

Introduction to Beamer slides and the tikz package

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Plus cool things rants from Alyssa Frazee

special thanks to Jen Feder Bobb (and Charles Simpson)!

A list of cool things

- Here is the first thing
- and now the second

BIOSTAT look I have a subitem!

BIOSTAT and it says more things

- and now I have a subsubitem!

▶ [Jump to last slide](#)

Theorem

Justin Bieber causes Bieber fever

Proof:

- ④ Girls in closer contact with Justin have more severe cases (Biological gradient, strength of association)



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- ① Before Justin Bieber, no one contracted Bieber fever (Plausibility, coherence)

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- 3 When Justin Bieber is recording a new album, Bieber fever cases decrease (Experiment, reversibility)
- 4 Girls in closer contact with Justin have more severe cases (Biological gradient, strength of association)



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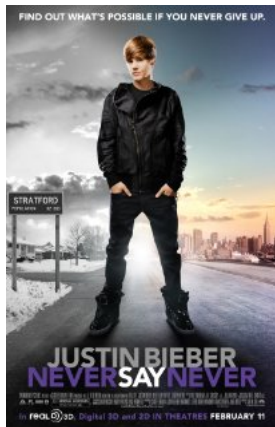
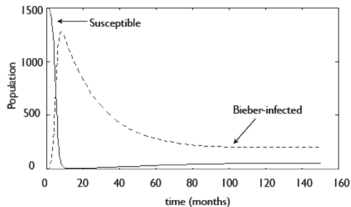


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Bieber pics



A black and white profile photograph of Justin Bieber looking to the left. He is wearing a dark hooded sweatshirt with a patterned design on the chest. A diagonal banner is overlaid on the lower right portion of the image.

JUSTIN BIEBER
NEVER SAY NEVER
IN THEATRES THIS FEBRUARY





Figure: This is a picture of biostat zombies!

Hi this is biostat



This slide's only purpose is to reference the zombies in figure ??

Table: collocated monitors

- 313 monitors throughout continental United States; 289 unique locations

City	# Monitors	# Collocated
New York	8	2
Houston	7	2
Phoenix	7	3
Seattle	7	2/2
Chicago	5	2
Philadelphia	5	3

Table: Number of Collocated Monitors

Gaussian Process, specific to region ($r(s)$) and constituent:

$$x_{r(s)}(s, t) = \mu_{r(s)} + w_{r(s)}(s, t) + \epsilon_{r(s)}(s, t)$$

$x_{r(s)}(s, t)$ Gaussian process for a constituent at time t and space s

$\mu_{r(s)}$ Region-specific mean for a constituent

$\epsilon_{r(s)}(s, t)$ Mean zero, white noise process with variance $\tau_{r(s)}^2$

- Exposure measurement error
- Microscale variation (Paciorek and Schervish, 2006)

$w_{r(s)}(s, t)$ Gaussian process, mean zero with covariance

$$\text{Cov}\left(w_{r(s)}(s, t), w_{r(s')}(s', t')\right) = \begin{cases} \sigma_{r(s)}^2 \rho(\|s - s'\|; \phi_{r(s)}, \kappa_{r(s)}) & t = t' \\ 0 & t \neq t' \end{cases}$$

where ρ is the Matèrn covariance function with Bessel function of the third kind

$$L(\Theta_{r(s)}; \mathbf{m}_{r(s)}) \propto \prod_{t=1}^T |\mathbf{M}_{r(s)}|^{-1/2} \exp \left(-\frac{1}{2} [\mathbf{m}_{r(s)}(t) - \mu_{r(s)} \mathbf{1}]' \mathbf{M}_{r(s)}^{-1} [\mathbf{m}_{r(s)}(t) - \mu_{r(s)} \mathbf{1}] \right)$$

$\Theta_{r(s)}$ $(\sigma_{r(s)}, \phi_{r(s)}, \kappa_{r(s)}, \mu_{r(s)}, \tau_{r(s)})$

$\mathbf{m}_{r(s)}(t)$ observed, log-transformed monitor levels for region $r(s)$ for day t

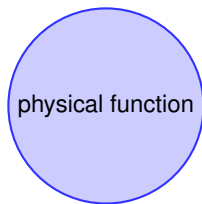
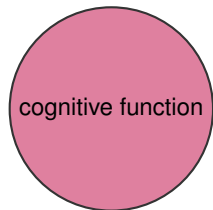
$\mu_{r(s)}$ region-specific mean

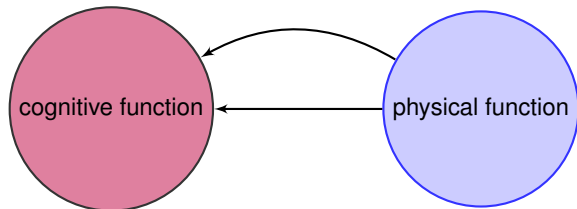
where $\mathbf{M}_{r(s)}$ is the appropriate covariance matrix with (i, k) element equal to

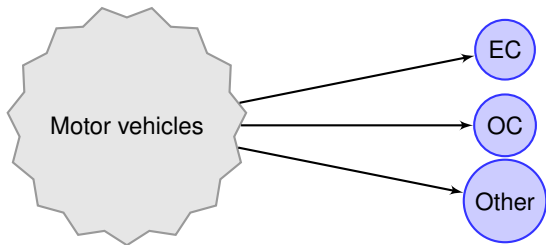
$$\sigma_{r(s)}^2 \rho(\|s_i - s_k\|; \phi_{r(s)}, \kappa_{r(s)}) + \tau_{r(s)}^2 \cdot \mathbf{1}_{\{s_i = s_k\}}$$

Now I will cite some important papers. The following are really important
[?, ?, ?]

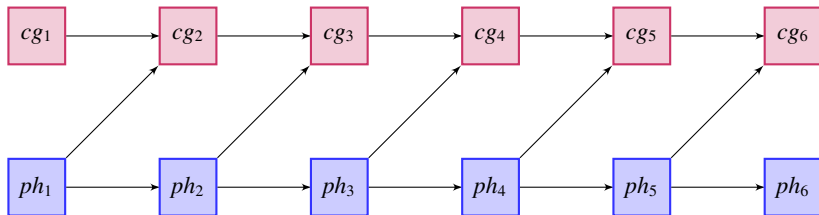
- Lots of internet help pages
- Find similar graphic and check out code
- Wikipedia: <http://en.wikipedia.org/wiki/PGF/TikZ>
- texample:
<http://www.texample.net/tikz/examples/tag/beamer/>

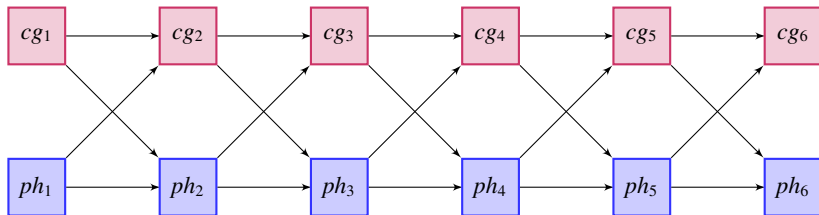


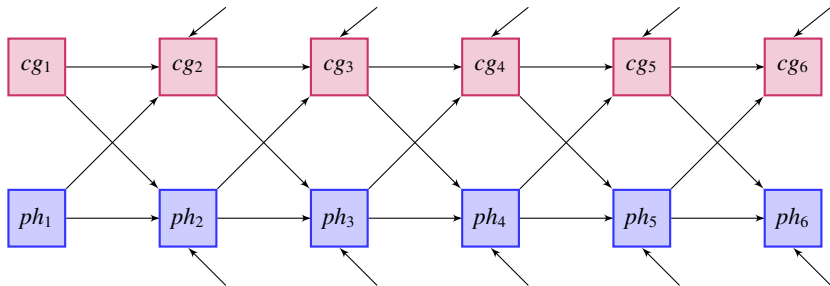


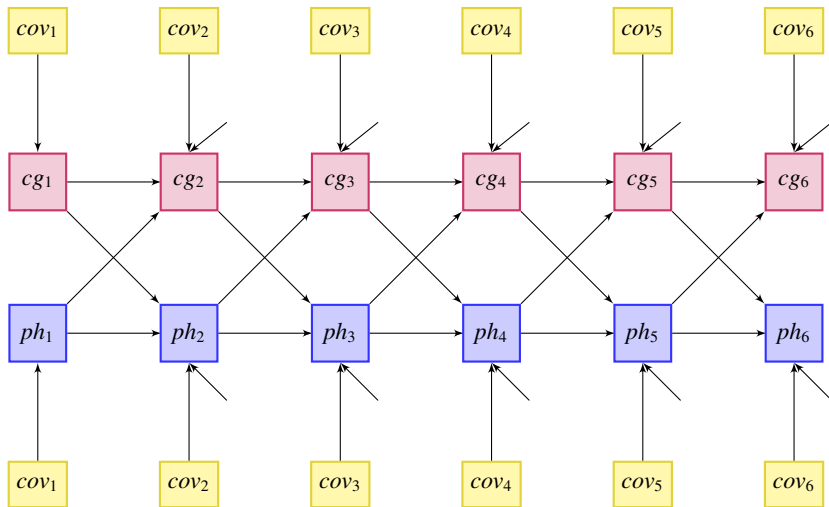












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Other resources:

<http://ctan.unixbrain.com/macros/latex/contrib/beamer/doc/beameruserguide.pdf>

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The End 

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The End 