A LaTeX Template for Formal Papers in Political Science[*]

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Abstract

This is my abstract. It is 150 or fewer words, per common journal requirements. It succinctly states my research question and main results in plain language.

My introduction would go here. I wouldn't waste precious space on an unnecessary "Introduction" section header. Papers will be cited here (Walter 1997).

1 The Math

I might write some equations that I want to refer to later:

$$\frac{dU(x^*(\alpha), \alpha)}{d\alpha} = \frac{\partial U(x^*(\alpha), \alpha)}{\partial \alpha}. \tag{1}$$

I'll use `\autoref` to do all my references, including when I refer to Equation 1.

I'll also state some formal results whose proofs live in the Appendix.

Proposition 1. *Assume the agent's objective is to choose x to maximize*

$$U(x, \alpha) = -(x + 2\alpha)^2,$$

where $\alpha \in \mathbb{R}$ is exogenous. The optimal choice is $x^* = -2\alpha$.

Ordinarily you would make this with code like:

```
\begin{proposition}
  \label{res:maximizer}
  Assume the agent's objective is to choose $x$ to maximize ...
\end{proposition}
```

Instead I use the `restatable` environment as follows:

```
\begin{restatable}{proposition}{resMaximizer}
  \label{res:maximizer}
  Assume the agent's objective is to choose $x$ to maximize ...
\end{restatable}
```

The first argument to the `restatable` environment tells it which theorem environment to use. I've set up this template so the options are `proposition`, `lemma`, and `corollary`, but it's easy to add more. The second argument specifies the command you want to use to

Letter	Name	Brenton's rating
α	alpha	8.4
β	beta	9.1
χ	chi	4.6

Table 1. My ratings of a few Greek letters. I haven't included all of the Greek letters because I am lazy. This caption is excessively long in order to show you how excessively long captions are formatted.

restate the result later on. So when I want to reprint the exact text of the proposition, I'll use `\resMaximizer*`, as you'll see below in the source code for the Appendix. I always start my commands with `res` (as in "result") but that's just personal style.

One last note: we can refer to the result by its full name using `\autoref{res:maximizer}`, where `res:maximizer` is the label I set just after declaring the environment. This shows up as Proposition 1. It's convenient to do this instead of the usual `Proposition~\ref{res:maximizer}`, because then I can change propositions to lemmas (or vice versa) without having to go through and manually edit references.

2   Tables and Figures

I use the `caption` package to make the caption formatting less ugly than the LaTeX default. Similarly, I use `booktabs` to make tables less ugly. You can see the results in Table 1. As you should have come to expect by now, I made that reference via `\autoref{tab:greek}`, not via the uglier and less-robust `Table~\ref{tab:greek}`.

References

Walter, Barbara F. 1997. "The Critical Barrier to Civil War Settlement." *International Organization* 51(3):335–364.

Appendix

Contents

A   Proofs

I might want to cite some papers that I didn't cite in the main text (Banks 1990). To help keep my word count low and my eventual copy editors happy, I don't want those citations showing up in the main text, so I'll create a separate bibiliography for the Appendix. I just append `app` to the ordinary citation commands. For example, I made the citation in this paragraph with `\citepapp{banks1990equilibrium}`.

A.1   Proof of Proposition 1

To prove the result, I'll rely on a couple of auxiliary lemmas. These will be newly stated here, and their numbers will be prepended with "A" to show that they originate in the Appendix rather than the main text. (I still put them in `restatable` environments to save myself trouble in case I end up moving them into the body later, but this isn't necessary.)

Lemma A.1. *U is strictly concave in x.*

Proof. We have

$$\frac{\partial U(x, \alpha)}{\partial x} = -2(x + 2\alpha) \tag{A.1}$$

and thus $\frac{\partial^2 U(x,\alpha)}{\partial x^2} = -2 < 0$. □

Lemma A.2. $\frac{\partial U(x,\alpha)}{\partial x} = 0$ *if and only if* $x = -2\alpha$.

Proof. Equation A.1 implies that the condition $\frac{\partial U(x,\alpha)}{\partial x} = 0$ is equivalent to $x = -2\alpha$. □

Now we can prove Proposition 1. To restate the result, I'll use the command `\resMaximizer*`, where `resMaximizer*` is the command name I supplied to the second argument of the `restatable` environment.

Proposition 1. *Assume the agent's objective is to choose x to maximize*

$$U(x, \alpha) = -(x + 2\alpha)^2,$$

where $\alpha \in \mathbb{R}$ is exogenous. The optimal choice is $x^* = -2\alpha$.

Proof. Lemma A.1 implies that first-order conditions are necessary and sufficient for maximization of U with respect to x. The claim then follows from Lemma A.2. $\square$

Additional References

Banks, Jeffrey S. 1990. "Equilibrium Behavior in Crisis Bargaining Games." *American Journal of Political Science* 34(3):599–614.