

BauchModel_3

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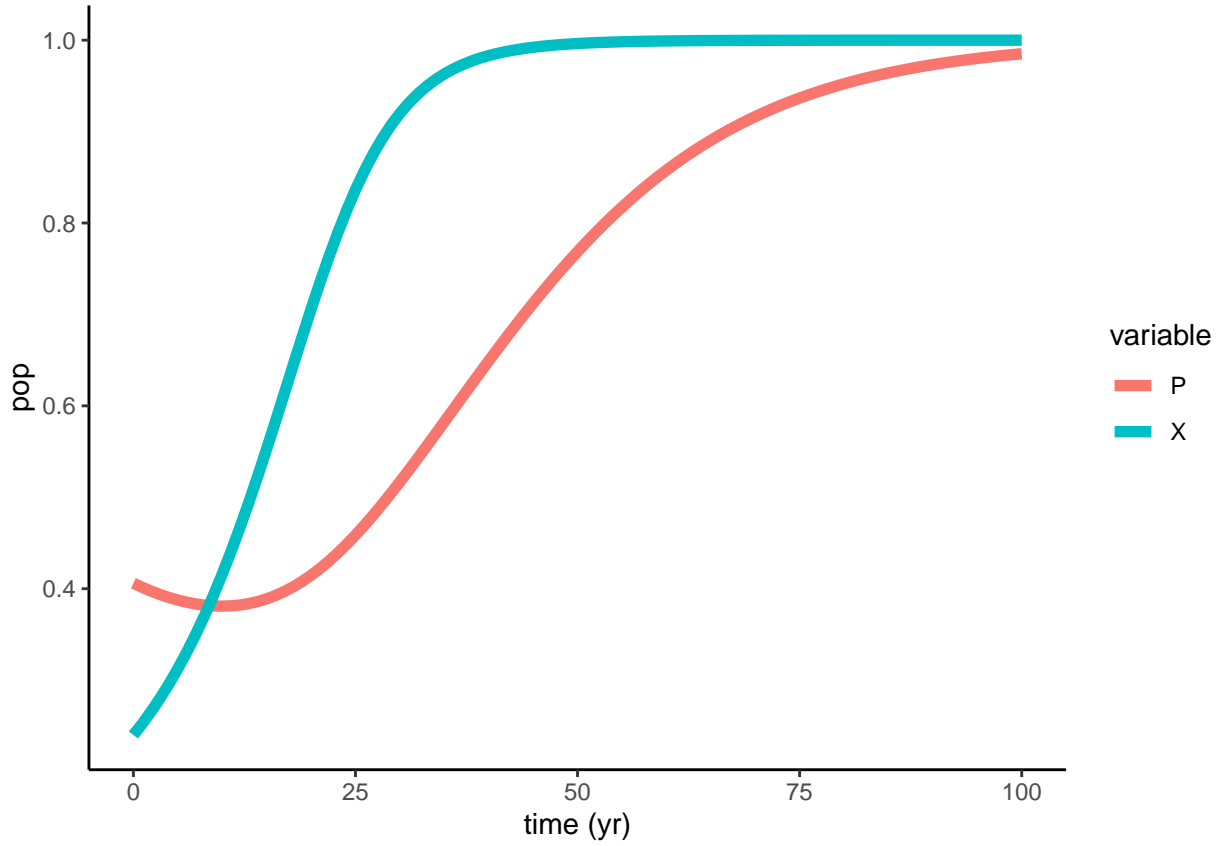


Figure 1: Original Bauch Model

See derivation in notes but this is the new equations (still unsure about interaction terms):

$$\frac{dP_1}{dt} = r_1 P_1 (1 - P_1) - \frac{h_1 * P_1 (1 - X_1)}{P_1 + s_1} + \rho_1 * \frac{P_2 - P_1}{2}$$

$$\frac{dX_1}{dt} = k_1 X_1 (1 - X_1) \left[\frac{1}{P_1 + c_1} - w_1 + d_1 (2X_1 - 1) \right] + k_2 X_1 (1 - X_2) \left[\frac{1}{P_1 + c_1} - w_1 + d_2 (2X_2 - 1) \right] + k_2 X_1 X_2 \left[\frac{1}{P_1 + c_1} + d_2 X_2 \right] + k_2 (1 - X_1) (1 - X_2) [-w_1 + d_2 (1 - X_2)]$$

$$\frac{dP_2}{dt} = r_2 P_2 (1 - P_2) - \frac{h_2 * P_2 (1 - X_2)}{P_2 + s_2} + \rho_2 * \frac{P_1 - P_2}{2}$$

$$\frac{dX_2}{dt} = k_2 X_2 (1 - X_2) \left[\frac{1}{P_2 + c_2} - w_2 + d_2 (2X_2 - 1) \right] + k_1 X_2 (1 - X_1) \left[\frac{1}{P_2 + c_2} - w_2 + d_1 (2X_1 - 1) \right] + k_1 X_1 X_2 \left[\frac{1}{P_2 + c_2} + d_1 X_1 \right] + k_1 (1 - X_2) (1 - X_1) [-w_2 + d_1 (1 - X_1)]$$

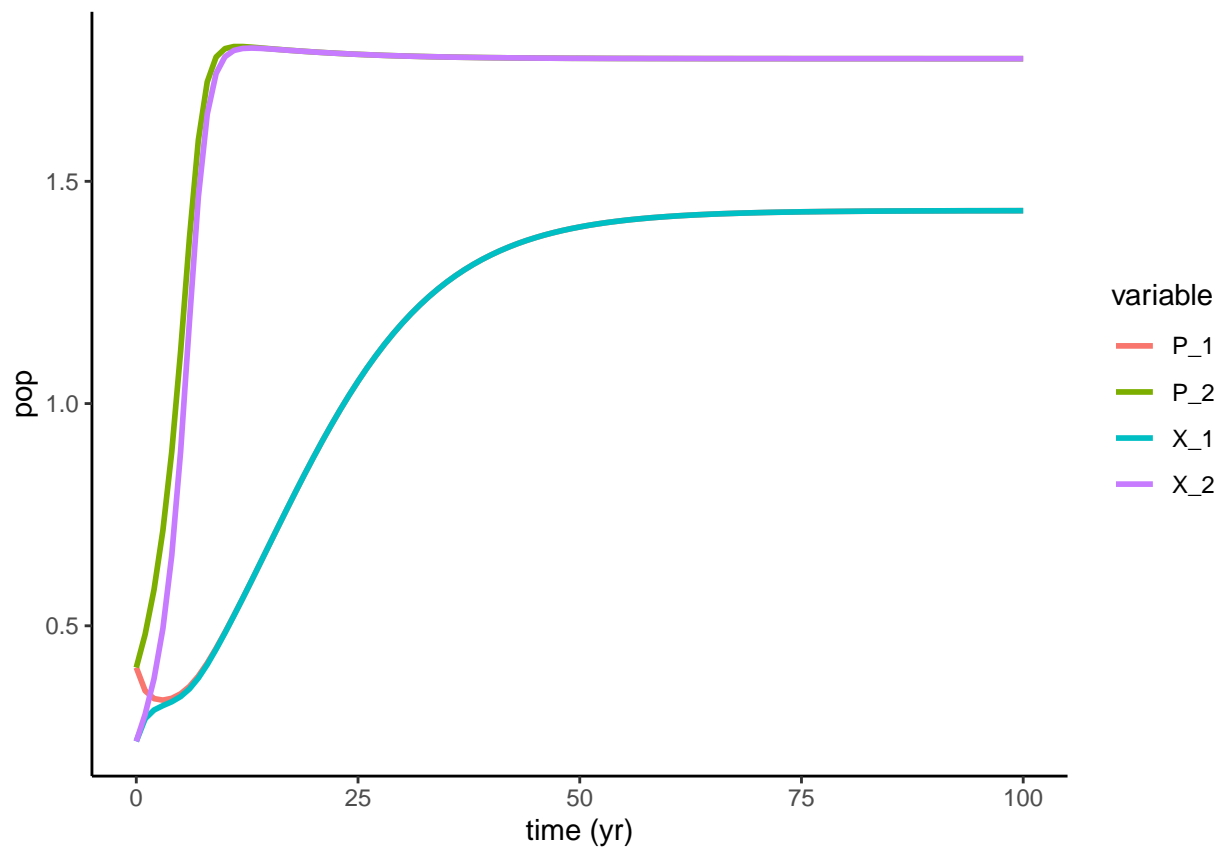


Figure 2: New Model with default paramters

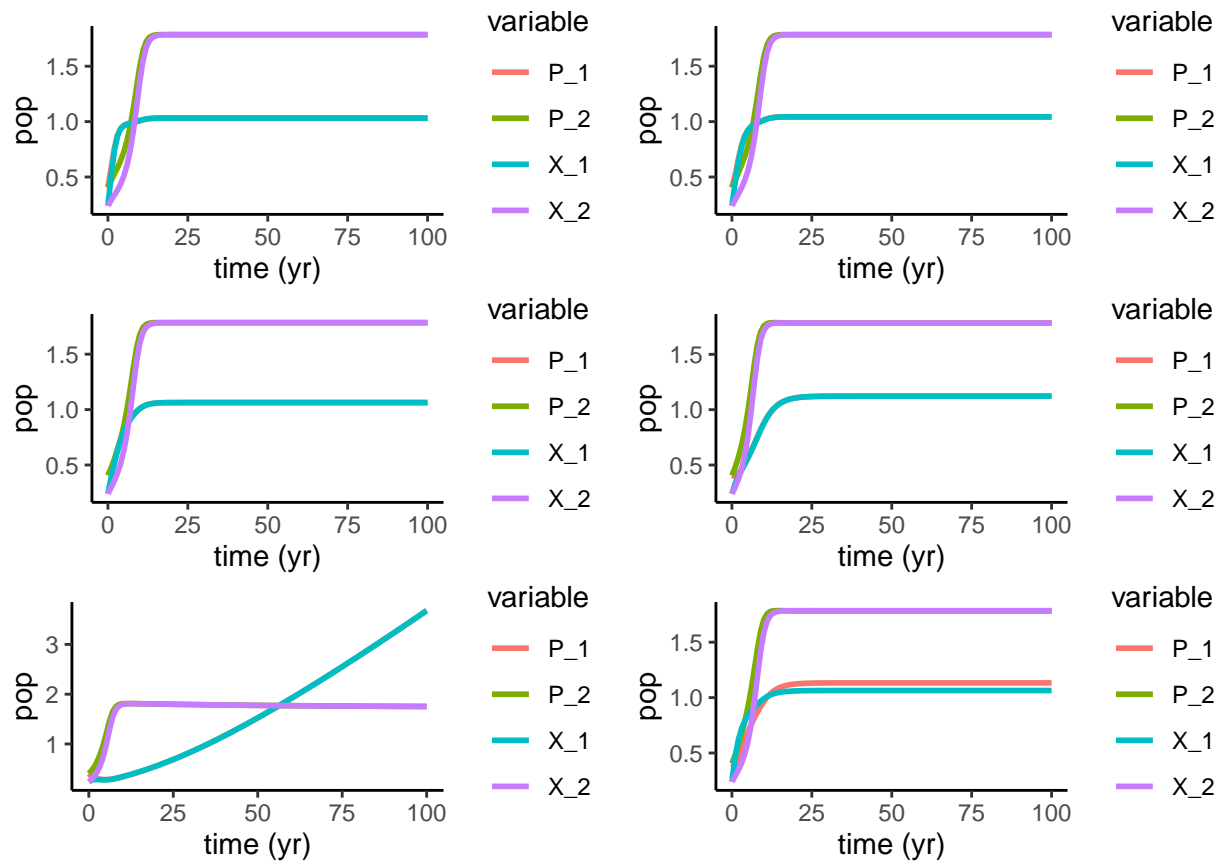


Figure 3: R - Net growth/fecundity, range 0 to 1

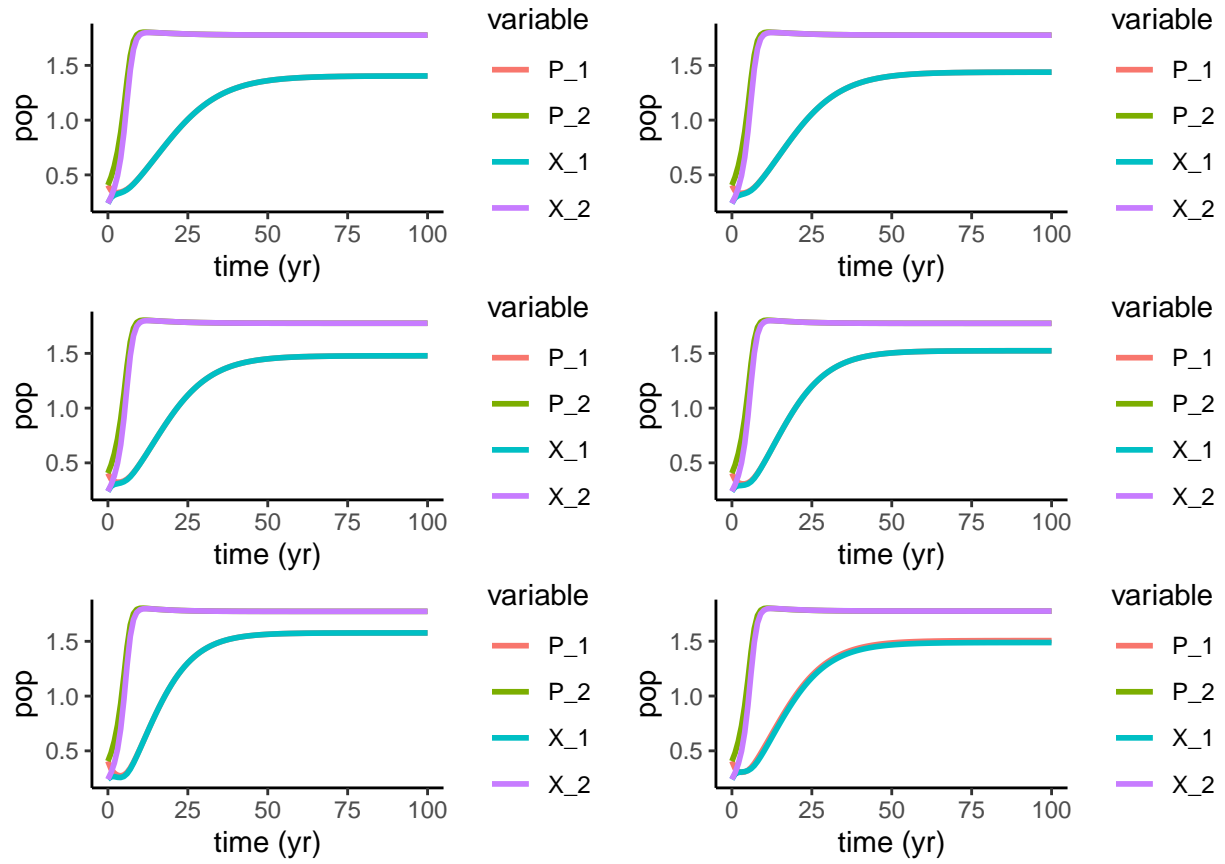


Figure 4: S - supply and demand, range 0.1 to 1

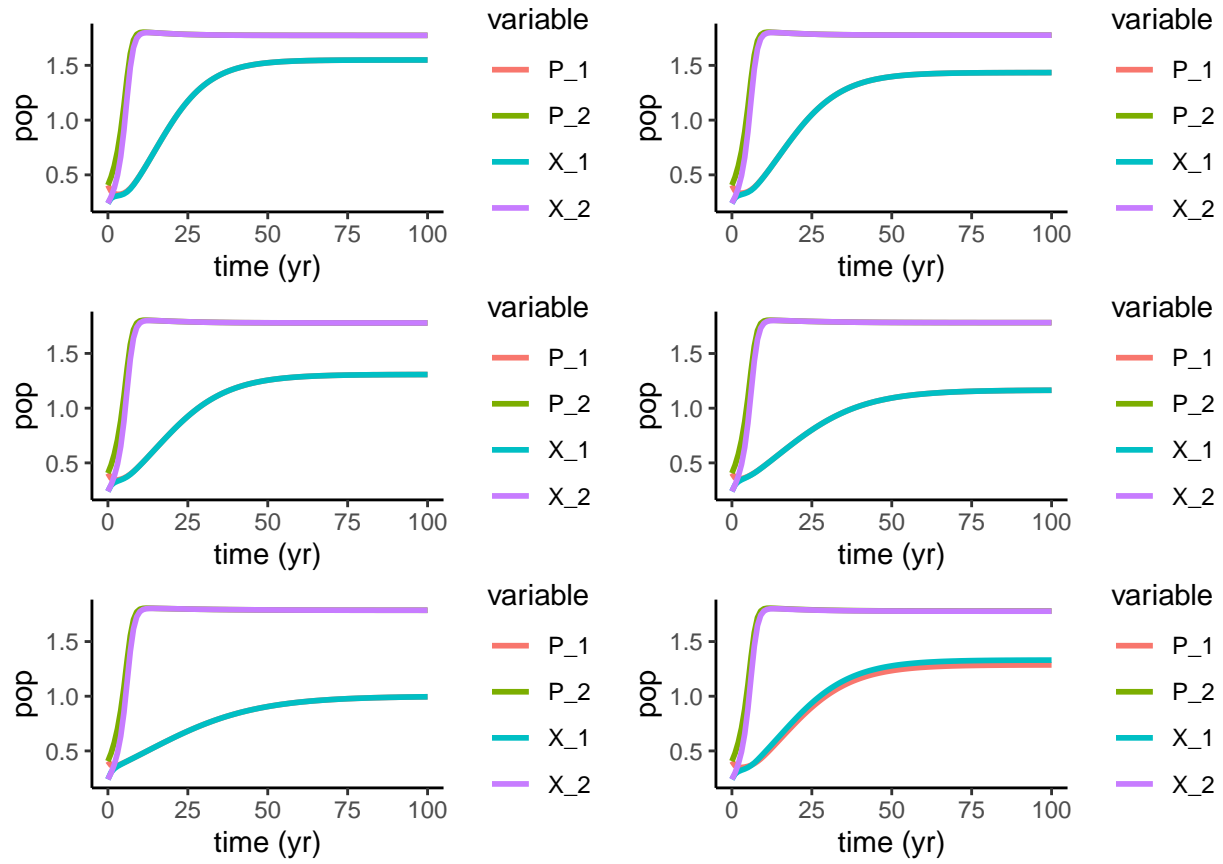


Figure 5: h - Harvesting efficiency, range 0 to 0.1. Note, default is .075

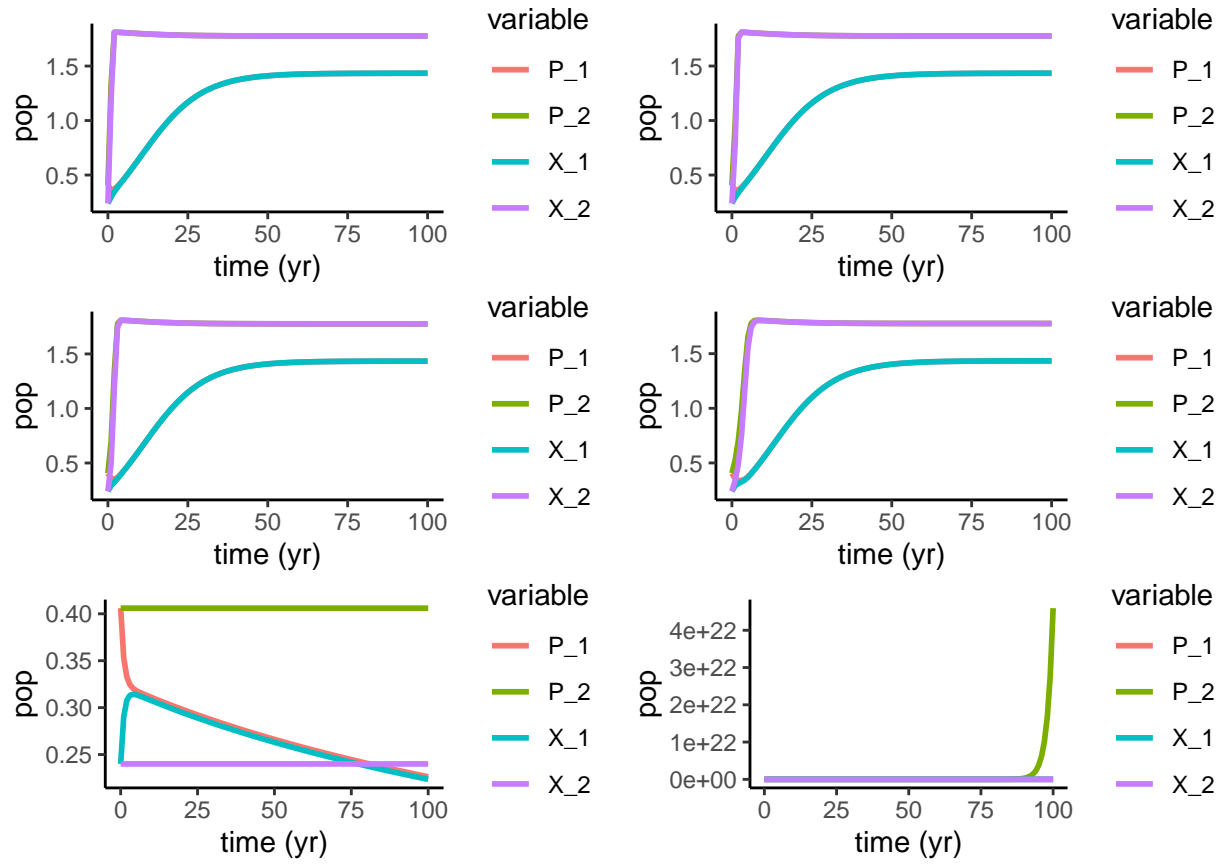


Figure 6: K - Social learning rate 0 to 1

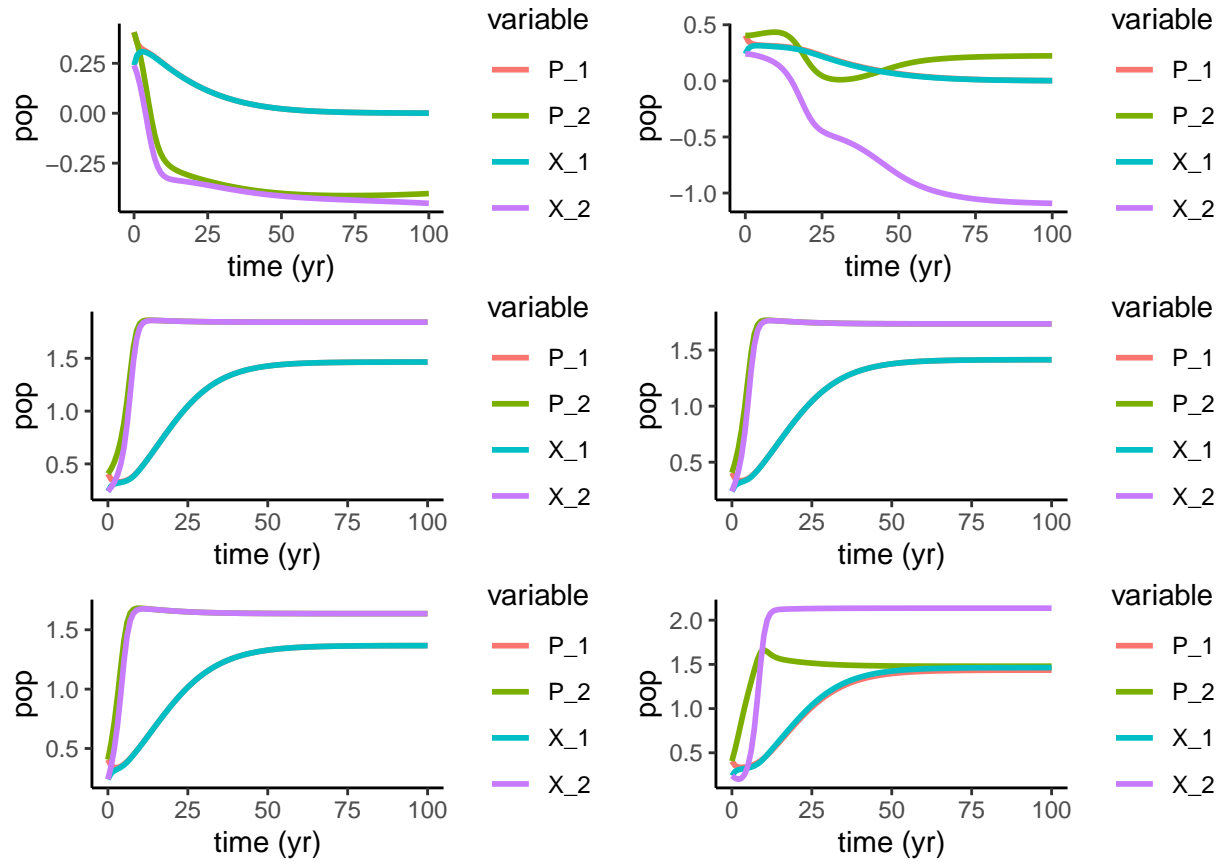


Figure 7: w - conservation costs

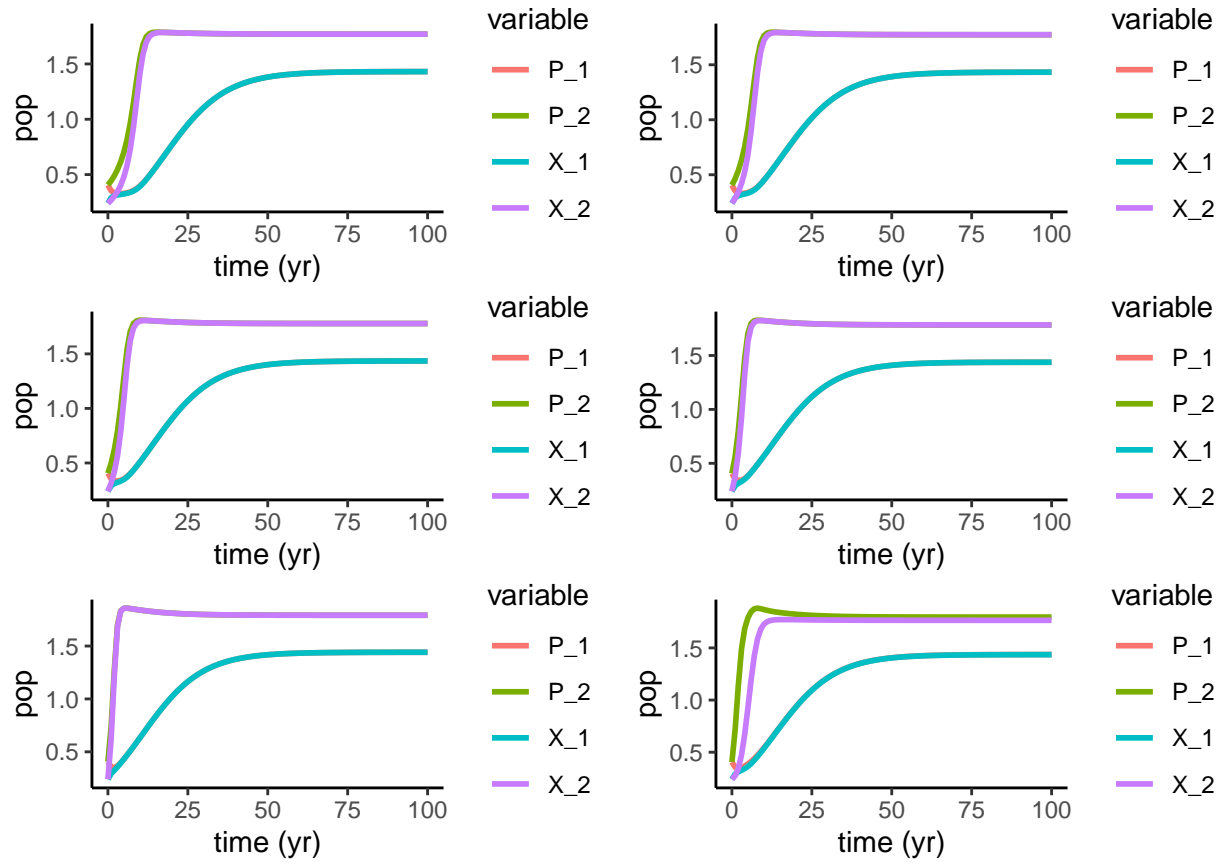


Figure 8: c - rarity valuation param


```

## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 3.42975e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 3.42975e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 3.42975e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.80636e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.80636e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.80636e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.29628e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.29628e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.29628e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 1.87892e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##

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## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.5252
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 29.2803, R2 = 1.49516e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 29.2803, R2 = 1.49516e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 29.2803, R2 = 1.49516e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 29.2803, R2 = 1.49516e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 29.2803, R2 = 1.22996e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 29.2803, R2 = 1.22996e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 29.2803, R2 = 1.22996e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 29.2803, R2 = 1.22996e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 29.2803, R2 = 1.01181e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.

```

```

## In above message, R1 = 29.2803, R2 = 1.01181e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 29.2803
##

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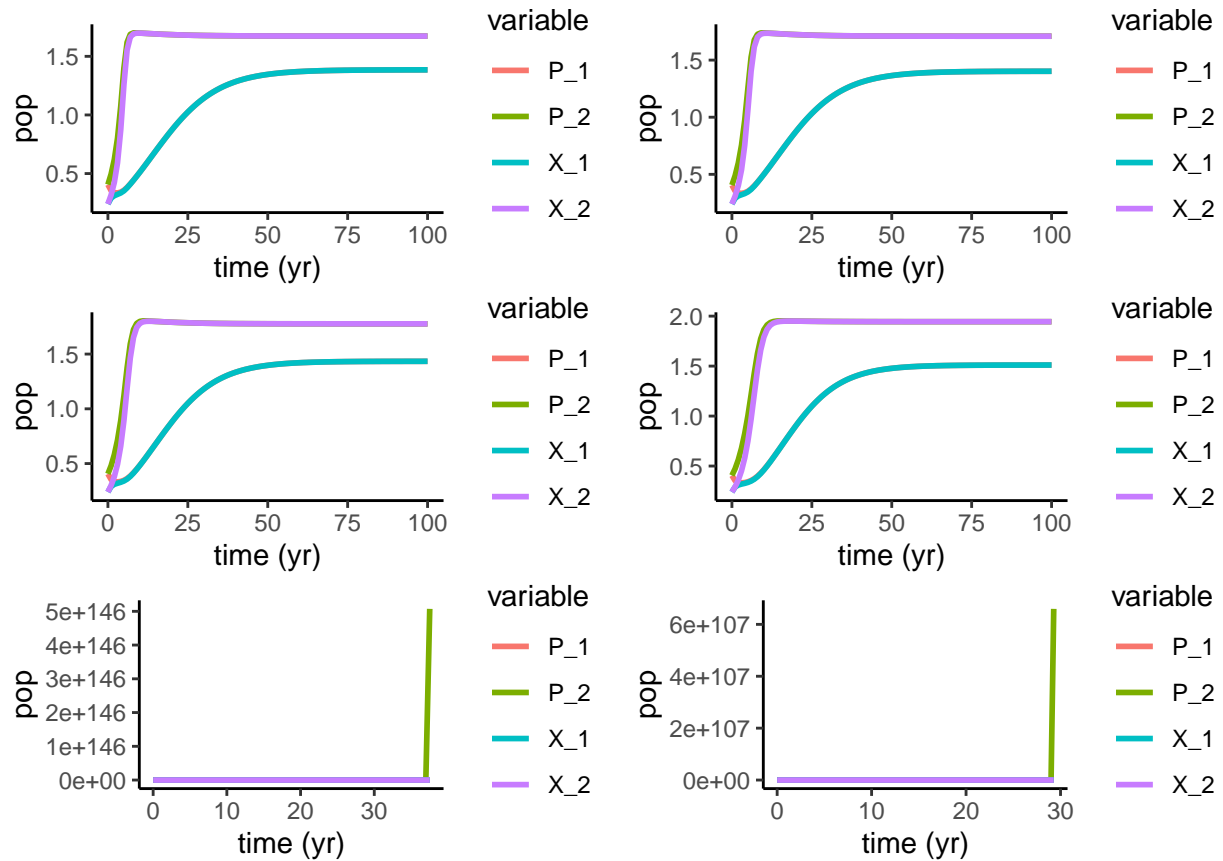


Figure 9: d - social norm strength

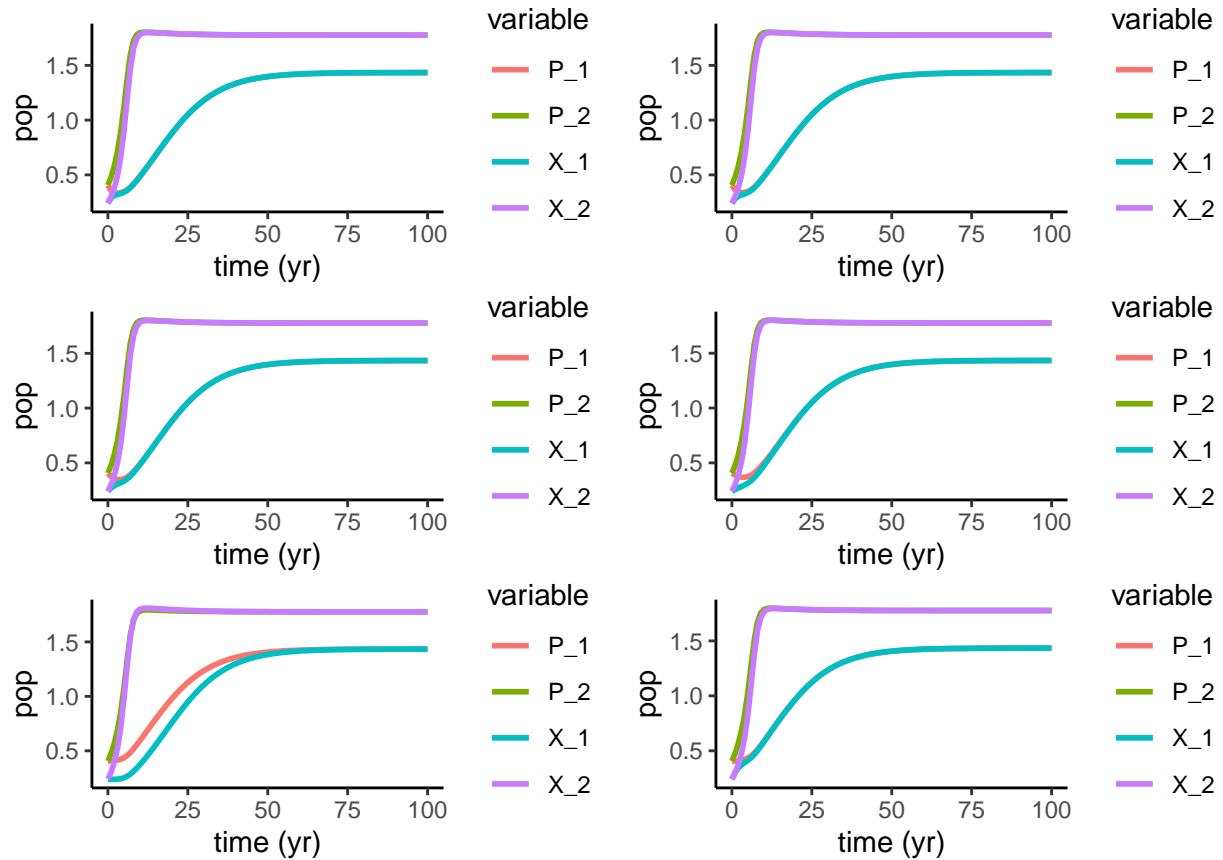


Figure 10: roh - fish diffusion

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## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine, T + H = T on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.8555, R2 = 3.19583e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine, T + H = T on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.8555, R2 = 3.19583e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine, T + H = T on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.8555, R2 = 3.19583e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine, T + H = T on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.8555, R2 = 2.615e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine, T + H = T on the next step
##      (H = step size). Solver will continue anyway.
```

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## In above message, R1 = 37.8555, R2 = 2.615e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.8555, R2 = 2.615e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.8555, R2 = 2.13973e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.8555, R2 = 2.13973e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.8555, R2 = 1.75085e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.8555
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.333, R2 = 3.05105e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.333, R2 = 3.05105e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.333, R2 = 3.05105e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step

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##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.333, R2 = 2.49648e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.333, R2 = 2.49648e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.333, R2 = 2.49648e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.333, R2 = 2.04272e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.333, R2 = 2.04272e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.333, R2 = 2.04272e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.333, R2 = 1.67144e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 39.333
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 49.936, R2 = 2.99883e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 49.936, R2 = 2.99883e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

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##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 49.936, R2 = 2.99883e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 49.936, R2 = 2.99883e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 49.936, R2 = 2.46687e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 49.936, R2 = 2.46687e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 49.936, R2 = 2.46687e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 49.936, R2 = 2.02929e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 49.936, R2 = 2.02929e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 49.936
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 76.6431, R2 = 6.44855e-15
##

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## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 76.6431, R2 = 6.44855e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 76.6431, R2 = 6.44855e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 76.6431, R2 = 6.44855e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 76.6431, R2 = 5.30458e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 76.6431, R2 = 5.30458e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 76.6431, R2 = 5.30458e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 76.6431, R2 = 5.30458e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 76.6431, R2 = 4.36357e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 76.6431, R2 = 4.36357e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 76.6431

```


##

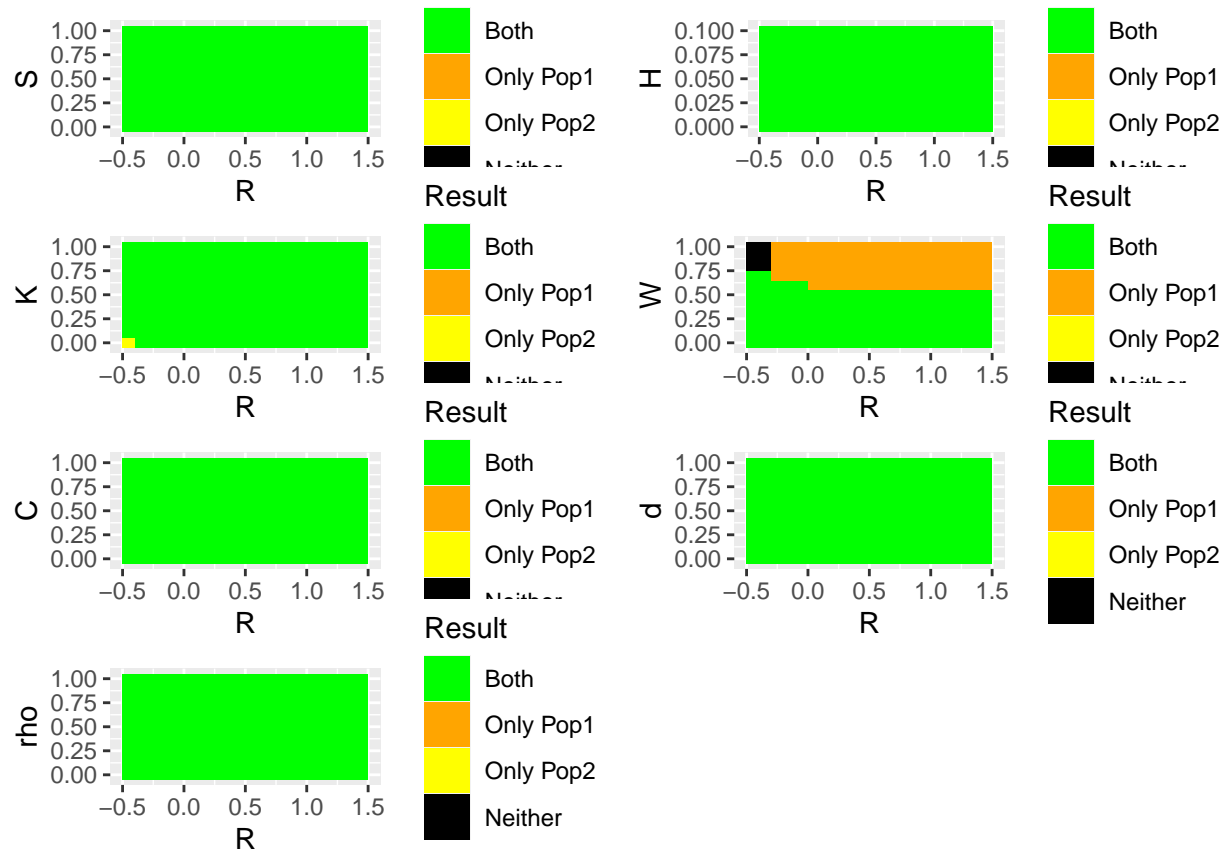


Figure 11: R parameter planes

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## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 31.6758, R2 = 1.57248e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 31.6758, R2 = 1.57248e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 31.6758, R2 = 1.57248e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 31.6758, R2 = 1.57248e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 31.6758, R2 = 1.29358e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 31.6758, R2 = 1.29358e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 31.6758, R2 = 1.29358e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 31.6758, R2 = 1.29358e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 31.6758, R2 = 1.06415e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 31.6758, R2 = 1.06415e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##

```

```
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
## taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 31.6758
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 32.6258, R2 = 3.46318e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 32.6258, R2 = 3.46318e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 32.6258, R2 = 3.46318e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 32.6258, R2 = 2.83374e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 32.6258, R2 = 2.83374e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 32.6258, R2 = 2.83374e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 32.6258, R2 = 2.31871e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 32.6258, R2 = 2.31871e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 32.6258, R2 = 2.31871e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
```

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## In above message, R1 = 32.6258, R2 = 1.89728e-15
##
## DLSODA- Above warning has been issued I1 times.
## It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
## taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 32.6258
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 33.4316, R2 = 3.47416e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 33.4316, R2 = 3.47416e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 33.4316, R2 = 3.47416e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 33.4316, R2 = 2.84272e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 33.4316, R2 = 2.84272e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 33.4316, R2 = 2.84272e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 33.4316, R2 = 2.32605e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 33.4316, R2 = 2.32605e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step

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##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.4316, R2 = 2.32605e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.4316, R2 = 1.90329e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 33.4316
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.1732, R2 = 3.01394e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.1732, R2 = 3.01394e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.1732, R2 = 3.01394e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.1732, R2 = 2.46614e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.1732, R2 = 2.46614e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.1732, R2 = 2.46614e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.1732, R2 = 2.01792e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

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##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.1732, R2 = 2.01792e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.1732, R2 = 2.01792e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.1732, R2 = 1.65116e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 34.1732
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.8785, R2 = 3.0869e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.8785, R2 = 3.0869e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.8785, R2 = 3.0869e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.8785, R2 = 2.52584e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.8785, R2 = 2.52584e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.8785, R2 = 2.52584e-15
##

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## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.8785, R2 = 2.06676e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.8785, R2 = 2.06676e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.8785, R2 = 2.06676e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.8785, R2 = 1.69113e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 34.8785
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.5605, R2 = 3.15272e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.5605, R2 = 3.15272e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.5605, R2 = 3.15272e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.5605, R2 = 2.57969e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.5605, R2 = 2.57969e-15

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##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 35.5605, R2 = 2.57969e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 35.5605, R2 = 2.11082e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 35.5605, R2 = 2.11082e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 35.5605, R2 = 1.72717e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 35.5605
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 36.2266, R2 = 3.20008e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 36.2266, R2 = 3.20008e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 36.2266, R2 = 3.20008e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.

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## In above message, R1 = 36.2266, R2 = 2.61845e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.2266, R2 = 2.61845e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.2266, R2 = 2.61845e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.2266, R2 = 2.14253e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.2266, R2 = 2.14253e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.2266, R2 = 2.14253e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.2266, R2 = 1.75312e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 36.2266
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.8808, R2 = 3.08321e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.8808, R2 = 3.08321e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step

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##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.8808, R2 = 3.08321e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.8808, R2 = 3.08321e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.8808, R2 = 2.53632e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.8808, R2 = 2.53632e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.8808, R2 = 2.53632e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.8808, R2 = 2.53632e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.8808, R2 = 2.08645e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.8808, R2 = 2.08645e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 36.8808
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5265, R2 = 3.43003e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

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##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5265, R2 = 3.43003e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5265, R2 = 3.43003e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5265, R2 = 2.80659e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5265, R2 = 2.80659e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5265, R2 = 2.80659e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5265, R2 = 2.29647e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5265, R2 = 2.29647e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5265, R2 = 2.29647e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5265, R2 = 1.87907e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.5265
##

```

```

## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.1654, R2 = 3.25053e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.1654, R2 = 3.25053e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.1654, R2 = 3.25053e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.1654, R2 = 2.65971e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.1654, R2 = 2.65971e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.1654, R2 = 2.65971e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.1654, R2 = 2.17629e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.1654, R2 = 2.17629e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.1654, R2 = 2.17629e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.1654, R2 = 1.78073e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##

```

```
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
## taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 38.1654
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 38.7987, R2 = 3.22004e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 38.7987, R2 = 3.22004e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 38.7987, R2 = 3.22004e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 38.7987, R2 = 2.63476e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 38.7987, R2 = 2.63476e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 38.7987, R2 = 2.63476e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 38.7987, R2 = 2.15587e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 38.7987, R2 = 2.15587e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 38.7987, R2 = 2.15587e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
```

```

## In above message, R1 = 38.7987, R2 = 1.76402e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 38.7987
##

```

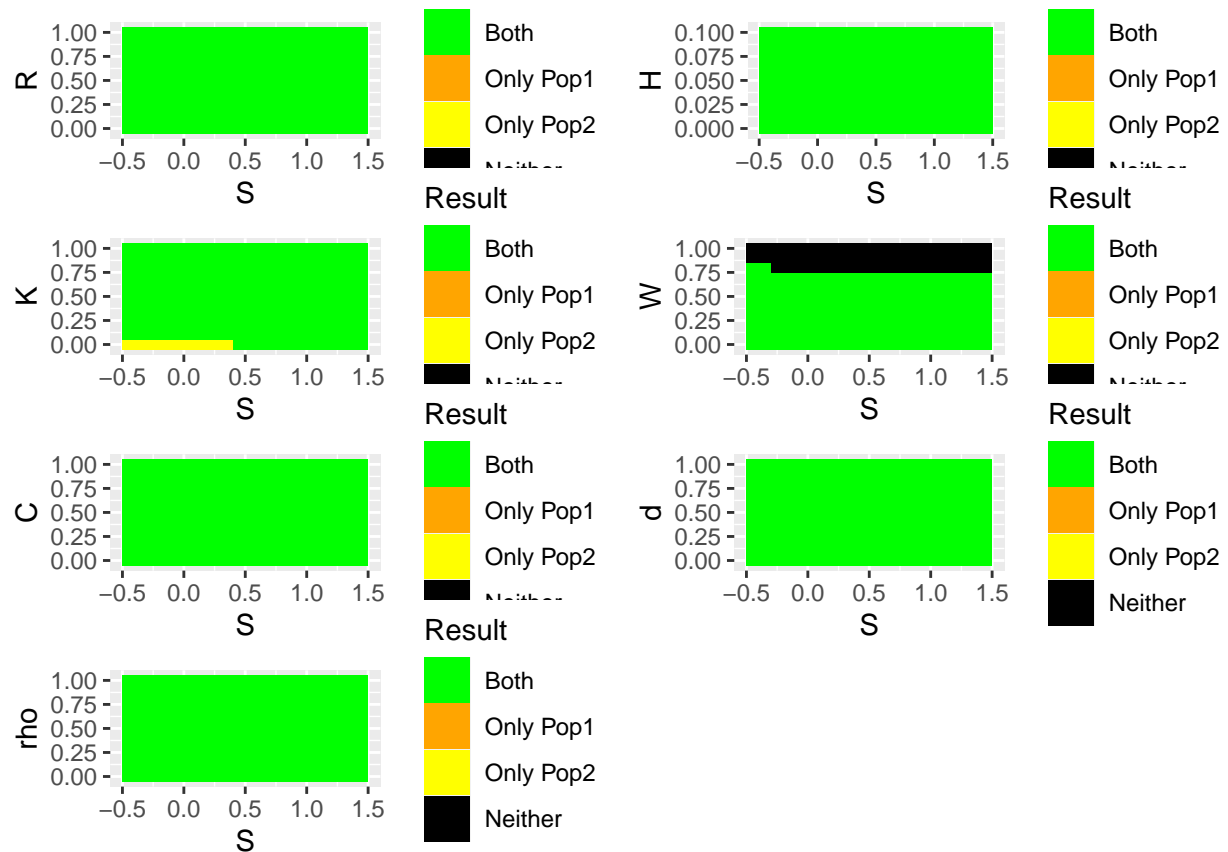


Figure 12: S parameter planes

```

## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 81.4146, R2 = 6.8197e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 81.4146, R2 = 6.8197e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 81.4146, R2 = 6.8197e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 81.4146, R2 = 6.8197e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 81.4146, R2 = 5.60838e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 81.4146, R2 = 5.60838e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 81.4146, R2 = 5.60838e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 81.4146, R2 = 5.60838e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 81.4146, R2 = 5.60838e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 81.4146, R2 = 4.61223e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 81.4146, R2 = 4.61223e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##

```

```
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 81.4146
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 58.4621, R2 = 2.96587e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 58.4621, R2 = 2.96587e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 58.4621, R2 = 2.96587e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 58.4621, R2 = 2.4264e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 58.4621, R2 = 2.4264e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 58.4621, R2 = 2.4264e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 58.4621, R2 = 1.98506e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 58.4621, R2 = 1.98506e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 58.4621, R2 = 1.98506e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
```



```
## In above message, R1 = 58.4621, R2 = 1.624e-15  
##  
## DLSODA- Above warning has been issued I1 times.  
## It will not be issued again for this problem.  
## In above message, I1 = 10  
##  
## DLSODA- At current T (=R1), MXSTEP (=I1) steps  
## taken on this call before reaching TOUT  
## In above message, I1 = 5000  
##  
## In above message, R1 = 58.4621  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
## such that in the machine,  $T + H = T$  on the next step  
## ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 49.4184, R2 = 3.16953e-15  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
## such that in the machine,  $T + H = T$  on the next step  
## ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 49.4184, R2 = 3.16953e-15  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
## such that in the machine,  $T + H = T$  on the next step  
## ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 49.4184, R2 = 3.16953e-15  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
## such that in the machine,  $T + H = T$  on the next step  
## ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 49.4184, R2 = 3.16953e-15  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
## such that in the machine,  $T + H = T$  on the next step  
## ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 49.4184, R2 = 2.60704e-15  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
## such that in the machine,  $T + H = T$  on the next step  
## ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 49.4184, R2 = 2.60704e-15  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
## such that in the machine,  $T + H = T$  on the next step  
## ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 49.4184, R2 = 2.60704e-15  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
## such that in the machine,  $T + H = T$  on the next step  
## ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 49.4184, R2 = 2.60704e-15  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
## such that in the machine,  $T + H = T$  on the next step  
## ( $H = \text{step size}$ ). Solver will continue anyway.
```

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##      (H = step size). Solver will continue anyway.
## In above message, R1 = 49.4184, R2 = 2.14438e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 49.4184, R2 = 2.14438e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 49.4184
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3048, R2 = 3.05086e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3048, R2 = 3.05086e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3048, R2 = 3.05086e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3048, R2 = 3.05086e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3048, R2 = 2.50954e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3048, R2 = 2.50954e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3048, R2 = 2.50954e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

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##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3048, R2 = 2.50954e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3048, R2 = 2.06427e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3048, R2 = 2.06427e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 44.3048
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 40.9337, R2 = 3.03968e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 40.9337, R2 = 3.03968e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 40.9337, R2 = 3.03968e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 40.9337, R2 = 2.48711e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 40.9337, R2 = 2.48711e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 40.9337, R2 = 2.48711e-15
##

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## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 40.9337, R2 = 2.035e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 40.9337, R2 = 2.035e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 40.9337, R2 = 2.035e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 40.9337, R2 = 1.66507e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 40.9337
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.5073, R2 = 3.08712e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.5073, R2 = 3.08712e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.5073, R2 = 3.08712e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.5073, R2 = 2.52598e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.5073, R2 = 2.52598e-15

```

```
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 38.5073, R2 = 2.52598e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 38.5073, R2 = 2.06685e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 38.5073, R2 = 2.06685e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 38.5073, R2 = 2.06685e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 38.5073, R2 = 1.69117e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 38.5073
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 36.6577, R2 = 3.06803e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 36.6577, R2 = 3.06803e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 36.6577, R2 = 3.06803e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
```

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## In above message, R1 = 36.6577, R2 = 3.06803e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.6577, R2 = 2.52386e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.6577, R2 = 2.52386e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.6577, R2 = 2.52386e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.6577, R2 = 2.07621e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.6577, R2 = 2.07621e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 36.6577
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.1898, R2 = 2.97697e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.1898, R2 = 2.97697e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step

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##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.1898, R2 = 2.97697e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.1898, R2 = 2.43593e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.1898, R2 = 2.43593e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.1898, R2 = 2.43593e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.1898, R2 = 1.99323e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.1898, R2 = 1.99323e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.1898, R2 = 1.99323e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.1898, R2 = 1.63099e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 35.1898
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.9885, R2 = 3.27849e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

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##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.9885, R2 = 3.27849e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.9885, R2 = 3.27849e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.9885, R2 = 2.68269e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.9885, R2 = 2.68269e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.9885, R2 = 2.68269e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.9885, R2 = 2.19517e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.9885, R2 = 2.19517e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.9885, R2 = 2.19517e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.9885, R2 = 1.79625e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 33.9885
##

```

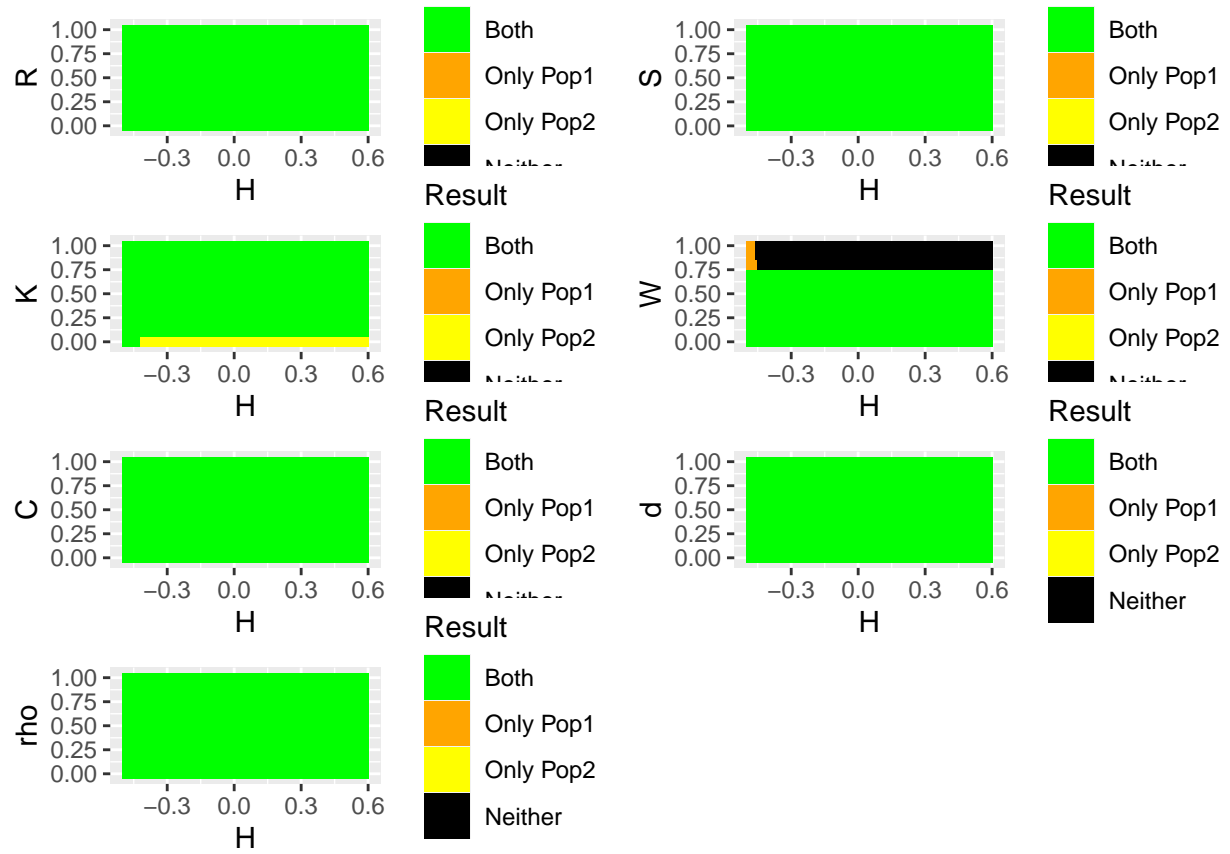



Figure 13: h parameter planes

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## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 55.7663, R2 = 3.3034e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 55.7663, R2 = 3.3034e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 55.7663, R2 = 3.3034e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 55.7663, R2 = 2.70314e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 55.7663, R2 = 2.70314e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 55.7663, R2 = 2.70314e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 55.7663, R2 = 2.21196e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 55.7663, R2 = 2.21196e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 55.7663, R2 = 2.21196e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 55.7663, R2 = 1.81003e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##

```

```
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
## taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 55.7663
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 33.7462, R2 = 3.04963e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 33.7462, R2 = 3.04963e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 33.7462, R2 = 3.04963e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 33.7462, R2 = 2.49528e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 33.7462, R2 = 2.49528e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 33.7462, R2 = 2.49528e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 33.7462, R2 = 2.0417e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 33.7462, R2 = 2.0417e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 33.7462, R2 = 2.0417e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
```

```

## In above message, R1 = 33.7462, R2 = 1.67057e-15
##
## DLSODA- Above warning has been issued I1 times.
## It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
## taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 33.7462
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 26.7142, R2 = 1.54937e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 26.7142, R2 = 1.54937e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 26.7142, R2 = 1.54937e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 26.7142, R2 = 1.26765e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 26.7142, R2 = 1.26765e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 26.7142, R2 = 1.26765e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 26.7142, R2 = 1.03716e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 26.7142, R2 = 1.03716e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step

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##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.7142, R2 = 1.03716e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.7142, R2 = 8.48579e-16
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 26.7142
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 23.2265, R2 = 1.76743e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 23.2265, R2 = 1.76743e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 23.2265, R2 = 1.76743e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 23.2265, R2 = 1.44597e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 23.2265, R2 = 1.44597e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 23.2265, R2 = 1.44597e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 23.2265, R2 = 1.18299e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

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##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 23.2265, R2 = 1.18299e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 23.2265, R2 = 1.18299e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 23.2265, R2 = 9.67833e-16
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 23.2265
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 21.127, R2 = 1.47885e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 21.127, R2 = 1.47885e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 21.127, R2 = 1.47885e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 21.127, R2 = 1.20982e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 21.127, R2 = 1.20982e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 21.127, R2 = 1.20982e-15
##

```

```

## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 21.127, R2 = 9.89739e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 21.127, R2 = 9.89739e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 21.127, R2 = 9.89739e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 21.127, R2 = 8.09694e-16
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 21.127
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 19.7166, R2 = 1.72938e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 19.7166, R2 = 1.72938e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 19.7166, R2 = 1.72938e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 19.7166, R2 = 1.41471e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 19.7166, R2 = 1.41471e-15

```

```

##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 19.7166, R2 = 1.41471e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 19.7166, R2 = 1.15729e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 19.7166, R2 = 1.15729e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 19.7166, R2 = 1.15729e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 19.7166, R2 = 9.46724e-16
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 19.7166
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 18.7, R2 = 1.58674e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 18.7, R2 = 1.58674e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 18.7, R2 = 1.58674e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.

```



```

## In above message, R1 = 18.7, R2 = 1.58674e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 18.7, R2 = 1.3049e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 18.7, R2 = 1.3049e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 18.7, R2 = 1.3049e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 18.7, R2 = 1.07313e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 18.7, R2 = 1.07313e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 18.7
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.9303, R2 = 1.65401e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.9303, R2 = 1.65401e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step

```

```

##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.9303, R2 = 1.65401e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.9303, R2 = 1.65401e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.9303, R2 = 1.36017e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.9303, R2 = 1.36017e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.9303, R2 = 1.36017e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.9303, R2 = 1.11853e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.9303, R2 = 1.11853e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 17.9303
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.3261, R2 = 1.54713e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

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##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.3261, R2 = 1.54713e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.3261, R2 = 1.54713e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.3261, R2 = 1.26548e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.3261, R2 = 1.26548e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.3261, R2 = 1.26548e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.3261, R2 = 1.0351e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.3261, R2 = 1.0351e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.3261, R2 = 1.0351e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.3261, R2 = 8.46672e-16
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 17.3261
##

```

```

## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 16.8384, R2 = 1.54632e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 16.8384, R2 = 1.54632e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 16.8384, R2 = 1.54632e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 16.8384, R2 = 1.27152e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 16.8384, R2 = 1.27152e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 16.8384, R2 = 1.27152e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 16.8384, R2 = 1.27152e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 16.8384, R2 = 1.04556e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 16.8384, R2 = 1.04556e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##

```

```

## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##         taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 16.8384
##

```

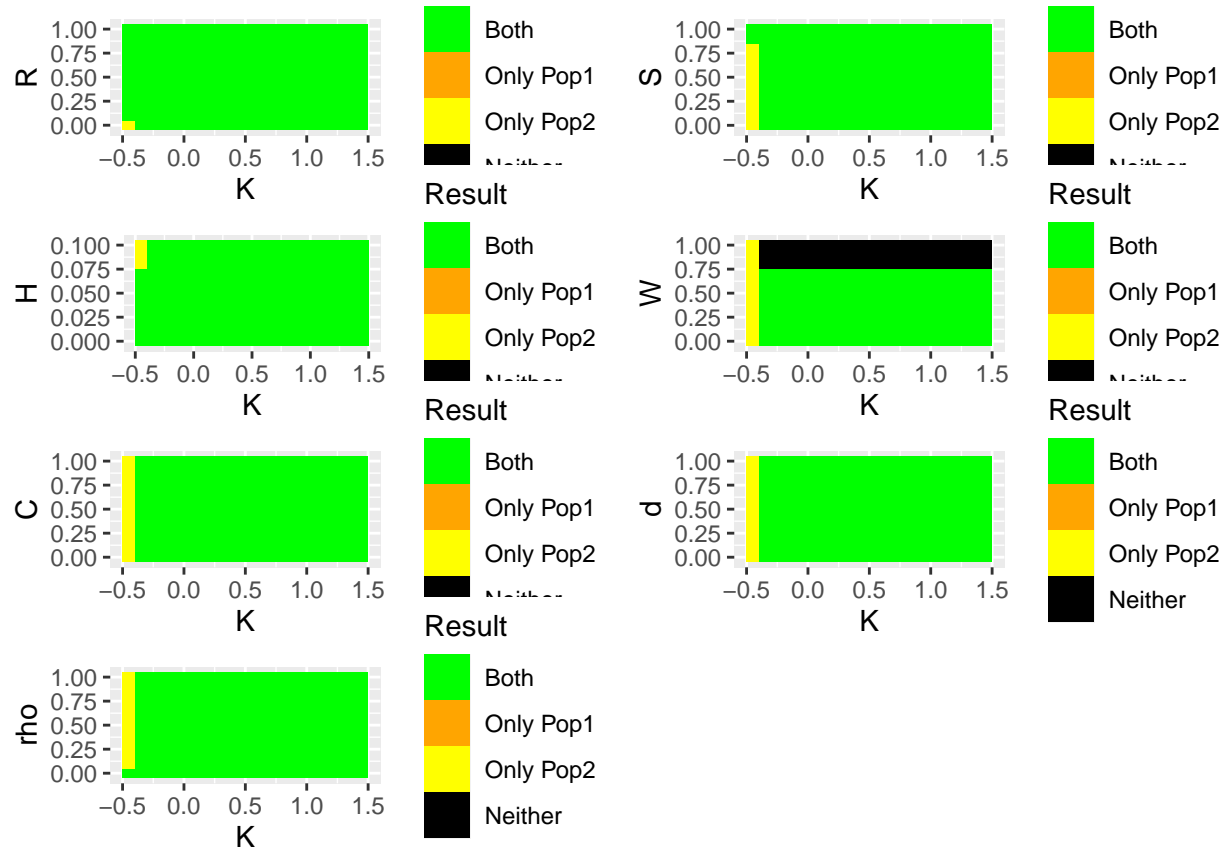


Figure 14: K parameter planes ranging from 0-1

```

## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.8808, R2 = 3.17846e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.8808, R2 = 3.17846e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.8808, R2 = 3.17846e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.8808, R2 = 2.60075e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.8808, R2 = 2.60075e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.8808, R2 = 2.60075e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.8808, R2 = 2.12804e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.8808, R2 = 2.12804e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.8808, R2 = 2.12804e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.8808, R2 = 1.74126e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##

```

```

## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 46.8808
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.3102, R2 = 2.89433e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.3102, R2 = 2.89433e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.3102, R2 = 2.3971e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.3102, R2 = 2.3971e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.3102, R2 = 2.3971e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.3102, R2 = 1.9159e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.3102, R2 = 1.9159e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.3102, R2 = 1.58677e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.3102, R2 = 1.58677e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.

```

```

## In above message, R1 = 32.3102, R2 = 1.58677e-15
##
## DLSODA- Above warning has been issued I1 times.
## It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
## taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 32.3102
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 27.0833, R2 = 1.5721e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 27.0833, R2 = 1.5721e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 27.0833, R2 = 1.5721e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 27.0833, R2 = 1.28637e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 27.0833, R2 = 1.28637e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 27.0833, R2 = 1.28637e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 27.0833, R2 = 1.05256e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 27.0833, R2 = 1.05256e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step

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##      (H = step size). Solver will continue anyway.
## In above message, R1 = 27.0833, R2 = 1.05256e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 27.0833, R2 = 8.6126e-16
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 27.0833
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.4674, R2 = 1.60335e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.4674, R2 = 1.60335e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.4674, R2 = 1.32791e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.4674, R2 = 1.32791e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.4674, R2 = 1.32791e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.4674, R2 = 1.06134e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.4674, R2 = 1.06134e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

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```

##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.4674, R2 = 8.79016e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.4674, R2 = 8.79016e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.4674, R2 = 8.79016e-16
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 26.4674
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 14.86, R2 = 7.50491e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 14.86, R2 = 7.50491e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 14.86, R2 = 7.50491e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 14.86, R2 = 7.50491e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 14.86, R2 = 6.17485e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 14.86, R2 = 6.17485e-16
##

```

```

## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 14.86, R2 = 6.17485e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 14.86, R2 = 6.17485e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 14.86, R2 = 5.08051e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 14.86, R2 = 5.08051e-16
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 14.86
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 12.0905, R2 = 7.5275e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 12.0905, R2 = 7.5275e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 12.0905, R2 = 7.5275e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 12.0905, R2 = 6.16039e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 12.0905, R2 = 6.16039e-16

```

```

##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 12.0905, R2 = 6.16039e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 12.0905, R2 = 5.04156e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 12.0905, R2 = 5.04156e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 12.0905, R2 = 5.04156e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 12.0905, R2 = 4.12593e-16
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 12.0905
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 11.0138, R2 = 7.66051e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 11.0138, R2 = 7.66051e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 11.0138, R2 = 7.66051e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.

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```

## In above message, R1 = 11.0138, R2 = 6.26924e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 11.0138, R2 = 6.26924e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 11.0138, R2 = 6.26924e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 11.0138, R2 = 5.13064e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 11.0138, R2 = 5.13064e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 11.0138, R2 = 5.13064e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 11.0138, R2 = 4.19884e-16
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 11.0138
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 10.47, R2 = 7.51043e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 10.47, R2 = 7.51043e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step

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##      (H = step size). Solver will continue anyway.
## In above message, R1 = 10.47, R2 = 7.51043e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 10.47, R2 = 6.14641e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 10.47, R2 = 6.14641e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 10.47, R2 = 6.14641e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 10.47, R2 = 5.03013e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 10.47, R2 = 5.03013e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 10.47, R2 = 5.03013e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 10.47, R2 = 4.11657e-16
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 10.47
##

```

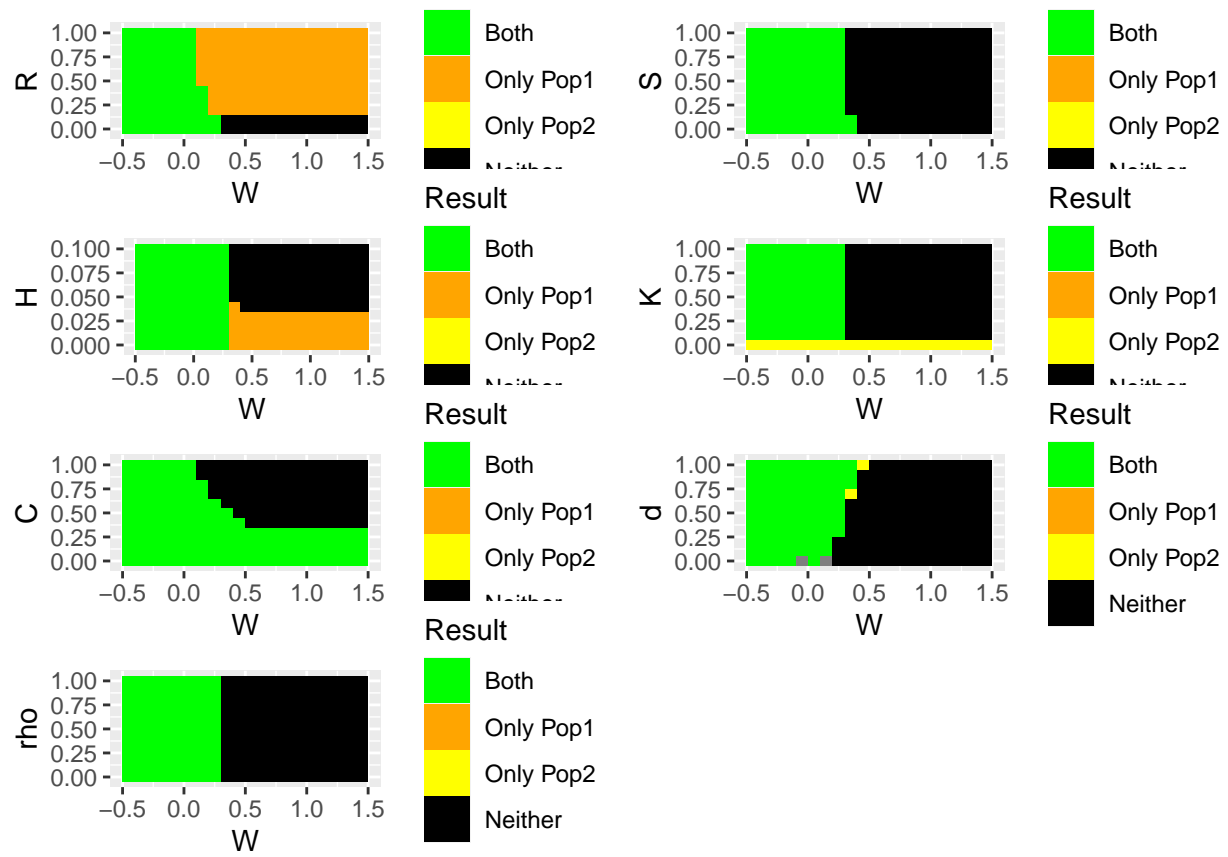


Figure 15: w parameter planes

```

## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.2552, R2 = 3.08702e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.2552, R2 = 3.08702e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.2552, R2 = 3.08702e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.2552, R2 = 3.08702e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.2552, R2 = 2.53945e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.2552, R2 = 2.53945e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.2552, R2 = 2.53945e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.2552, R2 = 2.53945e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.2552, R2 = 2.08901e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.2552, R2 = 2.08901e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##

```



```

## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 46.2552
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 43.4876, R2 = 3.06363e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 43.4876, R2 = 3.06363e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 43.4876, R2 = 3.06363e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 43.4876, R2 = 3.06363e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 43.4876, R2 = 2.52021e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 43.4876, R2 = 2.52021e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 43.4876, R2 = 2.52021e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 43.4876, R2 = 2.52021e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 43.4876, R2 = 2.07318e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.

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```
## In above message, R1 = 43.4876, R2 = 2.07318e-15
##
## DLSODA- Above warning has been issued I1 times.
## It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
## taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 43.4876
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 41.3782, R2 = 3.53313e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 41.3782, R2 = 3.53313e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 41.3782, R2 = 3.53313e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 41.3782, R2 = 3.53313e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 41.3782, R2 = 2.90642e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 41.3782, R2 = 2.90642e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 41.3782, R2 = 2.90642e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 41.3782, R2 = 2.90642e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## ( $H = \text{step size}$ ). Solver will continue anyway.
```

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##      (H = step size). Solver will continue anyway.
## In above message, R1 = 41.3782, R2 = 2.39089e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 41.3782, R2 = 2.39089e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 41.3782
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.8, R2 = 3.18353e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.8, R2 = 3.18353e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.8, R2 = 3.18353e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.8, R2 = 2.60489e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.8, R2 = 2.60489e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.8, R2 = 2.60489e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.8, R2 = 2.13143e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

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##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.8, R2 = 2.13143e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.8, R2 = 2.13143e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.8, R2 = 1.74403e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 39.8
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.6675, R2 = 3.17749e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.6675, R2 = 3.17749e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.6675, R2 = 3.17749e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.6675, R2 = 2.59995e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.6675, R2 = 2.59995e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.6675, R2 = 2.59995e-15
##

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## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.6675, R2 = 2.12739e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.6675, R2 = 2.12739e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.6675, R2 = 2.12739e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.6675, R2 = 1.74073e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 38.6675
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.9221, R2 = 3.24432e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.9221, R2 = 3.24432e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.9221, R2 = 3.24432e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.9221, R2 = 2.65464e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.9221, R2 = 2.65464e-15

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##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 37.9221, R2 = 2.65464e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 37.9221, R2 = 2.17214e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 37.9221, R2 = 2.17214e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 37.9221, R2 = 1.77734e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.9221
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 3.42975e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 3.42975e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 3.42975e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.

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```

## In above message, R1 = 37.5252, R2 = 2.80636e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.80636e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.80636e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.29628e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.29628e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.29628e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 1.87892e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.5252
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4563, R2 = 3.32893e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4563, R2 = 3.32893e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step

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##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4563, R2 = 3.32893e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4563, R2 = 2.72386e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4563, R2 = 2.72386e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4563, R2 = 2.72386e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4563, R2 = 2.22878e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4563, R2 = 2.22878e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4563, R2 = 2.22878e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4563, R2 = 1.82369e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.4563
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.713, R2 = 3.20631e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

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##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.713, R2 = 3.20631e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.713, R2 = 3.20631e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.713, R2 = 3.20631e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.713, R2 = 2.63758e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.713, R2 = 2.63758e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.713, R2 = 2.63758e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.713, R2 = 2.63758e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.713, R2 = 2.16974e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.713, R2 = 2.16974e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.713
##

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## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.3188, R2 = 3.16999e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.3188, R2 = 3.16999e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.3188, R2 = 3.16999e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.3188, R2 = 2.59382e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.3188, R2 = 2.59382e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.3188, R2 = 2.59382e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.3188, R2 = 2.12238e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.3188, R2 = 2.12238e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.3188, R2 = 2.12238e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.3188, R2 = 2.12238e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.3188, R2 = 1.73662e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##

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## DLSODA- At current T (=R1), MXSTEP (=I1) steps
## taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 38.3188
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 39.3363, R2 = 2.90841e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 39.3363, R2 = 2.90841e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 39.3363, R2 = 2.90841e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 39.3363, R2 = 2.37979e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 39.3363, R2 = 2.37979e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 39.3363, R2 = 2.37979e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 39.3363, R2 = 1.94725e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 39.3363, R2 = 1.94725e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 39.3363, R2 = 1.94725e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
```

```

## In above message, R1 = 39.3363, R2 = 1.59333e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 39.3363
##

```

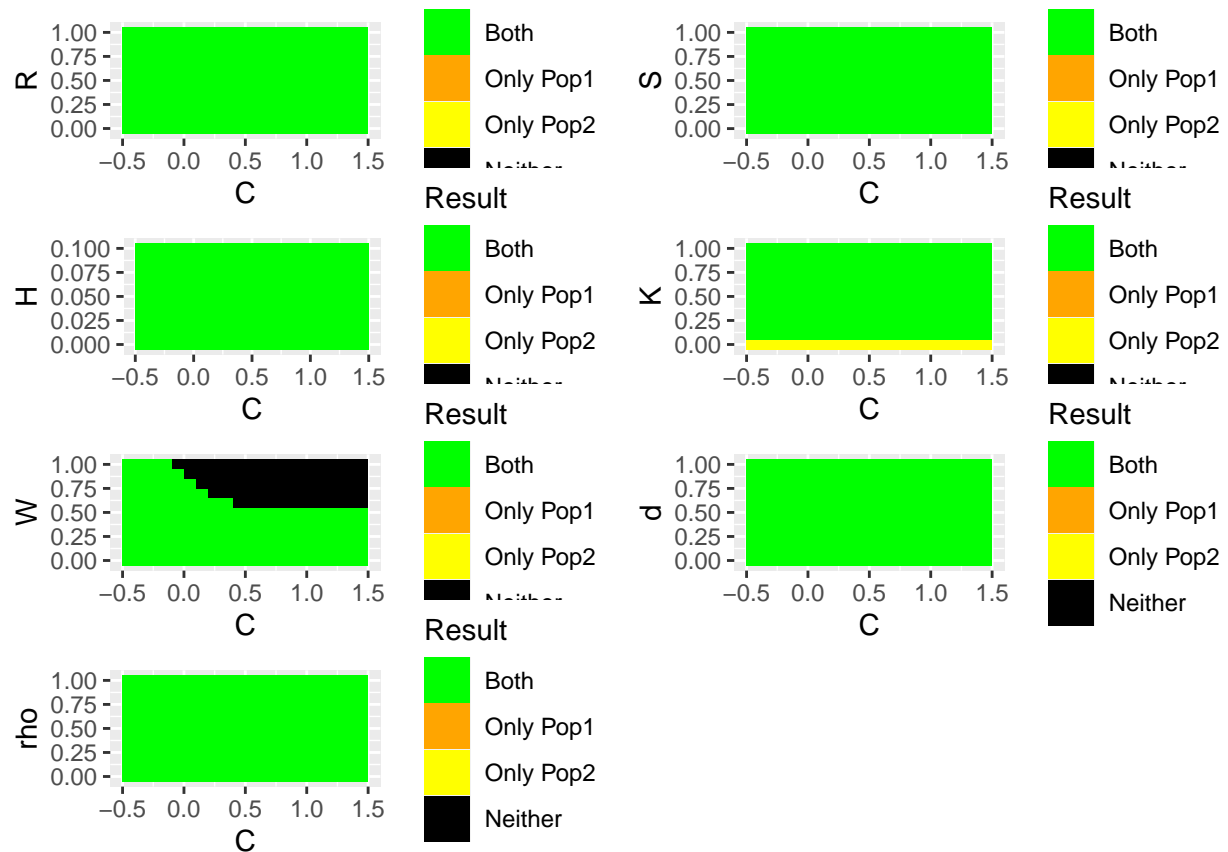


Figure 16: c parameter planes

```

## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.8555, R2 = 3.19583e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.8555, R2 = 3.19583e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.8555, R2 = 3.19583e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.8555, R2 = 2.615e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.8555, R2 = 2.615e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.8555, R2 = 2.615e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.8555, R2 = 2.13973e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.8555, R2 = 2.13973e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.8555, R2 = 2.13973e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.8555, R2 = 1.75085e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##

```

```
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.8555
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.333, R2 = 3.05105e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.333, R2 = 3.05105e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.333, R2 = 3.05105e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.333, R2 = 2.49648e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.333, R2 = 2.49648e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.333, R2 = 2.49648e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.333, R2 = 2.04272e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.333, R2 = 2.04272e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.333, R2 = 2.04272e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
```

[illegible]

```

##      (H = step size). Solver will continue anyway.
## In above message, R1 = 49.936, R2 = 2.02929e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 49.936, R2 = 2.02929e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 49.936
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 76.6431, R2 = 6.44855e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 76.6431, R2 = 6.44855e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 76.6431, R2 = 6.44855e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 76.6431, R2 = 6.44855e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 76.6431, R2 = 5.30458e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 76.6431, R2 = 5.30458e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 76.6431, R2 = 5.30458e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

```



```

##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 76.6431, R2 = 5.30458e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 76.6431, R2 = 4.36357e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 76.6431, R2 = 4.36357e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 76.6431
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 31.6758, R2 = 1.57248e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 31.6758, R2 = 1.57248e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 31.6758, R2 = 1.57248e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 31.6758, R2 = 1.57248e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 31.6758, R2 = 1.29358e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 31.6758, R2 = 1.29358e-15
##

```

```

## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 31.6758, R2 = 1.29358e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 31.6758, R2 = 1.29358e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 31.6758, R2 = 1.06415e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 31.6758, R2 = 1.06415e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 31.6758
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.6258, R2 = 3.46318e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.6258, R2 = 3.46318e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.6258, R2 = 3.46318e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.6258, R2 = 2.83374e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.6258, R2 = 2.83374e-15

```

```

##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.6258, R2 = 2.83374e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.6258, R2 = 2.31871e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.6258, R2 = 2.31871e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.6258, R2 = 2.31871e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.6258, R2 = 1.89728e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 32.6258
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.4316, R2 = 3.47416e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.4316, R2 = 3.47416e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.4316, R2 = 3.47416e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.4316, R2 = 3.47416e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.4316, R2 = 3.47416e-15
##

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## In above message, R1 = 33.4316, R2 = 2.84272e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.4316, R2 = 2.84272e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.4316, R2 = 2.84272e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.4316, R2 = 2.32605e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.4316, R2 = 2.32605e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.4316, R2 = 2.32605e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.4316, R2 = 1.90329e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 33.4316
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.1732, R2 = 3.01394e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.1732, R2 = 3.01394e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step

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##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.1732, R2 = 3.01394e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.1732, R2 = 2.46614e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.1732, R2 = 2.46614e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.1732, R2 = 2.46614e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.1732, R2 = 2.01792e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.1732, R2 = 2.01792e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.1732, R2 = 2.01792e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.1732, R2 = 1.65116e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 34.1732
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.8785, R2 = 3.0869e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

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##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.8785, R2 = 3.0869e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.8785, R2 = 3.0869e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.8785, R2 = 2.52584e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.8785, R2 = 2.52584e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.8785, R2 = 2.52584e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.8785, R2 = 2.06676e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.8785, R2 = 2.06676e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.8785, R2 = 2.06676e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.8785, R2 = 2.06676e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 34.8785, R2 = 1.69113e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 34.8785
##

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## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.5605, R2 = 3.15272e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.5605, R2 = 3.15272e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.5605, R2 = 3.15272e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.5605, R2 = 2.57969e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.5605, R2 = 2.57969e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.5605, R2 = 2.57969e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.5605, R2 = 2.11082e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.5605, R2 = 2.11082e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.5605, R2 = 2.11082e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.5605, R2 = 2.11082e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.5605, R2 = 1.72717e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##

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## DLSODA- At current T (=R1), MXSTEP (=I1) steps
## taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 35.5605
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 36.2266, R2 = 3.20008e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 36.2266, R2 = 3.20008e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 36.2266, R2 = 3.20008e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 36.2266, R2 = 2.61845e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 36.2266, R2 = 2.61845e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 36.2266, R2 = 2.61845e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 36.2266, R2 = 2.14253e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 36.2266, R2 = 2.14253e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 36.2266, R2 = 2.14253e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
```



```
## In above message, R1 = 36.2266, R2 = 1.75312e-15
##
## DLSODA- Above warning has been issued I1 times.
## It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
## taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 36.2266
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 36.8808, R2 = 3.08321e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 36.8808, R2 = 3.08321e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 36.8808, R2 = 3.08321e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 36.8808, R2 = 2.53632e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 36.8808, R2 = 2.53632e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 36.8808, R2 = 2.53632e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 36.8808, R2 = 2.53632e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## ( $H = \text{step size}$ ). Solver will continue anyway.
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##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.8808, R2 = 2.08645e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.8808, R2 = 2.08645e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 36.8808
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5265, R2 = 3.43003e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5265, R2 = 3.43003e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5265, R2 = 3.43003e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5265, R2 = 2.80659e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5265, R2 = 2.80659e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5265, R2 = 2.80659e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5265, R2 = 2.29647e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

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##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5265, R2 = 2.29647e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5265, R2 = 2.29647e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5265, R2 = 1.87907e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.5265
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.1654, R2 = 3.25053e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.1654, R2 = 3.25053e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.1654, R2 = 3.25053e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.1654, R2 = 2.65971e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.1654, R2 = 2.65971e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.1654, R2 = 2.65971e-15
##

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## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.1654, R2 = 2.17629e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.1654, R2 = 2.17629e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.1654, R2 = 2.17629e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.1654, R2 = 1.78073e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 38.1654
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.7987, R2 = 3.22004e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.7987, R2 = 3.22004e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.7987, R2 = 3.22004e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.7987, R2 = 2.63476e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.7987, R2 = 2.63476e-15

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##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.7987, R2 = 2.63476e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.7987, R2 = 2.15587e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.7987, R2 = 2.15587e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.7987, R2 = 2.15587e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.7987, R2 = 1.76402e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 38.7987
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 81.4146, R2 = 6.8197e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 81.4146, R2 = 6.8197e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 81.4146, R2 = 6.8197e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.

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## In above message, R1 = 81.4146, R2 = 6.8197e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 81.4146, R2 = 5.60838e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 81.4146, R2 = 5.60838e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 81.4146, R2 = 5.60838e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 81.4146, R2 = 4.61223e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 81.4146, R2 = 4.61223e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 81.4146
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 58.4621, R2 = 2.96587e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 58.4621, R2 = 2.96587e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step

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##      (H = step size). Solver will continue anyway.
## In above message, R1 = 58.4621, R2 = 2.96587e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 58.4621, R2 = 2.4264e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 58.4621, R2 = 2.4264e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 58.4621, R2 = 2.4264e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 58.4621, R2 = 1.98506e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 58.4621, R2 = 1.98506e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 58.4621, R2 = 1.98506e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 58.4621, R2 = 1.624e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 58.4621
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 49.4184, R2 = 3.16953e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

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##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 49.4184, R2 = 3.16953e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 49.4184, R2 = 3.16953e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 49.4184, R2 = 3.16953e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 49.4184, R2 = 2.60704e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 49.4184, R2 = 2.60704e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 49.4184, R2 = 2.60704e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 49.4184, R2 = 2.14438e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 49.4184, R2 = 2.14438e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 49.4184
##

```



```

## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3048, R2 = 3.05086e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3048, R2 = 3.05086e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3048, R2 = 3.05086e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3048, R2 = 3.05086e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3048, R2 = 2.50954e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3048, R2 = 2.50954e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3048, R2 = 2.50954e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3048, R2 = 2.50954e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3048, R2 = 2.06427e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3048, R2 = 2.06427e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##

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```
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
## taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 44.3048
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 40.9337, R2 = 3.03968e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 40.9337, R2 = 3.03968e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 40.9337, R2 = 3.03968e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 40.9337, R2 = 2.48711e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 40.9337, R2 = 2.48711e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 40.9337, R2 = 2.48711e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 40.9337, R2 = 2.035e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 40.9337, R2 = 2.035e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 40.9337, R2 = 2.035e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
```

```

## In above message, R1 = 40.9337, R2 = 1.66507e-15
##
## DLSODA- Above warning has been issued I1 times.
## It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
## taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 40.9337
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 38.5073, R2 = 3.08712e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 38.5073, R2 = 3.08712e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 38.5073, R2 = 3.08712e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 38.5073, R2 = 2.52598e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 38.5073, R2 = 2.52598e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 38.5073, R2 = 2.52598e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 38.5073, R2 = 2.06685e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 38.5073, R2 = 2.06685e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step

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##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.5073, R2 = 2.06685e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.5073, R2 = 1.69117e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 38.5073
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.6577, R2 = 3.06803e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.6577, R2 = 3.06803e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.6577, R2 = 3.06803e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.6577, R2 = 3.06803e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.6577, R2 = 2.52386e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.6577, R2 = 2.52386e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.6577, R2 = 2.52386e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

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##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.6577, R2 = 2.52386e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.6577, R2 = 2.07621e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.6577, R2 = 2.07621e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 36.6577
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.1898, R2 = 2.97697e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.1898, R2 = 2.97697e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.1898, R2 = 2.97697e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.1898, R2 = 2.43593e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.1898, R2 = 2.43593e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.1898, R2 = 2.43593e-15
##

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## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.1898, R2 = 1.99323e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.1898, R2 = 1.99323e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.1898, R2 = 1.99323e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.1898, R2 = 1.63099e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 35.1898
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.9885, R2 = 3.27849e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.9885, R2 = 3.27849e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.9885, R2 = 3.27849e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.9885, R2 = 2.68269e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.9885, R2 = 2.68269e-15

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##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.9885, R2 = 2.68269e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.9885, R2 = 2.19517e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.9885, R2 = 2.19517e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.9885, R2 = 2.19517e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.9885, R2 = 1.79625e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 33.9885
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 55.7663, R2 = 3.3034e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 55.7663, R2 = 3.3034e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 55.7663, R2 = 3.3034e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.

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## In above message, R1 = 55.7663, R2 = 2.70314e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 55.7663, R2 = 2.70314e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 55.7663, R2 = 2.70314e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 55.7663, R2 = 2.21196e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 55.7663, R2 = 2.21196e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 55.7663, R2 = 2.21196e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 55.7663, R2 = 1.81003e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 55.7663
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.7462, R2 = 3.04963e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.7462, R2 = 3.04963e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step

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##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.7462, R2 = 3.04963e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.7462, R2 = 2.49528e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.7462, R2 = 2.49528e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.7462, R2 = 2.49528e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.7462, R2 = 2.0417e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.7462, R2 = 2.0417e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.7462, R2 = 2.0417e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.7462, R2 = 1.67057e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 33.7462
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.7142, R2 = 1.54937e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

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##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.7142, R2 = 1.54937e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.7142, R2 = 1.54937e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.7142, R2 = 1.26765e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.7142, R2 = 1.26765e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.7142, R2 = 1.26765e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.7142, R2 = 1.03716e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.7142, R2 = 1.03716e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.7142, R2 = 1.03716e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.7142, R2 = 8.48579e-16
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 26.7142
##

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## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 23.2265, R2 = 1.76743e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 23.2265, R2 = 1.76743e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 23.2265, R2 = 1.76743e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 23.2265, R2 = 1.44597e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 23.2265, R2 = 1.44597e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 23.2265, R2 = 1.44597e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 23.2265, R2 = 1.44597e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 23.2265, R2 = 1.18299e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 23.2265, R2 = 1.18299e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 23.2265, R2 = 1.18299e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 23.2265, R2 = 9.67833e-16
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##

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## DLSODA- At current T (=R1), MXSTEP(=I1) steps
## taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 23.2265
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 21.127, R2 = 1.47885e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 21.127, R2 = 1.47885e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 21.127, R2 = 1.47885e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 21.127, R2 = 1.20982e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 21.127, R2 = 1.20982e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 21.127, R2 = 1.20982e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 21.127, R2 = 9.89739e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 21.127, R2 = 9.89739e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 21.127, R2 = 9.89739e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
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## In above message, R1 = 21.127, R2 = 8.09694e-16
##
## DLSODA- Above warning has been issued I1 times.
## It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
## taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 21.127
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 19.7166, R2 = 1.72938e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 19.7166, R2 = 1.72938e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 19.7166, R2 = 1.72938e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 19.7166, R2 = 1.41471e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 19.7166, R2 = 1.41471e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 19.7166, R2 = 1.41471e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 19.7166, R2 = 1.15729e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 19.7166, R2 = 1.15729e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
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##      (H = step size). Solver will continue anyway.
## In above message, R1 = 19.7166, R2 = 1.15729e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 19.7166, R2 = 9.46724e-16
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 19.7166
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 18.7, R2 = 1.58674e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 18.7, R2 = 1.58674e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 18.7, R2 = 1.58674e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 18.7, R2 = 1.58674e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 18.7, R2 = 1.3049e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 18.7, R2 = 1.3049e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 18.7, R2 = 1.3049e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

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##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 18.7, R2 = 1.3049e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 18.7, R2 = 1.07313e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 18.7, R2 = 1.07313e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 18.7
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.9303, R2 = 1.65401e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.9303, R2 = 1.65401e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.9303, R2 = 1.65401e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.9303, R2 = 1.65401e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.9303, R2 = 1.36017e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.9303, R2 = 1.36017e-15
##

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## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.9303, R2 = 1.36017e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.9303, R2 = 1.36017e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.9303, R2 = 1.11853e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.9303, R2 = 1.11853e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 17.9303
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.3261, R2 = 1.54713e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.3261, R2 = 1.54713e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.3261, R2 = 1.54713e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.3261, R2 = 1.54713e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.3261, R2 = 1.26548e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.3261, R2 = 1.26548e-15

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##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.3261, R2 = 1.26548e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.3261, R2 = 1.0351e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.3261, R2 = 1.0351e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.3261, R2 = 1.0351e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 17.3261, R2 = 8.46672e-16
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 17.3261
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 16.8384, R2 = 1.54632e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 16.8384, R2 = 1.54632e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 16.8384, R2 = 1.54632e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.

```

```

## In above message, R1 = 16.8384, R2 = 1.54632e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 16.8384, R2 = 1.27152e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 16.8384, R2 = 1.27152e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 16.8384, R2 = 1.27152e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 16.8384, R2 = 1.04556e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 16.8384, R2 = 1.04556e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 16.8384
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.8808, R2 = 3.17846e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.8808, R2 = 3.17846e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step

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##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.8808, R2 = 3.17846e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.8808, R2 = 2.60075e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.8808, R2 = 2.60075e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.8808, R2 = 2.60075e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.8808, R2 = 2.12804e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.8808, R2 = 2.12804e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.8808, R2 = 2.12804e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.8808, R2 = 1.74126e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 46.8808
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.3102, R2 = 2.89433e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

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##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.3102, R2 = 2.89433e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.3102, R2 = 2.3971e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.3102, R2 = 2.3971e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.3102, R2 = 2.3971e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.3102, R2 = 1.9159e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.3102, R2 = 1.9159e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.3102, R2 = 1.58677e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.3102, R2 = 1.58677e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.3102, R2 = 1.58677e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 32.3102
##

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## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 27.0833, R2 = 1.5721e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 27.0833, R2 = 1.5721e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 27.0833, R2 = 1.5721e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 27.0833, R2 = 1.28637e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 27.0833, R2 = 1.28637e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 27.0833, R2 = 1.28637e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 27.0833, R2 = 1.05256e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 27.0833, R2 = 1.05256e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 27.0833, R2 = 1.05256e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 27.0833, R2 = 8.6126e-16
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##

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## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 27.0833
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.4674, R2 = 1.60335e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.4674, R2 = 1.60335e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.4674, R2 = 1.32791e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.4674, R2 = 1.32791e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.4674, R2 = 1.32791e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.4674, R2 = 1.06134e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.4674, R2 = 1.06134e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.4674, R2 = 8.79016e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 26.4674, R2 = 8.79016e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.

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## In above message, R1 = 26.4674, R2 = 8.79016e-16
##
## DLSODA- Above warning has been issued I1 times.
## It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
## taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 26.4674
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 14.86, R2 = 7.50491e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 14.86, R2 = 7.50491e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 14.86, R2 = 7.50491e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 14.86, R2 = 7.50491e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 14.86, R2 = 6.17485e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 14.86, R2 = 6.17485e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 14.86, R2 = 6.17485e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 14.86, R2 = 6.17485e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step

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##      (H = step size). Solver will continue anyway.
## In above message, R1 = 14.86, R2 = 5.08051e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 14.86, R2 = 5.08051e-16
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 14.86
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 12.0905, R2 = 7.5275e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 12.0905, R2 = 7.5275e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 12.0905, R2 = 7.5275e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 12.0905, R2 = 6.16039e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 12.0905, R2 = 6.16039e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 12.0905, R2 = 6.16039e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 12.0905, R2 = 5.04156e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

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##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 12.0905, R2 = 5.04156e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 12.0905, R2 = 5.04156e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 12.0905, R2 = 4.12593e-16
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 12.0905
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 11.0138, R2 = 7.66051e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 11.0138, R2 = 7.66051e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 11.0138, R2 = 7.66051e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 11.0138, R2 = 6.26924e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 11.0138, R2 = 6.26924e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 11.0138, R2 = 6.26924e-16
##

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```

## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 11.0138, R2 = 5.13064e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 11.0138, R2 = 5.13064e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 11.0138, R2 = 5.13064e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 11.0138, R2 = 4.19884e-16
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 11.0138
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 10.47, R2 = 7.51043e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 10.47, R2 = 7.51043e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 10.47, R2 = 7.51043e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 10.47, R2 = 6.14641e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 10.47, R2 = 6.14641e-16

```

```

##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 10.47, R2 = 6.14641e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 10.47, R2 = 5.03013e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 10.47, R2 = 5.03013e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 10.47, R2 = 5.03013e-16
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 10.47, R2 = 4.11657e-16
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 10.47
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.2552, R2 = 3.08702e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.2552, R2 = 3.08702e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.2552, R2 = 3.08702e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.

```

```

## In above message, R1 = 46.2552, R2 = 3.08702e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.2552, R2 = 2.53945e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.2552, R2 = 2.53945e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.2552, R2 = 2.53945e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.2552, R2 = 2.08901e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 46.2552, R2 = 2.08901e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 46.2552
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 43.4876, R2 = 3.06363e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 43.4876, R2 = 3.06363e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step

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##      (H = step size). Solver will continue anyway.
## In above message, R1 = 43.4876, R2 = 3.06363e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 43.4876, R2 = 3.06363e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 43.4876, R2 = 2.52021e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 43.4876, R2 = 2.52021e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 43.4876, R2 = 2.52021e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 43.4876, R2 = 2.52021e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 43.4876, R2 = 2.07318e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 43.4876, R2 = 2.07318e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 43.4876
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 41.3782, R2 = 3.53313e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

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##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 41.3782, R2 = 3.53313e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 41.3782, R2 = 3.53313e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 41.3782, R2 = 3.53313e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 41.3782, R2 = 2.90642e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 41.3782, R2 = 2.90642e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 41.3782, R2 = 2.90642e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 41.3782, R2 = 2.90642e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 41.3782, R2 = 2.39089e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 41.3782, R2 = 2.39089e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 41.3782
##

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## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.8, R2 = 3.18353e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.8, R2 = 3.18353e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.8, R2 = 3.18353e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.8, R2 = 2.60489e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.8, R2 = 2.60489e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.8, R2 = 2.60489e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.8, R2 = 2.13143e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.8, R2 = 2.13143e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.8, R2 = 2.13143e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.8, R2 = 1.74403e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##

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## DLSODA- At current T (=R1), MXSTEP (=I1) steps
## taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 39.8
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 38.6675, R2 = 3.17749e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 38.6675, R2 = 3.17749e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 38.6675, R2 = 3.17749e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 38.6675, R2 = 2.59995e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 38.6675, R2 = 2.59995e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 38.6675, R2 = 2.59995e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 38.6675, R2 = 2.12739e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 38.6675, R2 = 2.12739e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 38.6675, R2 = 2.12739e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
```



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## In above message, R1 = 38.6675, R2 = 1.74073e-15
##
## DLSODA- Above warning has been issued I1 times.
## It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
## taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 38.6675
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.9221, R2 = 3.24432e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.9221, R2 = 3.24432e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.9221, R2 = 3.24432e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.9221, R2 = 2.65464e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.9221, R2 = 2.65464e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.9221, R2 = 2.65464e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.9221, R2 = 2.17214e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.9221, R2 = 2.17214e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step

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##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.9221, R2 = 2.17214e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.9221, R2 = 1.77734e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.9221
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 3.42975e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 3.42975e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 3.42975e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.80636e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.80636e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.80636e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.29628e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

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##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.29628e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.29628e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 1.87892e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.5252
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4563, R2 = 3.32893e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4563, R2 = 3.32893e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4563, R2 = 3.32893e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4563, R2 = 2.72386e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4563, R2 = 2.72386e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4563, R2 = 2.72386e-15
##

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## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4563, R2 = 2.22878e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4563, R2 = 2.22878e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4563, R2 = 2.22878e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4563, R2 = 1.82369e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.4563
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.713, R2 = 3.20631e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.713, R2 = 3.20631e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.713, R2 = 3.20631e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.713, R2 = 3.20631e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.713, R2 = 2.63758e-15

```

```

##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.713, R2 = 2.63758e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.713, R2 = 2.63758e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.713, R2 = 2.63758e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.713, R2 = 2.16974e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.713, R2 = 2.16974e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.713
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.3188, R2 = 3.16999e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.3188, R2 = 3.16999e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.3188, R2 = 3.16999e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.

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```

## In above message, R1 = 38.3188, R2 = 2.59382e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.3188, R2 = 2.59382e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.3188, R2 = 2.59382e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.3188, R2 = 2.12238e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.3188, R2 = 2.12238e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.3188, R2 = 2.12238e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 38.3188, R2 = 1.73662e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 38.3188
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.3363, R2 = 2.90841e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.3363, R2 = 2.90841e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step

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##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.3363, R2 = 2.90841e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.3363, R2 = 2.37979e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.3363, R2 = 2.37979e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.3363, R2 = 2.37979e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.3363, R2 = 1.94725e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.3363, R2 = 1.94725e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.3363, R2 = 1.94725e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.3363, R2 = 1.59333e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 39.3363
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.1942, R2 = 3.42032e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

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##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.1942, R2 = 3.42032e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.1942, R2 = 2.83273e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.1942, R2 = 2.83273e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.1942, R2 = 2.83273e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.1942, R2 = 2.26408e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.1942, R2 = 2.26408e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.1942, R2 = 1.87513e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.1942, R2 = 1.87513e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.1942, R2 = 1.87513e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.1942
##

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## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4422, R2 = 3.30371e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4422, R2 = 3.30371e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4422, R2 = 2.73615e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4422, R2 = 2.73615e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4422, R2 = 2.73615e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4422, R2 = 2.18689e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4422, R2 = 2.18689e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4422, R2 = 1.8112e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4422, R2 = 1.8112e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4422, R2 = 1.8112e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##

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## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.4422
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4795, R2 = 3.46757e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4795, R2 = 3.46757e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4795, R2 = 2.87186e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4795, R2 = 2.87186e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4795, R2 = 2.29536e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4795, R2 = 2.29536e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4795, R2 = 1.90103e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4795, R2 = 1.90103e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
```

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## In above message, R1 = 37.4795, R2 = 1.90103e-15
##
## DLSODA- Above warning has been issued I1 times.
## It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
## taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.4795
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4963, R2 = 3.13432e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4963, R2 = 3.13432e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4963, R2 = 3.13432e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4963, R2 = 2.56463e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4963, R2 = 2.56463e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4963, R2 = 2.56463e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4963, R2 = 2.09849e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4963, R2 = 2.09849e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step

```

```

##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4963, R2 = 2.09849e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4963, R2 = 1.71708e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.4963
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5064, R2 = 3.43645e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5064, R2 = 3.43645e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5064, R2 = 2.84609e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5064, R2 = 2.84609e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5064, R2 = 2.84609e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5064, R2 = 2.27476e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5064, R2 = 2.27476e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

```

```

##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5064, R2 = 1.88397e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5064, R2 = 1.88397e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5064, R2 = 1.88397e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.5064
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5127, R2 = 3.33115e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5127, R2 = 3.33115e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5127, R2 = 2.75888e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5127, R2 = 2.75888e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5127, R2 = 2.20505e-15
##

```

```

## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5127, R2 = 2.20505e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5127, R2 = 1.82624e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5127, R2 = 1.82624e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5127, R2 = 1.82624e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.5127
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.517, R2 = 3.26384e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.517, R2 = 3.26384e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.517, R2 = 3.26384e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.517, R2 = 2.67061e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.517, R2 = 2.67061e-15

```

```
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
##      such that in the machine,  $T + H = T$  on the next step  
##      ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 37.517, R2 = 2.67061e-15  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
##      such that in the machine,  $T + H = T$  on the next step  
##      ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 37.517, R2 = 2.1852e-15  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
##      such that in the machine,  $T + H = T$  on the next step  
##      ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 37.517, R2 = 2.1852e-15  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
##      such that in the machine,  $T + H = T$  on the next step  
##      ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 37.517, R2 = 2.1852e-15  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
##      such that in the machine,  $T + H = T$  on the next step  
##      ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 37.517, R2 = 1.78803e-15  
##  
## DLSODA- Above warning has been issued I1 times.  
##      It will not be issued again for this problem.  
## In above message, I1 = 10  
##  
## DLSODA- At current T (=R1), MXSTEP (=I1) steps  
##      taken on this call before reaching TOUT  
## In above message, I1 = 5000  
##  
## In above message, R1 = 37.517  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
##      such that in the machine,  $T + H = T$  on the next step  
##      ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 37.5201, R2 = 2.93386e-15  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
##      such that in the machine,  $T + H = T$  on the next step  
##      ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 37.5201, R2 = 2.93386e-15  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
##      such that in the machine,  $T + H = T$  on the next step  
##      ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 37.5201, R2 = 2.93386e-15  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
##      such that in the machine,  $T + H = T$  on the next step  
##      ( $H = \text{step size}$ ). Solver will continue anyway.
```

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## In above message, R1 = 37.5201, R2 = 2.40061e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5201, R2 = 2.40061e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5201, R2 = 2.40061e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5201, R2 = 1.96428e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5201, R2 = 1.96428e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5201, R2 = 1.96428e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5201, R2 = 1.60726e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.5201
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5222, R2 = 3.24226e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5222, R2 = 3.24226e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step

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##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5222, R2 = 3.24226e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5222, R2 = 2.65295e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5222, R2 = 2.65295e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5222, R2 = 2.65295e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5222, R2 = 2.17075e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5222, R2 = 2.17075e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5222, R2 = 2.17075e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5222, R2 = 1.77621e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.5222
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5239, R2 = 3.34066e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

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##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5239, R2 = 3.34066e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5239, R2 = 3.34066e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5239, R2 = 2.73347e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5239, R2 = 2.73347e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5239, R2 = 2.73347e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5239, R2 = 2.23664e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5239, R2 = 2.23664e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5239, R2 = 2.23664e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5239, R2 = 1.83011e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.5239
##

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## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 3.42975e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 3.42975e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 3.42975e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.80636e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.80636e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.80636e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.29628e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.29628e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.29628e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 1.87892e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##

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## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##         taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.5252
##

```

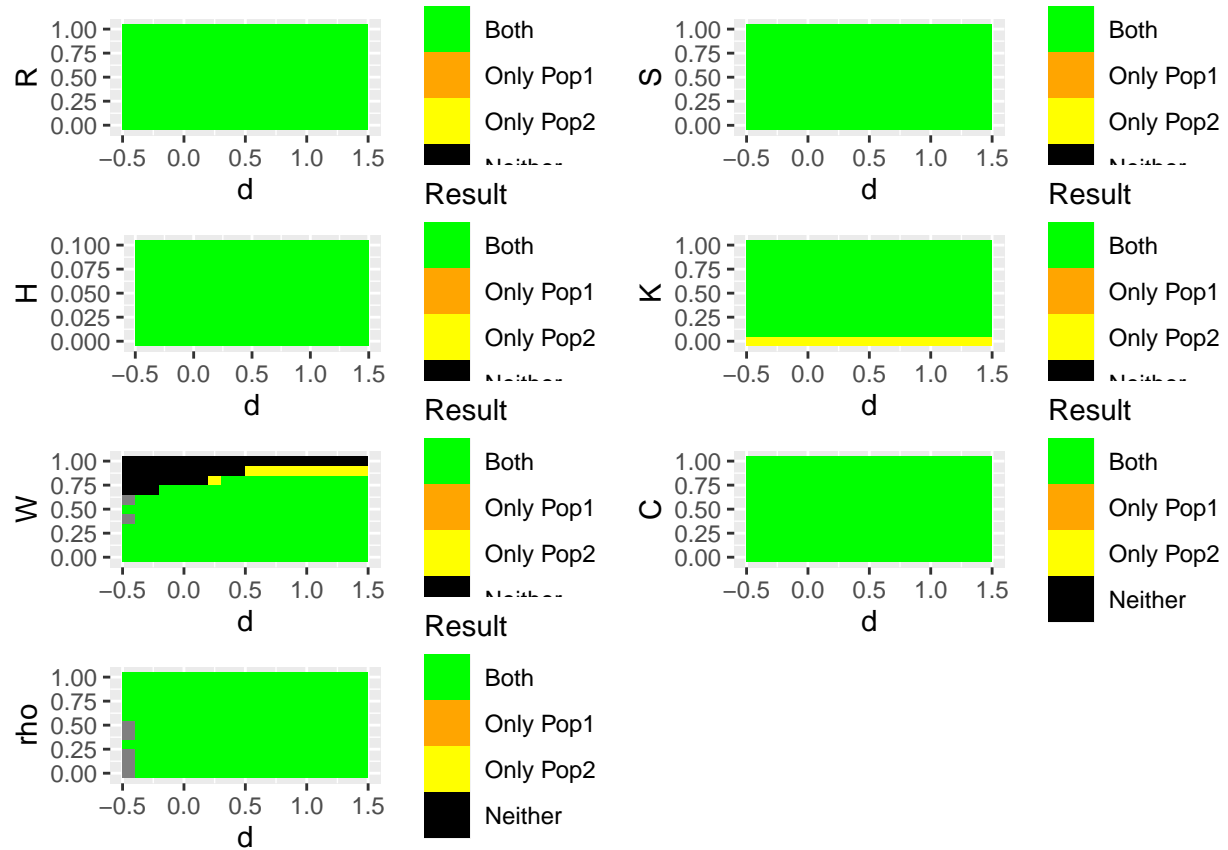


Figure 17: d parameter planes

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## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.1942, R2 = 3.42032e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.1942, R2 = 3.42032e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.1942, R2 = 2.83273e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.1942, R2 = 2.83273e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.1942, R2 = 2.83273e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.1942, R2 = 2.26408e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.1942, R2 = 2.26408e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.1942, R2 = 1.87513e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.1942, R2 = 1.87513e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.1942, R2 = 1.87513e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##

```

```

## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.1942
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4422, R2 = 3.30371e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4422, R2 = 3.30371e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4422, R2 = 2.73615e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4422, R2 = 2.73615e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4422, R2 = 2.73615e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4422, R2 = 2.18689e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4422, R2 = 2.18689e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4422, R2 = 1.8112e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4422, R2 = 1.8112e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.

```

```

## In above message, R1 = 37.4422, R2 = 1.8112e-15
##
## DLSODA- Above warning has been issued I1 times.
## It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
## taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.4422
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4795, R2 = 3.46757e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4795, R2 = 3.46757e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4795, R2 = 2.87186e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4795, R2 = 2.87186e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4795, R2 = 2.87186e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4795, R2 = 2.29536e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4795, R2 = 2.29536e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4795, R2 = 1.90103e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step

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##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4795, R2 = 1.90103e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4795, R2 = 1.90103e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.4795
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4963, R2 = 3.13432e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4963, R2 = 3.13432e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4963, R2 = 3.13432e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4963, R2 = 2.56463e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4963, R2 = 2.56463e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4963, R2 = 2.56463e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4963, R2 = 2.09849e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

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##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4963, R2 = 2.09849e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4963, R2 = 2.09849e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.4963, R2 = 1.71708e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.4963
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5064, R2 = 3.43645e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5064, R2 = 3.43645e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5064, R2 = 2.84609e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5064, R2 = 2.84609e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5064, R2 = 2.84609e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5064, R2 = 2.27476e-15
##

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## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5064, R2 = 2.27476e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5064, R2 = 1.88397e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5064, R2 = 1.88397e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5064, R2 = 1.88397e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.5064
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5127, R2 = 3.33115e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5127, R2 = 3.33115e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5127, R2 = 2.75888e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5127, R2 = 2.75888e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5127, R2 = 2.75888e-15

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##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 37.5127, R2 = 2.20505e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 37.5127, R2 = 2.20505e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 37.5127, R2 = 1.82624e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 37.5127, R2 = 1.82624e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 37.5127, R2 = 1.82624e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.5127
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 37.517, R2 = 3.26384e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 37.517, R2 = 3.26384e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.
## In above message, R1 = 37.517, R2 = 3.26384e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      ( $H = \text{step size}$ ). Solver will continue anyway.

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## In above message, R1 = 37.517, R2 = 2.67061e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.517, R2 = 2.67061e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.517, R2 = 2.67061e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.517, R2 = 2.1852e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.517, R2 = 2.1852e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.517, R2 = 2.1852e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.517, R2 = 1.78803e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.517
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5201, R2 = 2.93386e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5201, R2 = 2.93386e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step

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##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5201, R2 = 2.93386e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5201, R2 = 2.40061e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5201, R2 = 2.40061e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5201, R2 = 2.40061e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5201, R2 = 1.96428e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5201, R2 = 1.96428e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5201, R2 = 1.96428e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5201, R2 = 1.60726e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.5201
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5222, R2 = 3.24226e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

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##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5222, R2 = 3.24226e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5222, R2 = 3.24226e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5222, R2 = 2.65295e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5222, R2 = 2.65295e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5222, R2 = 2.65295e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5222, R2 = 2.17075e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5222, R2 = 2.17075e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5222, R2 = 2.17075e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5222, R2 = 1.77621e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.5222
##

```

```

## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5239, R2 = 3.34066e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5239, R2 = 3.34066e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5239, R2 = 3.34066e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5239, R2 = 2.73347e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5239, R2 = 2.73347e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5239, R2 = 2.73347e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5239, R2 = 2.23664e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5239, R2 = 2.23664e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5239, R2 = 2.23664e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5239, R2 = 1.83011e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##

```

```
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
## taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.5239
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 3.42975e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 3.42975e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 3.42975e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.80636e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.80636e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.80636e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.29628e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.29628e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.29628e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
```



```

## In above message, R1 = 37.5252, R2 = 1.87892e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.5252
##

```

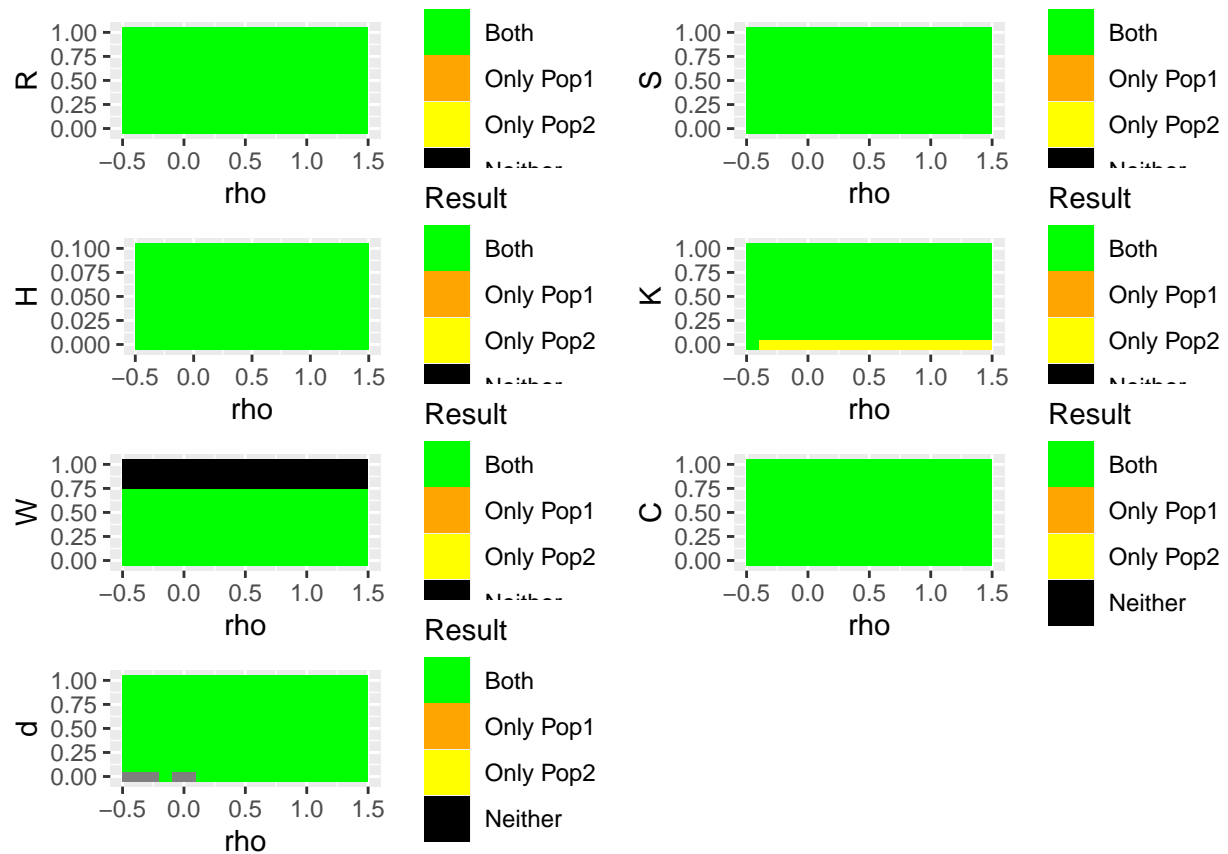


Figure 18: ρ parameter planes

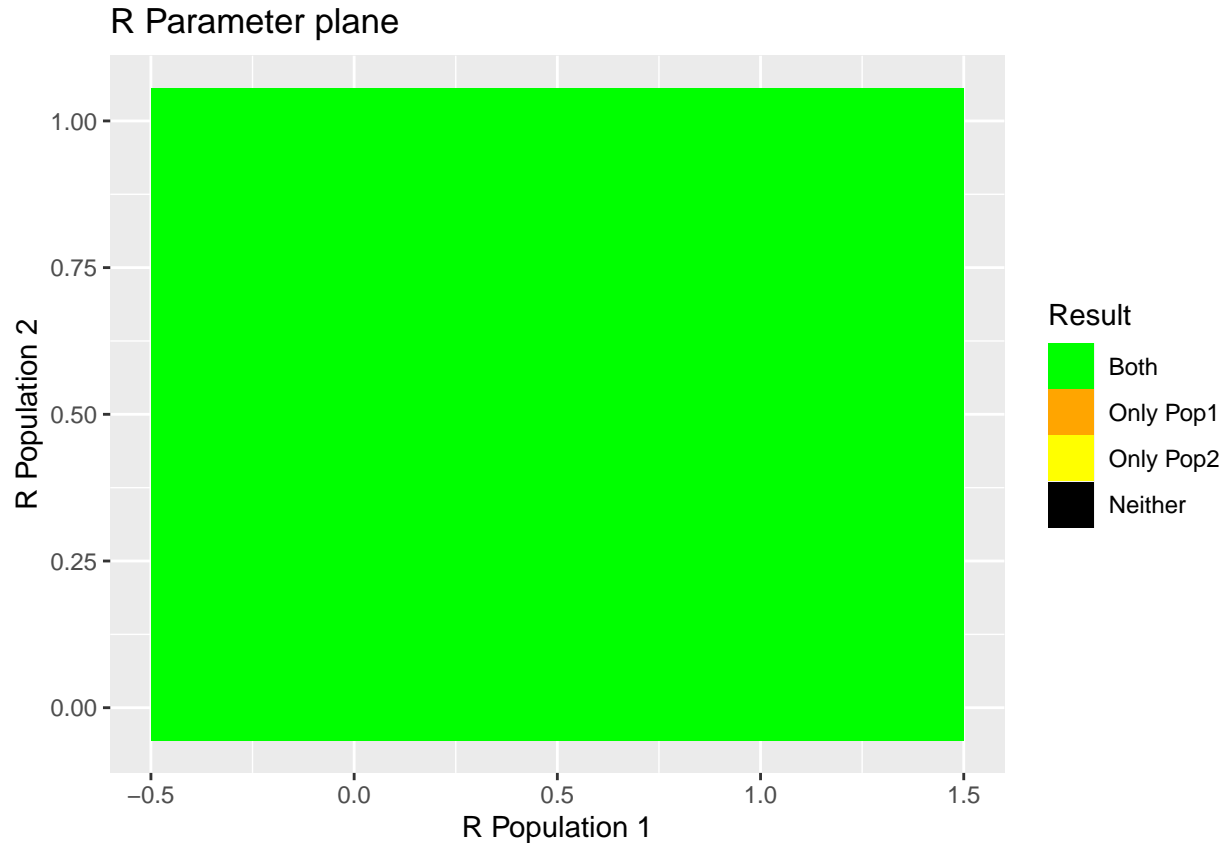


Figure 19: r population planes

```
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine, T + H = T on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 3.42975e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine, T + H = T on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 3.42975e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine, T + H = T on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 3.42975e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine, T + H = T on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.80636e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine, T + H = T on the next step
##      (H = step size). Solver will continue anyway.
```

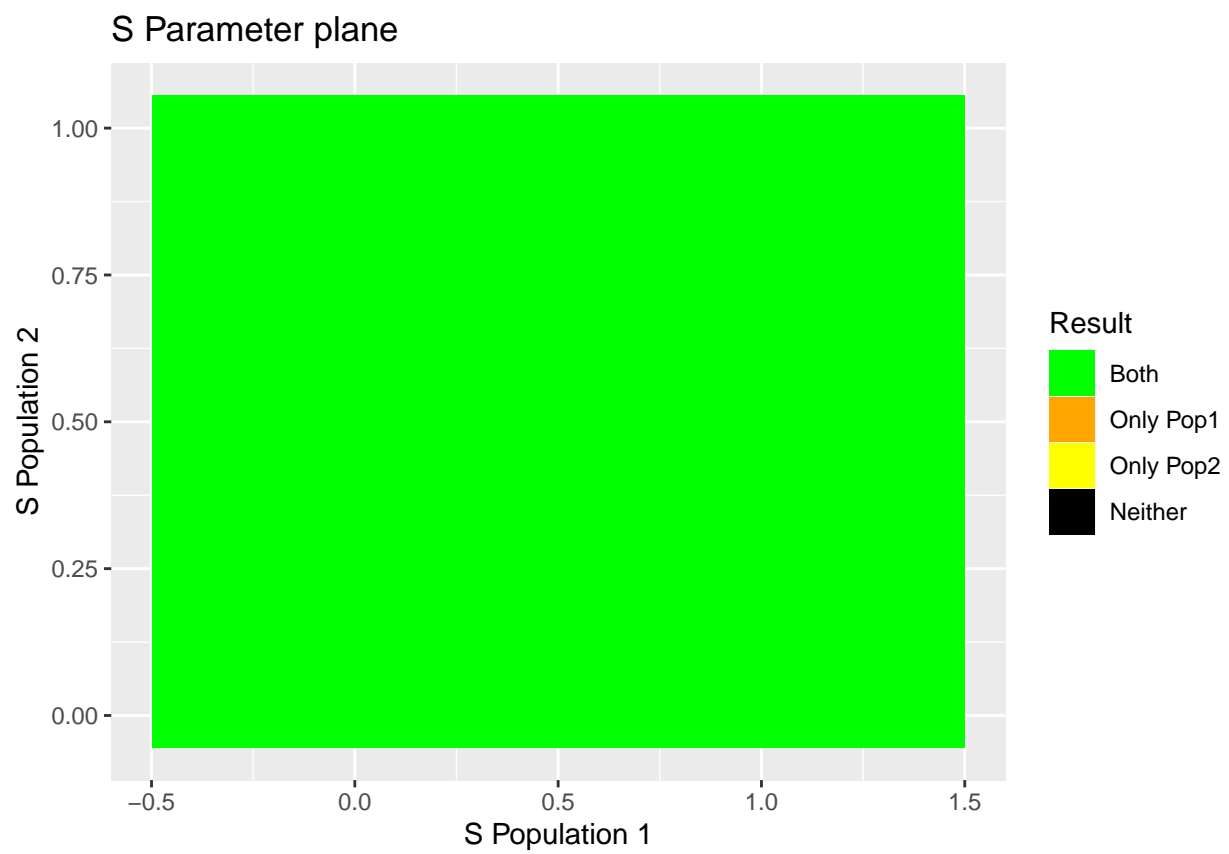


Figure 20: s population planes

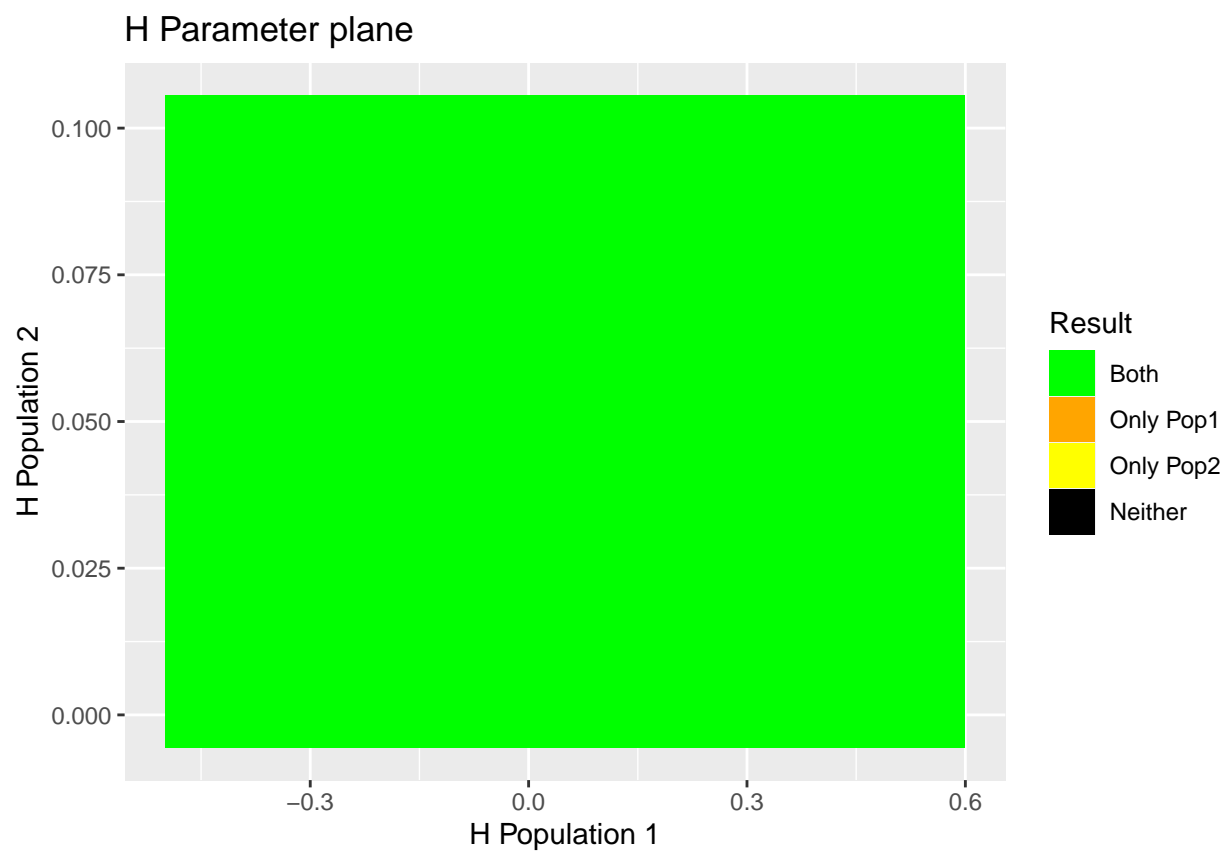


Figure 21: h population planes

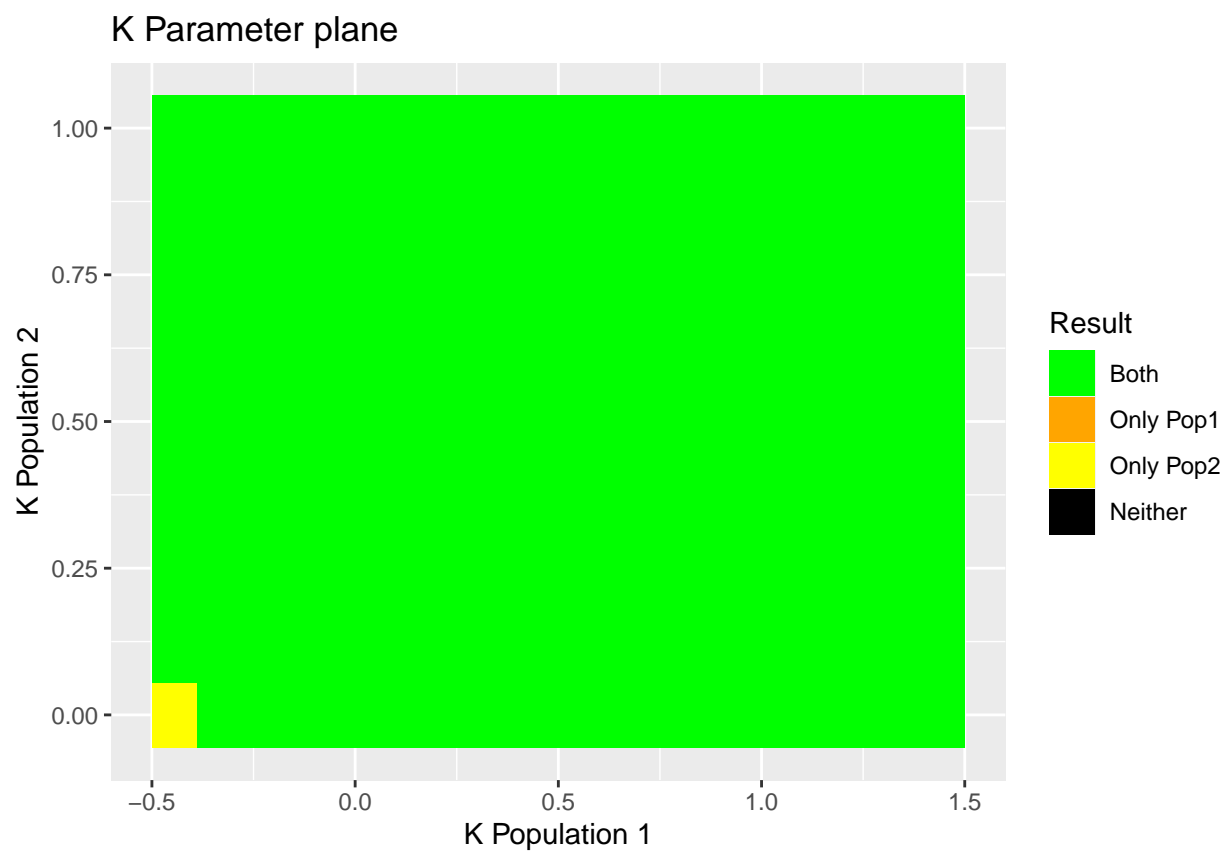


Figure 22: k population planes 0 to 1

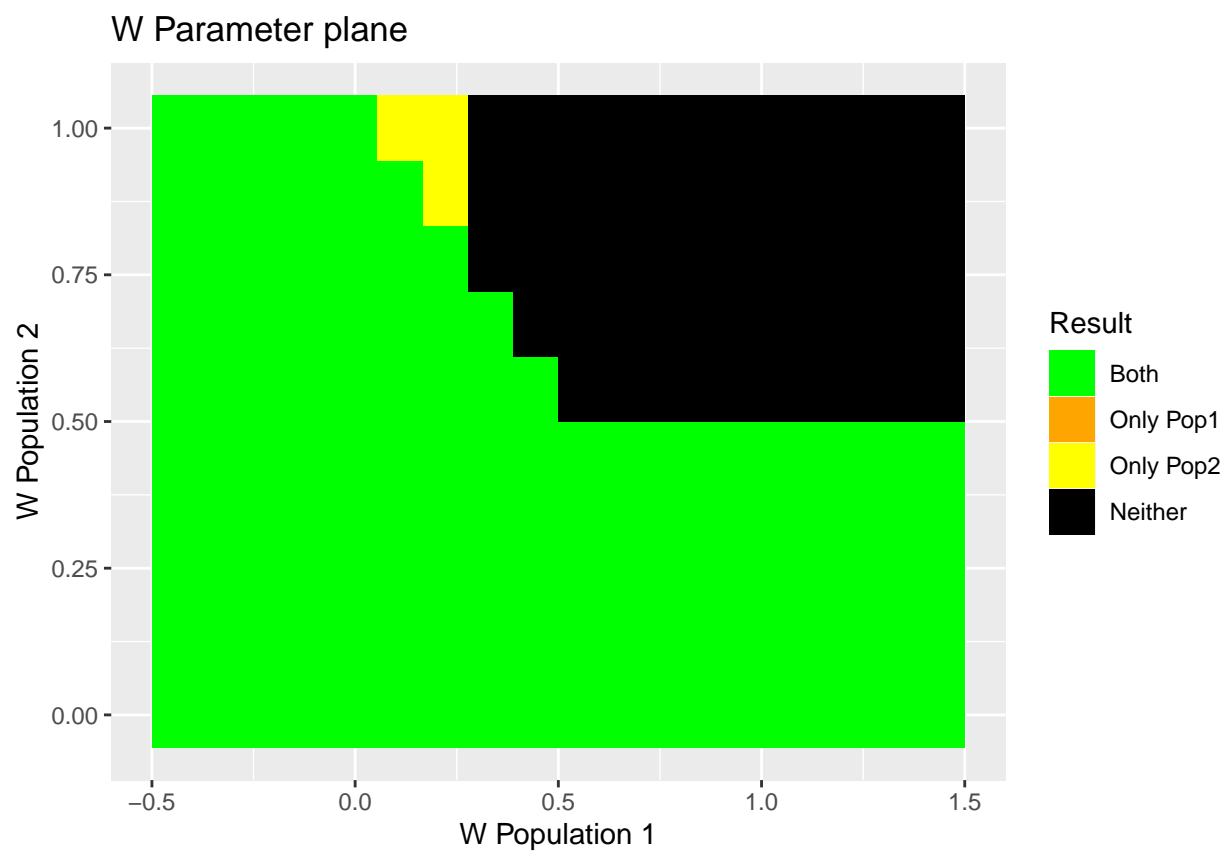


Figure 23: w population planes

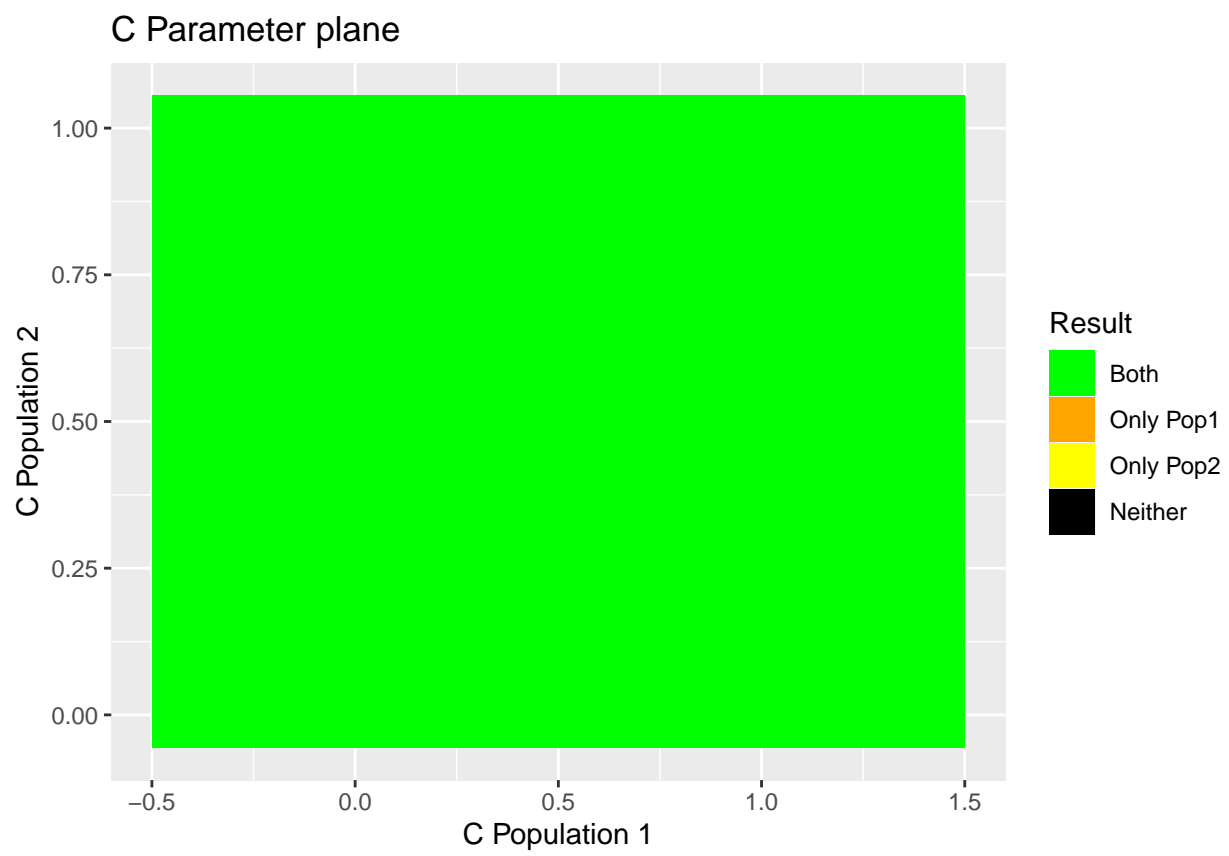


Figure 24: c population planes

```

## In above message, R1 = 37.5252, R2 = 2.80636e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.80636e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.29628e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 2.29628e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 37.5252, R2 = 1.87892e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 37.5252
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 77.5197, R2 = 6.80602e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 77.5197, R2 = 6.80602e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 77.5197, R2 = 6.80602e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step

```



```

##      (H = step size). Solver will continue anyway.
## In above message, R1 = 77.5197, R2 = 5.56892e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 77.5197, R2 = 5.56892e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 77.5197, R2 = 5.56892e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 77.5197, R2 = 4.55669e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 77.5197, R2 = 4.55669e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 77.5197, R2 = 4.55669e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 77.5197, R2 = 3.72845e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 77.5197
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 62.2181, R2 = 3.1083e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 62.2181, R2 = 3.1083e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

```

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##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 62.2181, R2 = 3.1083e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 62.2181, R2 = 3.1083e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 62.2181, R2 = 2.55696e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 62.2181, R2 = 2.55696e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 62.2181, R2 = 2.55696e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 62.2181, R2 = 2.55696e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 62.2181, R2 = 2.10342e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 62.2181, R2 = 2.10342e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 62.2181
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 51.4379, R2 = 3.15023e-15
##

```

```

## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 51.4379, R2 = 3.15023e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 51.4379, R2 = 3.15023e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 51.4379, R2 = 2.57765e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 51.4379, R2 = 2.57765e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 51.4379, R2 = 2.57765e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 51.4379, R2 = 2.10914e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 51.4379, R2 = 2.10914e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 51.4379, R2 = 2.10914e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 51.4379, R2 = 1.72579e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 51.4379

```

```

##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3949, R2 = 3.2599e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3949, R2 = 3.2599e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3949, R2 = 3.2599e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3949, R2 = 2.66738e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3949, R2 = 2.66738e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3949, R2 = 2.66738e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3949, R2 = 2.18257e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3949, R2 = 2.18257e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3949, R2 = 2.18257e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3949, R2 = 2.18257e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.3949, R2 = 1.78588e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10

```

```

##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##         taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 44.3949
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 39.4144, R2 = 3.15573e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 39.4144, R2 = 3.15573e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 39.4144, R2 = 3.15573e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 39.4144, R2 = 3.15573e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 39.4144, R2 = 2.59598e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 39.4144, R2 = 2.59598e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 39.4144, R2 = 2.59598e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 39.4144, R2 = 2.59598e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 39.4144, R2 = 2.13552e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step

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##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.4144, R2 = 2.13552e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 39.4144
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.6628, R2 = 3.4809e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.6628, R2 = 3.4809e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.6628, R2 = 3.4809e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.6628, R2 = 3.4809e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.6628, R2 = 2.86346e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.6628, R2 = 2.86346e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.6628, R2 = 2.86346e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.6628, R2 = 2.86346e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

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##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.6628, R2 = 2.35556e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 35.6628, R2 = 2.35556e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 35.6628
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.706, R2 = 3.32124e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.706, R2 = 3.32124e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.706, R2 = 3.32124e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.706, R2 = 3.32124e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.706, R2 = 3.32124e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.706, R2 = 2.73213e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.706, R2 = 2.73213e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.706, R2 = 2.73213e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.706, R2 = 2.73213e-15
##
##

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## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.706, R2 = 2.73213e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.706, R2 = 2.24752e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 32.706, R2 = 2.24752e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 32.706
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 30.2976, R2 = 1.60384e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 30.2976, R2 = 1.60384e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 30.2976, R2 = 1.60384e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 30.2976, R2 = 1.31234e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 30.2976, R2 = 1.31234e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 30.2976, R2 = 1.31234e-15

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##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
##      such that in the machine,  $T + H = T$  on the next step  
##      ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 30.2976, R2 = 1.07382e-15  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
##      such that in the machine,  $T + H = T$  on the next step  
##      ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 30.2976, R2 = 1.07382e-15  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
##      such that in the machine,  $T + H = T$  on the next step  
##      ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 30.2976, R2 = 1.07382e-15  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
##      such that in the machine,  $T + H = T$  on the next step  
##      ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 30.2976, R2 = 8.78651e-16  
##  
## DLSODA- Above warning has been issued I1 times.  
##      It will not be issued again for this problem.  
## In above message, I1 = 10  
##  
## DLSODA- At current T (=R1), MXSTEP (=I1) steps  
##      taken on this call before reaching TOUT  
## In above message, I1 = 5000  
##  
## In above message, R1 = 30.2976  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
##      such that in the machine,  $T + H = T$  on the next step  
##      ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 28.2865, R2 = 1.69035e-15  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
##      such that in the machine,  $T + H = T$  on the next step  
##      ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 28.2865, R2 = 1.69035e-15  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
##      such that in the machine,  $T + H = T$  on the next step  
##      ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 28.2865, R2 = 1.69035e-15  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
##      such that in the machine,  $T + H = T$  on the next step  
##      ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 28.2865, R2 = 1.69035e-15  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
##      such that in the machine,  $T + H = T$  on the next step  
##      ( $H = \text{step size}$ ). Solver will continue anyway.
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## In above message, R1 = 28.2865, R2 = 1.39053e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 28.2865, R2 = 1.39053e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 28.2865, R2 = 1.39053e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 28.2865, R2 = 1.39053e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 28.2865, R2 = 1.14389e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 28.2865, R2 = 1.14389e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 28.2865
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 77.3567, R2 = 6.91066e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 77.3567, R2 = 6.91066e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 77.3567, R2 = 6.91066e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step

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##      (H = step size). Solver will continue anyway.
## In above message, R1 = 77.3567, R2 = 5.65453e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 77.3567, R2 = 5.65453e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 77.3567, R2 = 5.65453e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 77.3567, R2 = 4.62674e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 77.3567, R2 = 4.62674e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 77.3567, R2 = 4.62674e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 77.3567, R2 = 3.78577e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 77.3567
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 62.1683, R2 = 3.50951e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 62.1683, R2 = 3.50951e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

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##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 62.1683, R2 = 3.50951e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 62.1683, R2 = 2.87163e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 62.1683, R2 = 2.87163e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 62.1683, R2 = 2.87163e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 62.1683, R2 = 2.34968e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 62.1683, R2 = 2.34968e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 62.1683, R2 = 2.34968e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 62.1683, R2 = 1.92261e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 62.1683
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 51.53, R2 = 2.94619e-15
##

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## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 51.53, R2 = 2.94619e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 51.53, R2 = 2.94619e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 51.53, R2 = 2.4107e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 51.53, R2 = 2.4107e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 51.53, R2 = 2.4107e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 51.53, R2 = 1.97254e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 51.53, R2 = 1.97254e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 51.53, R2 = 1.97254e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 51.53, R2 = 1.61402e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 51.53

```

```

##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.6365, R2 = 3.06883e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.6365, R2 = 3.06883e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.6365, R2 = 3.06883e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.6365, R2 = 3.06883e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.6365, R2 = 2.52449e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.6365, R2 = 2.52449e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.6365, R2 = 2.52449e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.6365, R2 = 2.52449e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.6365, R2 = 2.52449e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.6365, R2 = 2.07671e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 44.6365, R2 = 2.07671e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10

```

```

##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##         taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 44.6365
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 39.807, R2 = 3.10227e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 39.807, R2 = 3.10227e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 39.807, R2 = 3.10227e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 39.807, R2 = 3.10227e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 39.807, R2 = 2.552e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 39.807, R2 = 2.552e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 39.807, R2 = 2.552e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 39.807, R2 = 2.552e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 39.807, R2 = 2.09934e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step

```

```

##      (H = step size). Solver will continue anyway.
## In above message, R1 = 39.807, R2 = 2.09934e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 39.807
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.206, R2 = 3.07832e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.206, R2 = 3.07832e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.206, R2 = 3.07832e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.206, R2 = 3.07832e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.206, R2 = 2.5323e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.206, R2 = 2.5323e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.206, R2 = 2.5323e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.206, R2 = 2.5323e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are

```



```

##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.206, R2 = 2.08313e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 36.206, R2 = 2.08313e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 36.206
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.3992, R2 = 3.51968e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.3992, R2 = 3.51968e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.3992, R2 = 3.51968e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.3992, R2 = 3.51968e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.3992, R2 = 2.89536e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.3992, R2 = 2.89536e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.3992, R2 = 2.89536e-15
##

```

```

## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.3992, R2 = 2.89536e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.3992, R2 = 2.3818e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 33.3992, R2 = 2.3818e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 33.3992
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 31.1406, R2 = 1.70717e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 31.1406, R2 = 1.70717e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 31.1406, R2 = 1.70717e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 31.1406, R2 = 1.40437e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 31.1406, R2 = 1.40437e-15

```

```
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
##      such that in the machine,  $T + H = T$  on the next step  
##      ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 31.1406, R2 = 1.40437e-15  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
##      such that in the machine,  $T + H = T$  on the next step  
##      ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 31.1406, R2 = 1.40437e-15  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
##      such that in the machine,  $T + H = T$  on the next step  
##      ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 31.1406, R2 = 1.15528e-15  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
##      such that in the machine,  $T + H = T$  on the next step  
##      ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 31.1406, R2 = 1.15528e-15  
##  
## DLSODA- Above warning has been issued I1 times.  
##      It will not be issued again for this problem.  
## In above message, I1 = 10  
##  
## DLSODA- At current T (=R1), MXSTEP (=I1) steps  
##      taken on this call before reaching TOUT  
## In above message, I1 = 5000  
##  
## In above message, R1 = 31.1406  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
##      such that in the machine,  $T + H = T$  on the next step  
##      ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 29.2803, R2 = 1.49516e-15  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
##      such that in the machine,  $T + H = T$  on the next step  
##      ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 29.2803, R2 = 1.49516e-15  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
##      such that in the machine,  $T + H = T$  on the next step  
##      ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 29.2803, R2 = 1.49516e-15  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
##      such that in the machine,  $T + H = T$  on the next step  
##      ( $H = \text{step size}$ ). Solver will continue anyway.  
## In above message, R1 = 29.2803, R2 = 1.49516e-15  
##  
## DLSODA- Warning..Internal T (=R1) and H (=R2) are  
##      such that in the machine,  $T + H = T$  on the next step  
##      ( $H = \text{step size}$ ). Solver will continue anyway.
```

```

## In above message, R1 = 29.2803, R2 = 1.22996e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 29.2803, R2 = 1.22996e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 29.2803, R2 = 1.22996e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 29.2803, R2 = 1.01181e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 29.2803, R2 = 1.01181e-15
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- At current T (=R1), MXSTEP (=I1) steps
##      taken on this call before reaching TOUT
## In above message, I1 = 5000
##
## In above message, R1 = 29.2803
##

```

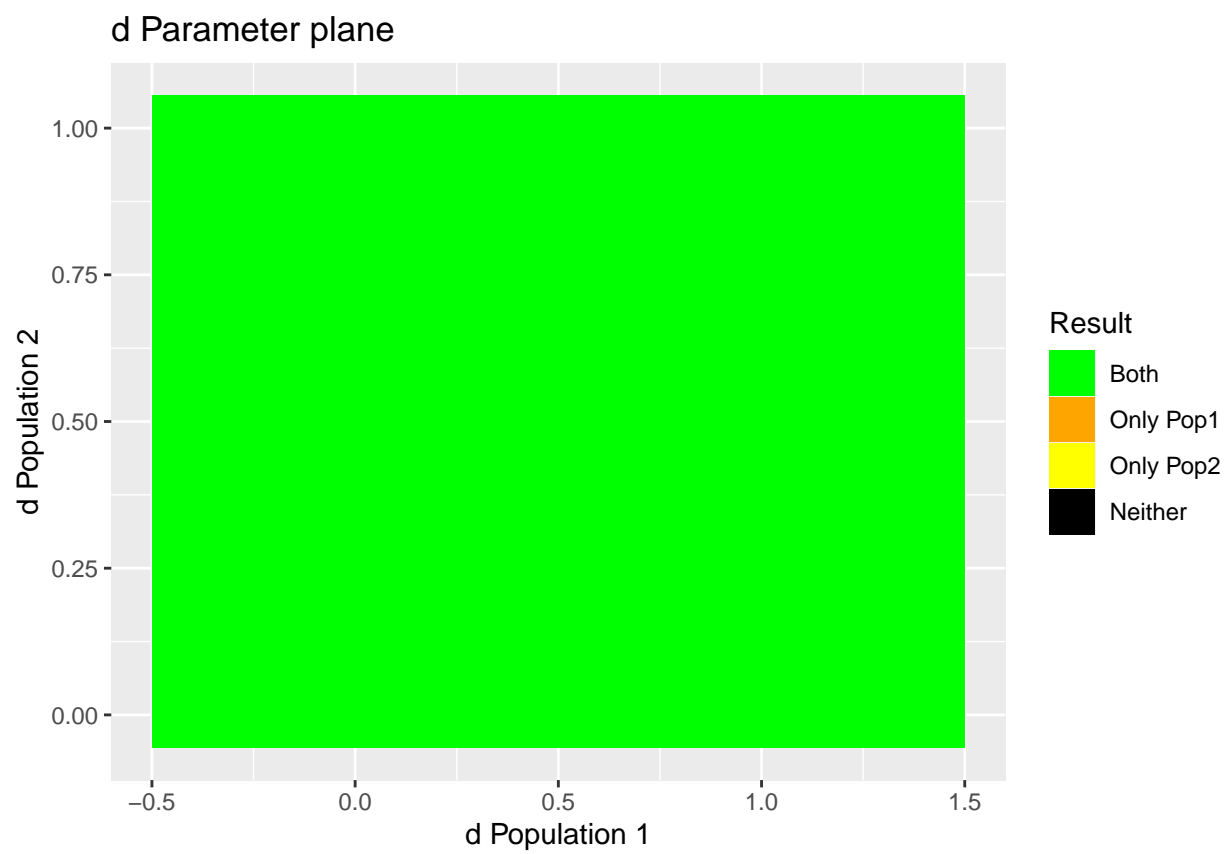


Figure 25: d population planes

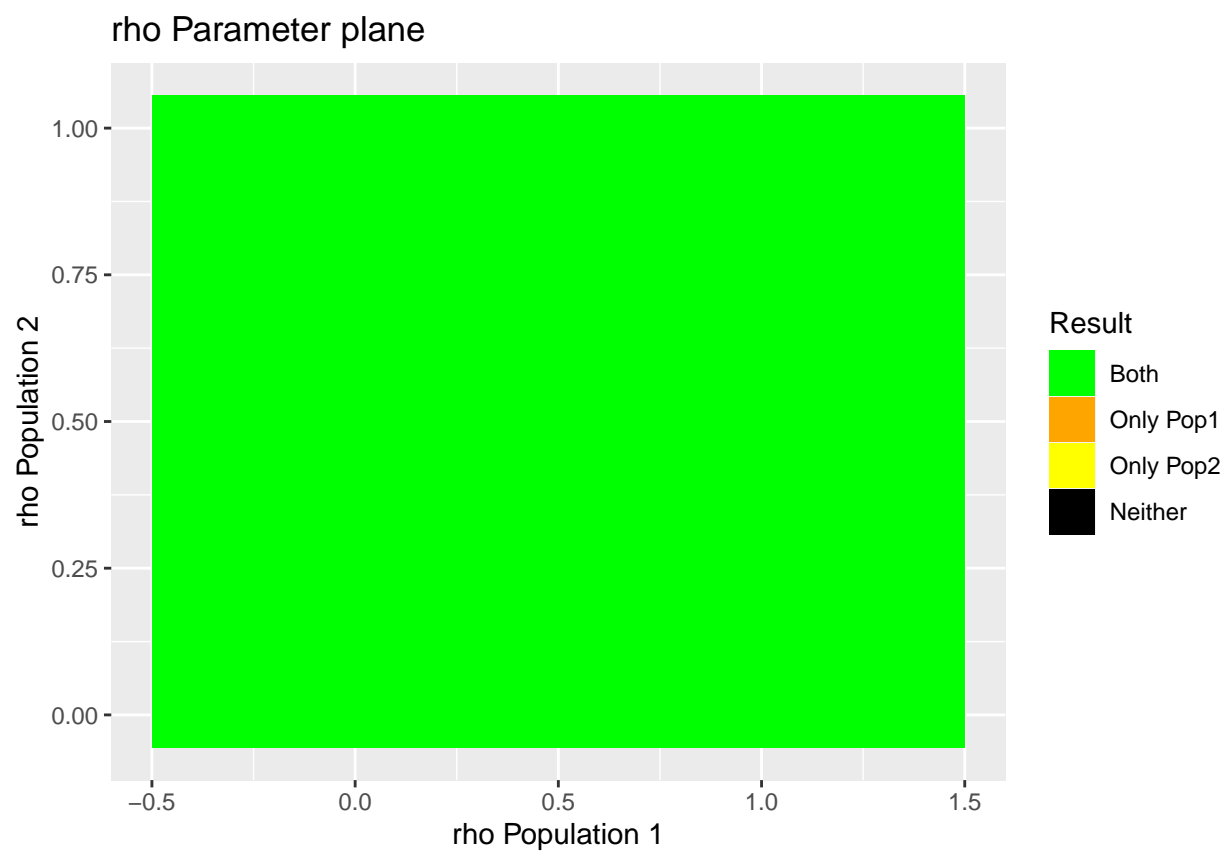


Figure 26: roh population planes