

@pre: pre-processing

```
1 @pre begin
2     Ka =  $\theta_1 \cdot \exp(\eta[1])$ 
3     K  =  $\theta_2$ 
4     CL =  $\theta_3 \cdot \text{wt} \cdot \exp(\eta[2])$ 
5     V  = CL/K
6     SC = V/wt
7 end
```

This determines how the model parameters, random effects and covariates are combined before the differential equations solver.

@init: Initial values (optional)

```
1 @init begin
2     Depot    = 0.0
3     Central  = 0.0
4 end
```

Specifies the starting values of the differential equations at the time of first dose.

@covariates: Covariates

```
1 @covariates sex wt
```

Specifies the covariate terms from the dataset.

@dynamics: ODE specification

```
1 @dynamics begin
2     dDepot    = -Ka*Depot
3     dCentral  = Ka*Depot - K*Central
4 end
```

Specifies the system of differential equations. Differential variables are declared by having a line defining their derivative.

Also provide special cases for known closed-form solutions, e.g.

```
1 @dynamics OneCompartmentModel
```