

February 18, 2015

Abstract

1 stats package

1.1 Distributions

1.1.1 `\DistN`, **Normal**

Generates a normal distribution with two parameters. As an example,

```
x \DistN{0}{\sigma^2}
```

Will generate

$$x \sim \mathcal{N}(0, \sigma^2)$$

1.1.2 `\NormalGamma`, **Normal-Gamma**

Generates a Normal-Gamma distribution with four parameters. As an example,

```
x \NormalGamma{\mu}{\lambda}{\alpha}{\beta}
```

Will generate

$$x \sim \mathcal{NG}(\mu, \lambda, \alpha, \beta)$$

1.1.3 `\G`, **Gamma**

Generates a Gamma distribution with two parameters. As an example,

```
x \DistGamma{\alpha}{\beta}
```

Will generate

$$x \sim \mathcal{G}(\alpha, \beta)$$

1.1.4 `\DistIG`, Inverse Gamma

Generates an Inverse Gamma distribution with two parameters (shape, scale).
As an example,

```
x \DistIG{\alpha}{\beta}
```

Will generate

$$x \sim \mathcal{IG}(\alpha, \beta)$$

2 Notation

2.1 Probabilities

2.1.1 `\pcond`, Conditional probabilities

```
\pcond{\theta_t}{\theta_{t-1}}, \Phi \DistInvGamma{\alpha}{\beta}
```

Will generate

$$p(\theta_t | \theta_{t-1}, \Phi) \sim \mathcal{IG}(\alpha, \beta)$$