \citetitle command
108 \newcommand\scripture[2]{%
109 \par\citesize\citeweight{\citestyle{#1}}\nolinebreak[1]%
110 \quad\hspace*{\fill}\mbox{\sourcesize\sourceweight{\sourcestyle{#2}}}%
111 \par\normalsize%
112 }% end the \scripture command
```