

**PROBABILITY AND GEOMETRY ON GROUPS**  
**(LECTURES BY GÁBOR PETE)**

NNN AND MMM

1. XXX

{s.X}

This is the way to refer to a section: see Section 1 or ???. Don't worry if a reference to something in a different lecture comes out just as ??, still use the label from that previous lecture, as shown on the margin. I'm typically using labels s.something for sections, t.something for theorems l.something for lemmas, e.something for equations. **Again:** never refer to anything manually! Writing "by Theorem 1.1" is forbidden, you have to write "by Theorem 1.1". Citing a reference: see [MoP05].

The labels chosen should have a serious chance to be unique across the entire course. So, don't call you first section s.first, and your second lemma l.second; rather, give descriptive names. It's also easier for you to remember when you want to use them.

{t.Polya}

**Theorem 1.1.** *My way of writing multiline formulas:*

$$\begin{aligned} \mathbf{P}[X_n = y \mid X_0 = x] &= \sum_k etc \\ &\asymp n^{-d/2}. \end{aligned} \tag{1.1} \quad \{\text{e.d}/2\}$$

*Note that one label refers here to the entire multiline formula.*

Or, if you want separate labels for the lines,

$$\begin{aligned} \mathbf{E}\left[\left\{\text{some set}\right\} \mid \text{some condition}\right] &= \sum_k etc \\ &\asymp \text{something} \end{aligned} \tag{1.2} \quad \{\text{e.etc}\}$$

$$= \text{something else}. \tag{1.3} \quad \{\text{e.else}\}$$

If you don't want labels on some equation at all, use double dollar signs for single-line equations, or the starred equation\* or align\* commands. For instance,

$$\begin{aligned} \mathbf{E}\left[\left\{\text{some set}\right\} \mid \text{some condition}\right] &= \sum_k etc \\ &\asymp \text{something} \\ &= \text{something else}. \end{aligned}$$

It is good to label lemmas and theorems always, but use only as many labels on the equations as you actually need. Another request regarding equations is that please use commas and full stops when the equations form part of a sentence. See the examples above.

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*Date:* November 10, 2009.

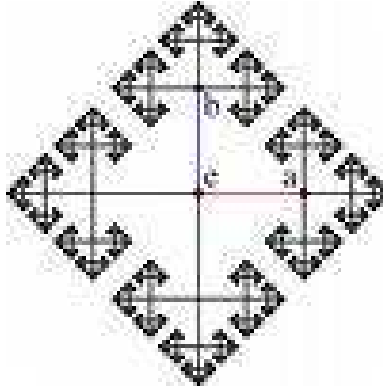
You should also use the preset commands and labels for exercises:

`\ex.AlphaCentauri`

**Exercise 1.1.** \*\* *This is the first double-starred exercise.*

Some TeX tricks:  $\langle a, b \mid [a, b] \rangle$  looks infinitely better than  $\langle a, b \mid [a, b] \rangle$ . Furthermore,  $l$  is hard to distinguish from  $1$   $t$  (  $|$ , so it's better to use  $\ell$ .

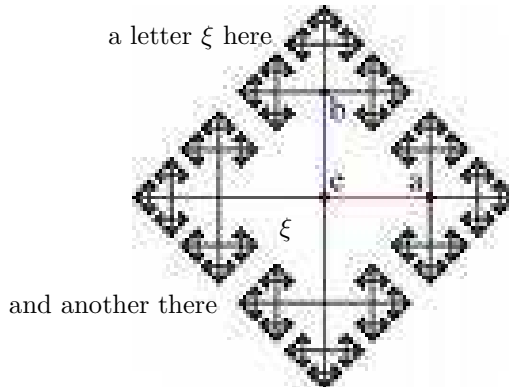
Here is how to include a figure:



`{f.F2}`

FIGURE 1. A Cayley graph.

Moreover, you can write inside it:



`{f.F2again}`

FIGURE 2. A Cayley graph.

## REFERENCES

- [Gri99] G. Grimmett. *Percolation. Second edition.* Grundlehren der Mathematischen Wissenschaften, 321. Springer-Verlag, Berlin, 1999.
- [MoP05] B. Morris and Y. Peres. Evolving sets, mixing and heat kernel bounds. *Prob. Th. Rel. Fields* **133** (2005), no. 2, 245–266. [arXiv:math.PR/0305349](https://arxiv.org/abs/math.PR/0305349)