

# Two-compartment model solved using Torsten's `pmx_solve_twocpt` function

Yi Zhang

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## 1 Model

We consider fitting a single-patient two-compartment model with linear absorption, to demonstrate the usage of `pmx_solve_twocpt` function.

## 2 Build

```
make ../example-models/twocpt_model/twocpt_model
```

## 3 Run

Using `cmdstan`

```
for i in {1..4}; do ./TwoCptModel sample random seed=3892749 id=$i data  
  ↪ file=TwoCptModel.data.R init=TwoCptModel.init.R output  
  ↪ file=output_${i}.csv; done
```

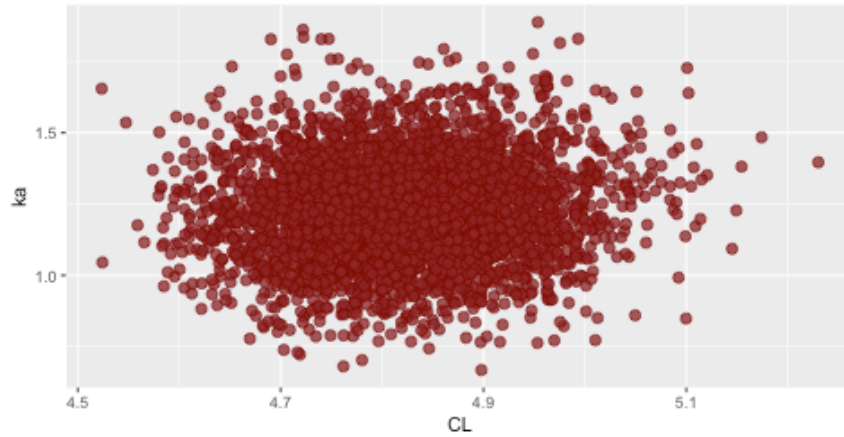
## 4 Results

`./result/` directory contains Stan output from the above run. To examine the results in R, we use `bayesplot` and `rstan`

```
library(bayesplot)  
library(rstan)  
fit <- read_stan_csv(list.files(path="result", pattern="*.csv",  
  ↪ full.names=TRUE))
```

## 4.1 Scatter plot diagnostic

```
mcmc_scatter(as.matrix(fit), pars = c("CL", "ka"), np = nuts_params(fit),  
             np_style = scatter_style_np(div_color = "green", div_alpha =  
             ↪ 0.8))
```



## 4.2 Energy plot diagnostic

```
color_scheme_set("red");  
np <- nuts_params(fit);  
mcmc_nuts_energy(np) + ggtitle("NUTS Energy Diagnostic")
```

