

# BauchModel\_DefaultParamsHighMovement

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Table 1: Parameter values used in this analysis

Parameter	Population_1	Population_2	Def
r	0.06	0.06	Fish net growth
s	0.8	0.8	Supply and demand
h	0.1	0.1	Harvesting efficiency
k	0.17	0.17	Social learning rate
w	1	1	Conservation cost
c	0.6	0.6	Rarity valuation
d	0.3	0.3	Social norm strength (within pop)
i	0	0	Fish immigration (from opposite patch)
rho	0	0	Social norm strength (opposite pop)

Table 2: Starting values used in this analysis

Parameter	Population_1	Population_2
F	0.406	0.406
X	0.240	0.240

## SCENARIO: OSCILLATIONS

Function:

$$\frac{dP_1}{dt} = r_1 P_1 (1 - P_1) - \frac{h_1 * P_1 (1 - X_1)}{P_1 + s_1} - e_1 P_1 + i_1 P_2$$

$$\frac{dP_2}{dt} = r_2 P_2 (1 - P_2) - \frac{h_2 * P_2 (1 - X_2)}{P_2 + s_2} - e_2 P_2 + i_2 P_1$$

$$\frac{dX_1}{dt} = k_1 X_1 (1 - X_1) \left[ \frac{1}{P_1 + c_1} - w_1 + d_1 (2X_1 - 1) + prop_1 (2X_2 - 1) \right]$$

$$\frac{dX_2}{dt} = k_2 X_2 (1 - X_2) \left[ \frac{1}{P_2 + c_2} - w_2 + d_2 (2X_2 - 1) + prop_2 (2X_1 - 1) \right]$$

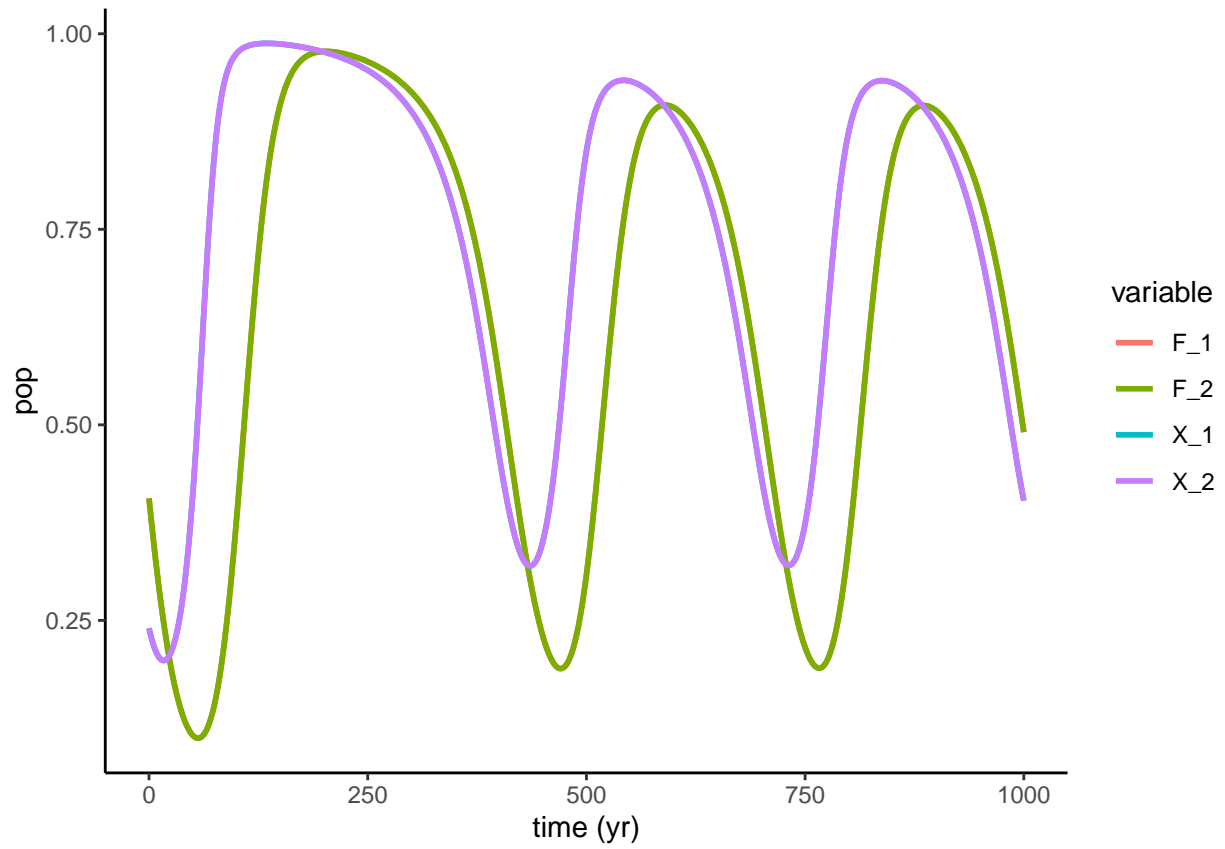


Figure 1: New Model with default paramters

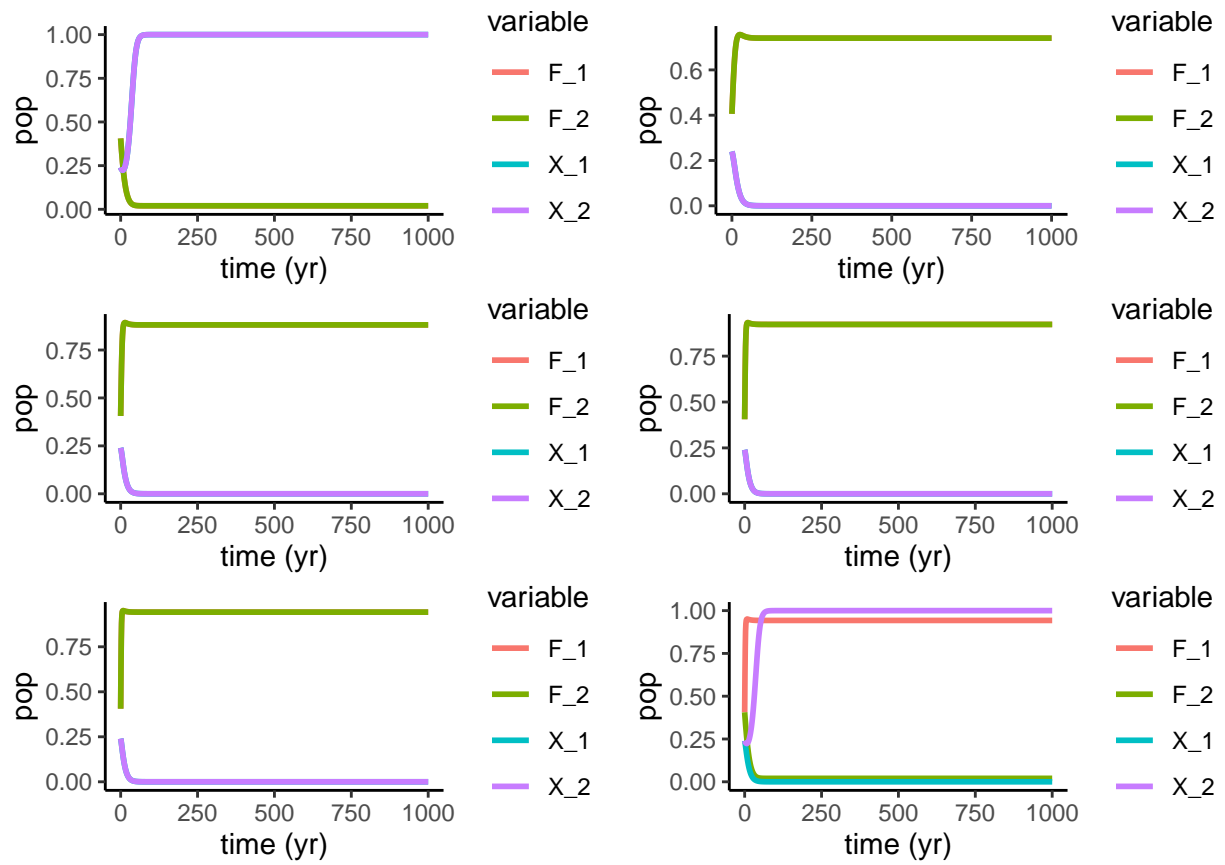


Figure 2:  $r$  - Net growth/fecundity, range 0 to 1

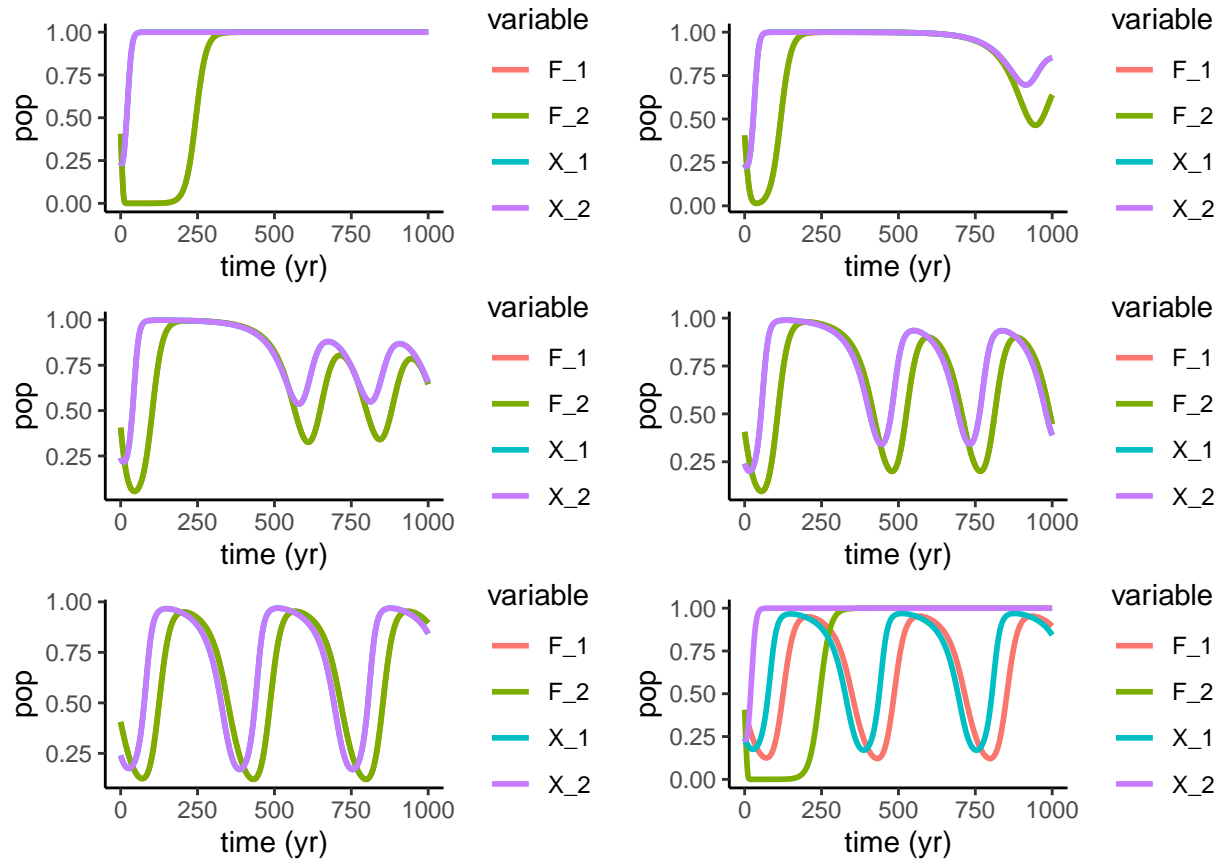


Figure 3: s - supply and demand, range 0.1 to 1

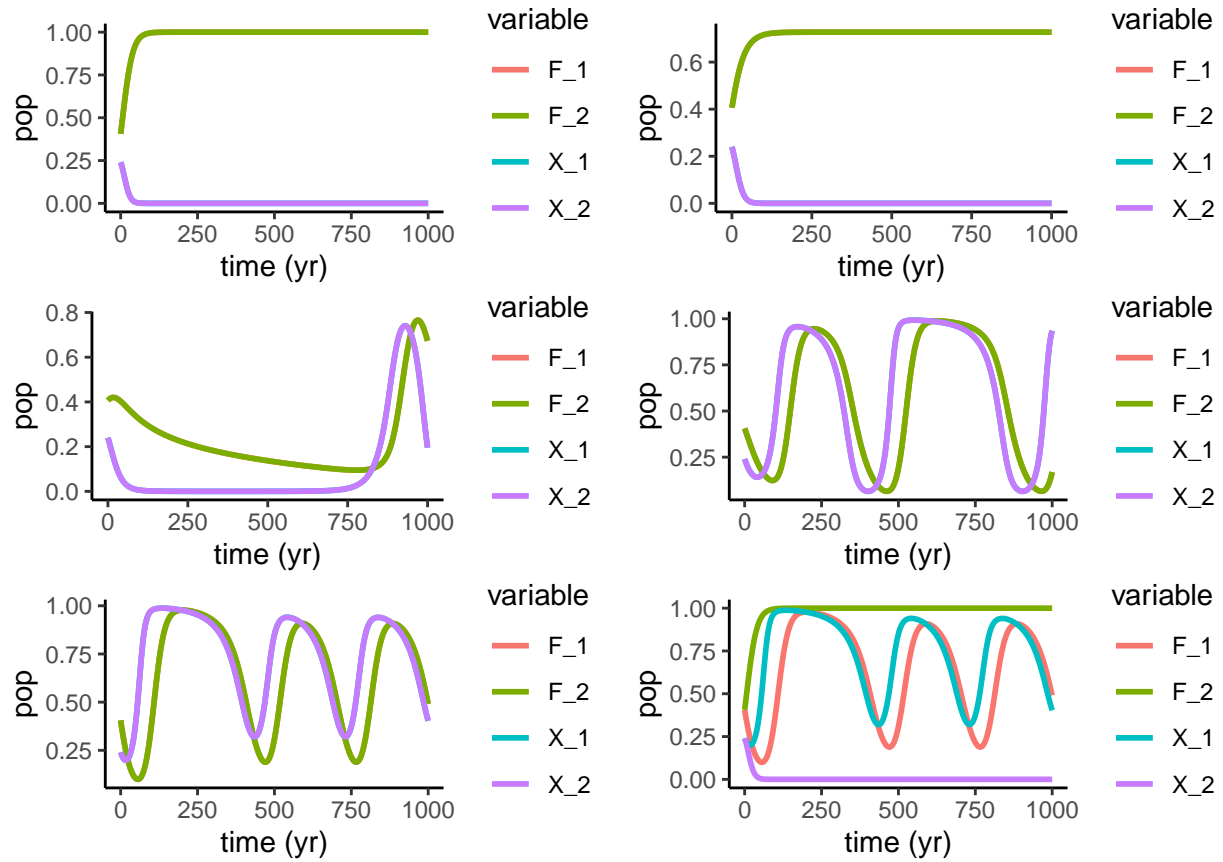


Figure 4:  $h$  - Harvesting efficiency, range 0 to 0.1. Note, default is .075

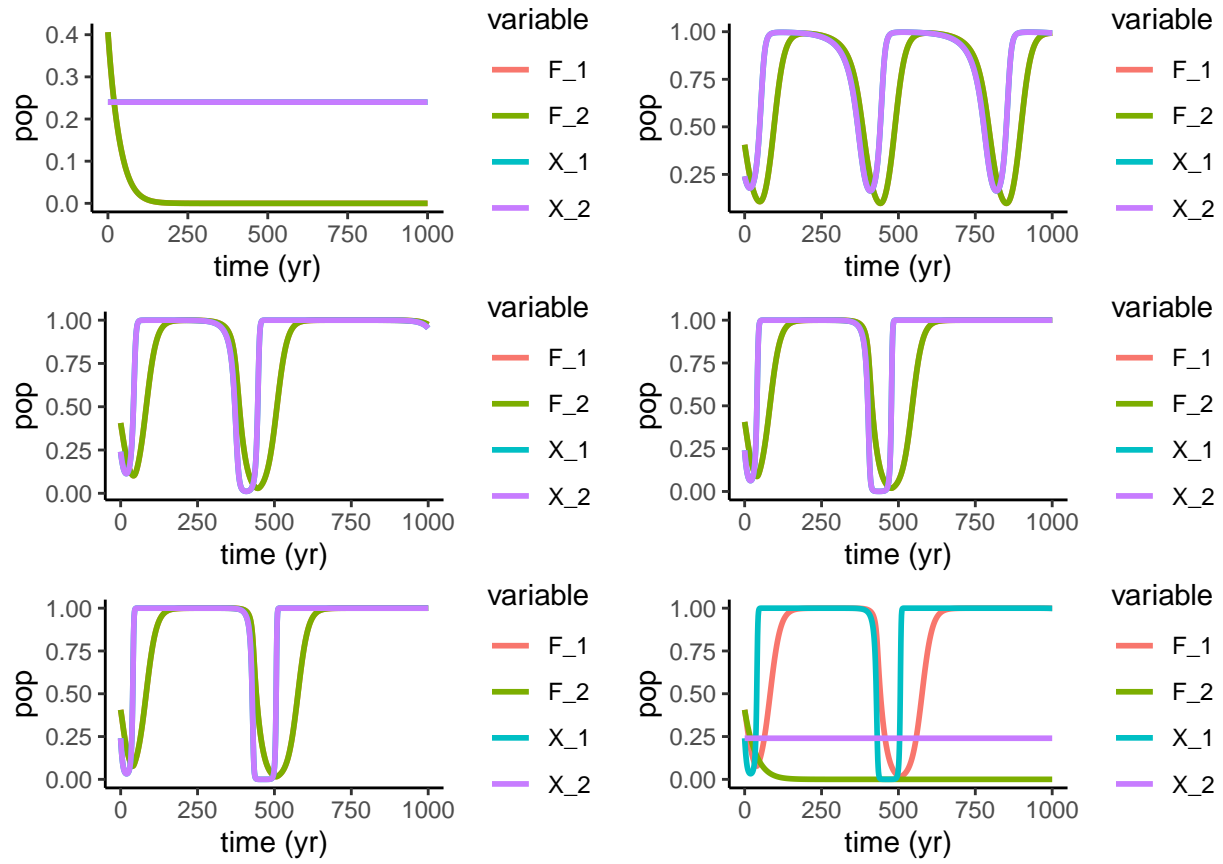


Figure 5: K - Social learning rate 0 to 1

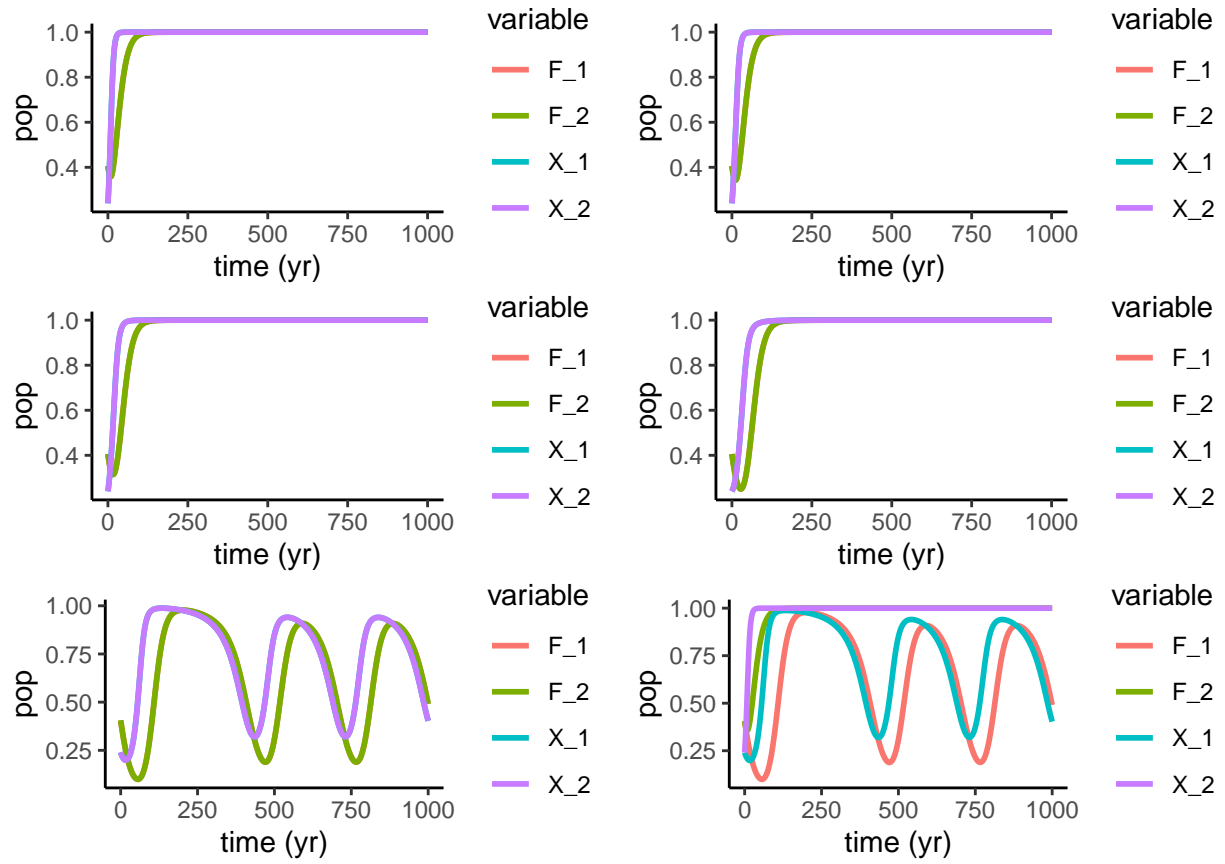


Figure 6: w - conservation costs



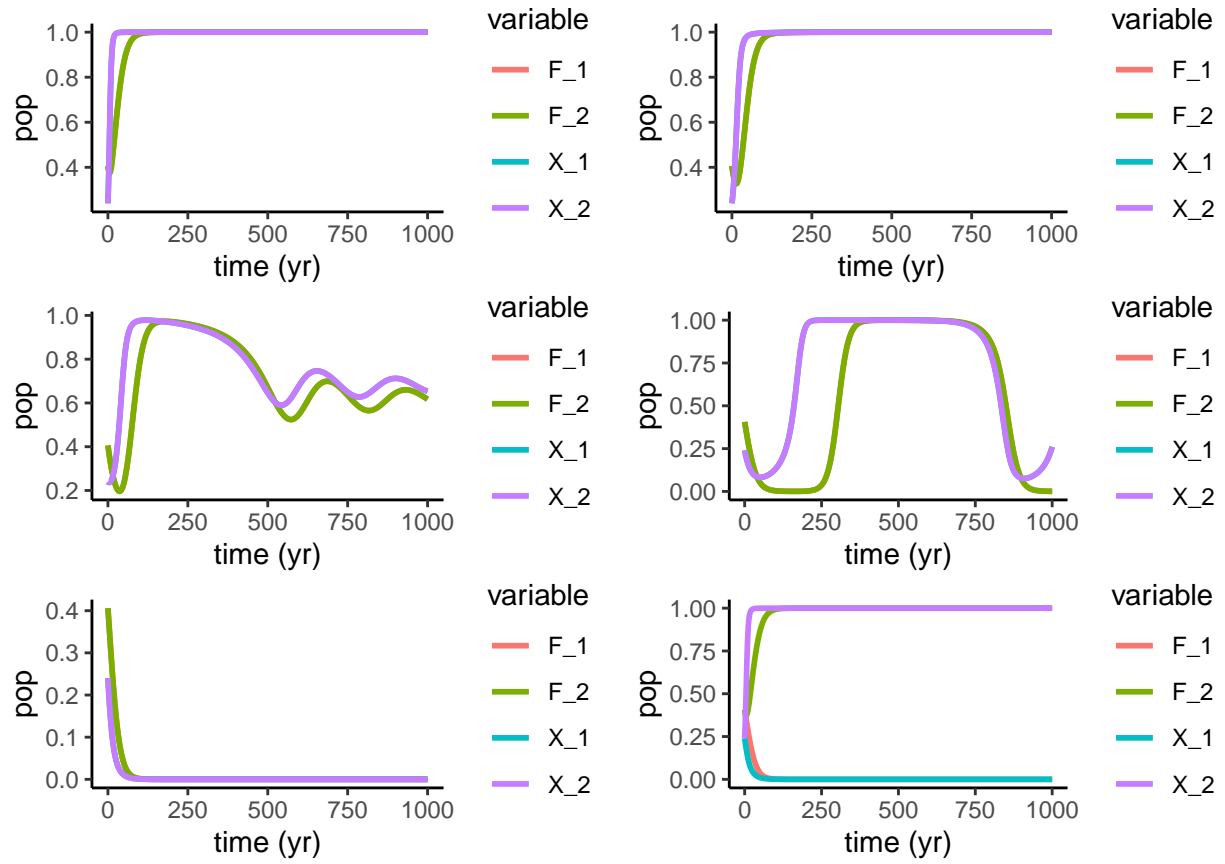


Figure 7: c - rarity valuation param

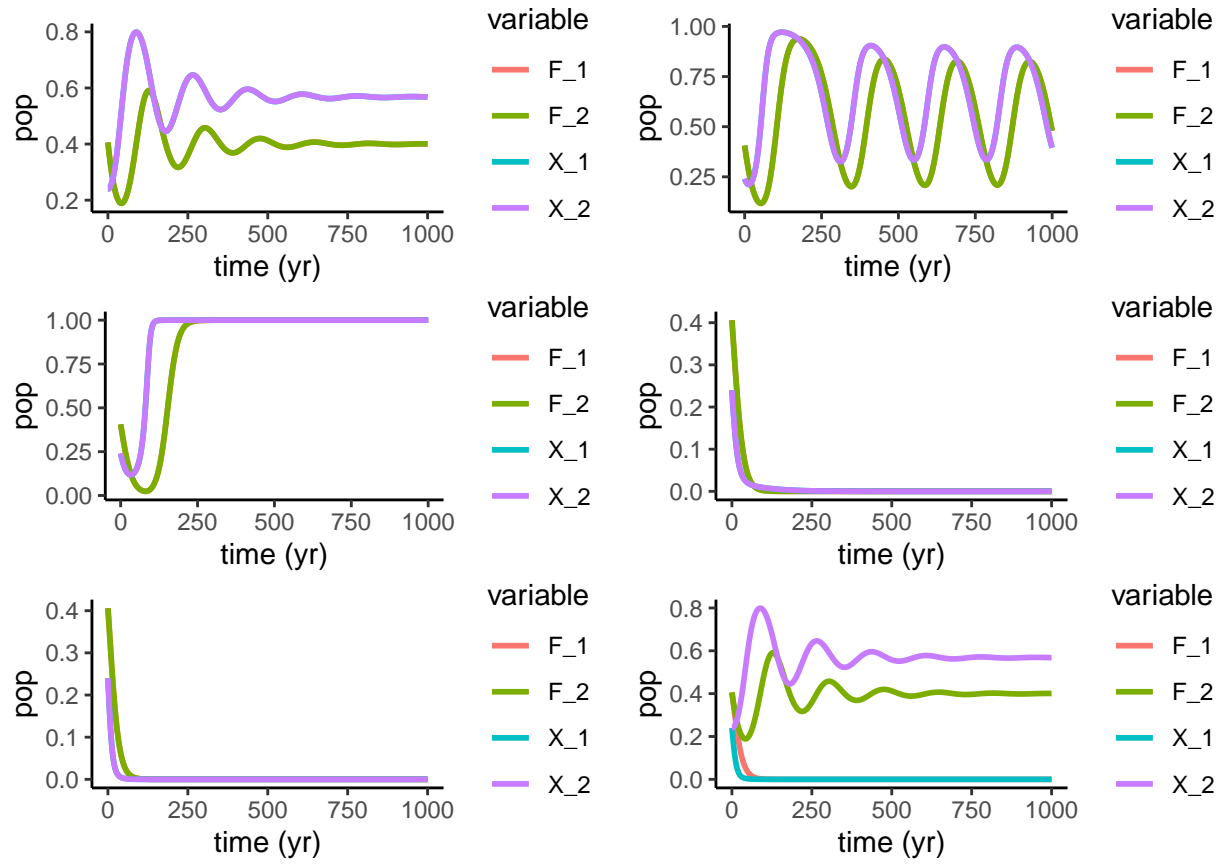


Figure 8: d - social norm strength

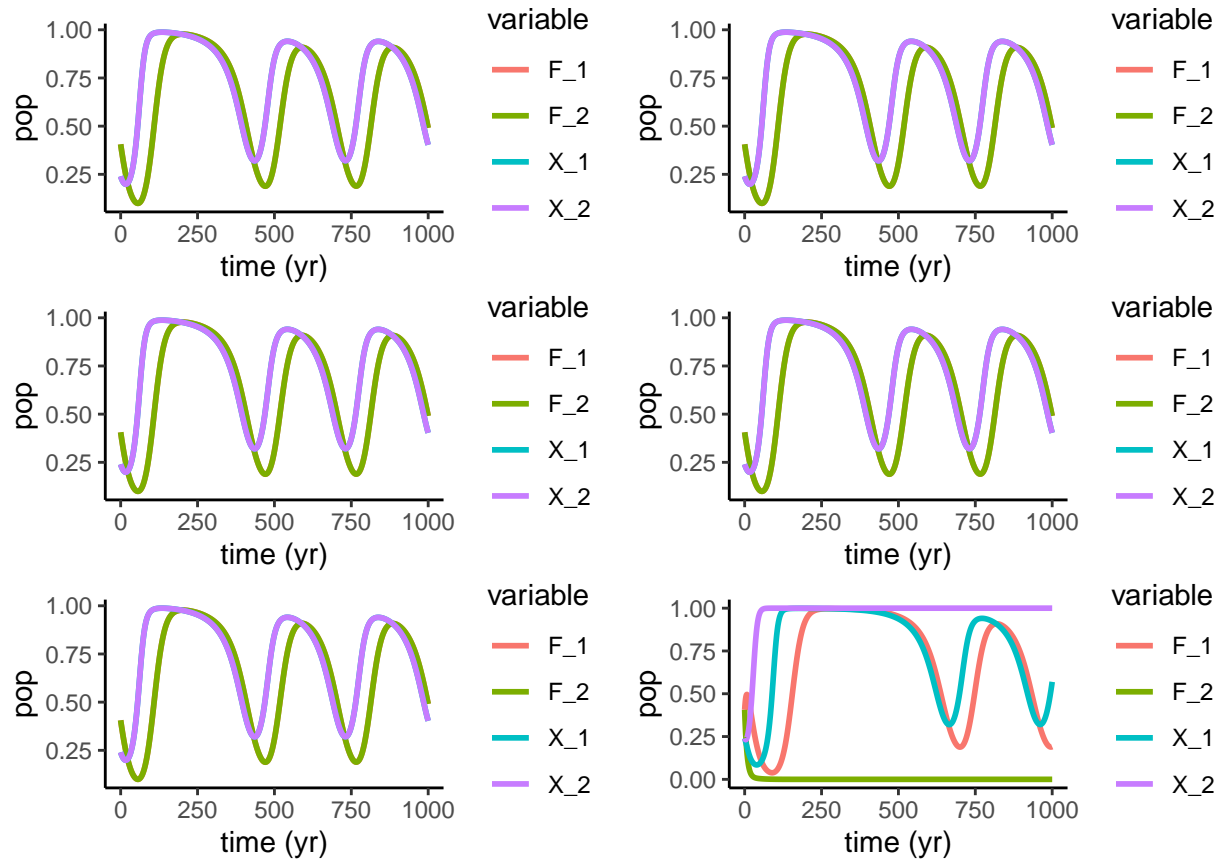


Figure 9: i - fish immigration

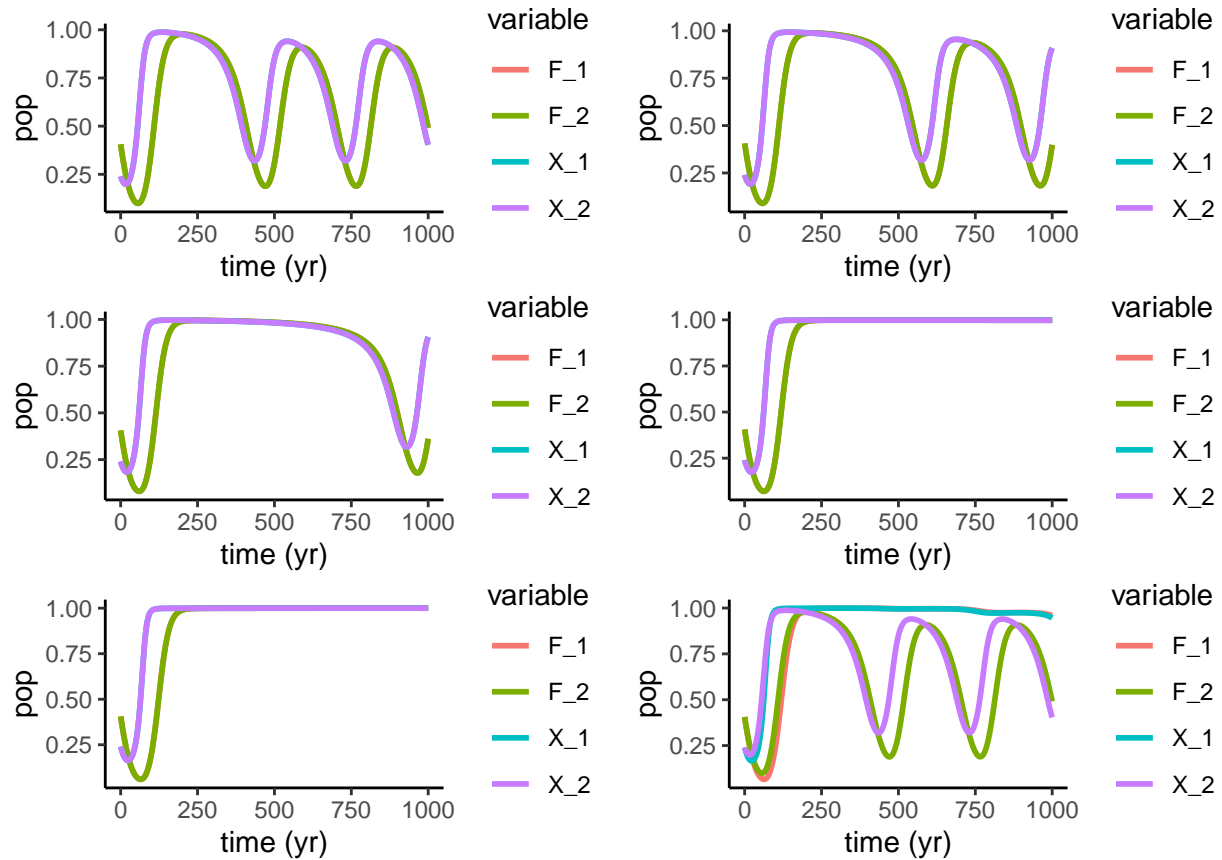


Figure 10: rho - Population influence on the other

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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 = 398.569, R2 = 2.65876e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine, T + H = T on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.65876e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine, T + H = T on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.20235e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine, T + H = T on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.20235e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine, T + H = T on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.20235e-14
```

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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 = 398.569, R2 = 1.76055e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.76055e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.45833e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.45833e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.45833e-14
##
## 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 = 398.569
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 304.097, R2 = 2.79154e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 304.097, R2 = 2.79154e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 304.097, R2 = 2.79154e-14
##
## DLSODA- Warning..Internal T (=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 = 304.097, R2 = 2.28456e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 304.097, R2 = 2.28456e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 304.097, R2 = 2.28456e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 304.097, R2 = 1.86964e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 304.097, R2 = 1.86964e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 304.097, R2 = 1.86964e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 304.097, R2 = 1.53009e-14
##
## 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 = 304.097
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 420.851, R2 = 2.70364e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 420.851, R2 = 2.70364e-14
##
## 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 = 420.851, R2 = 2.70364e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 420.851, R2 = 2.70364e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 420.851, R2 = 2.22449e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 420.851, R2 = 2.22449e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 420.851, R2 = 2.22449e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 420.851, R2 = 2.22449e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 420.851, R2 = 1.83025e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 420.851, R2 = 1.83025e-14
##
## 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 = 420.851
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 293.152, R2 = 2.75881e-14
##
## 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 = 293.152, R2 = 2.75881e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 293.152, R2 = 2.75881e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 293.152, R2 = 2.25777e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 293.152, R2 = 2.25777e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 293.152, R2 = 2.25777e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 293.152, R2 = 1.84772e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 293.152, R2 = 1.84772e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 293.152, R2 = 1.84772e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 293.152, R2 = 1.51215e-14
##
## 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 = 293.152
##

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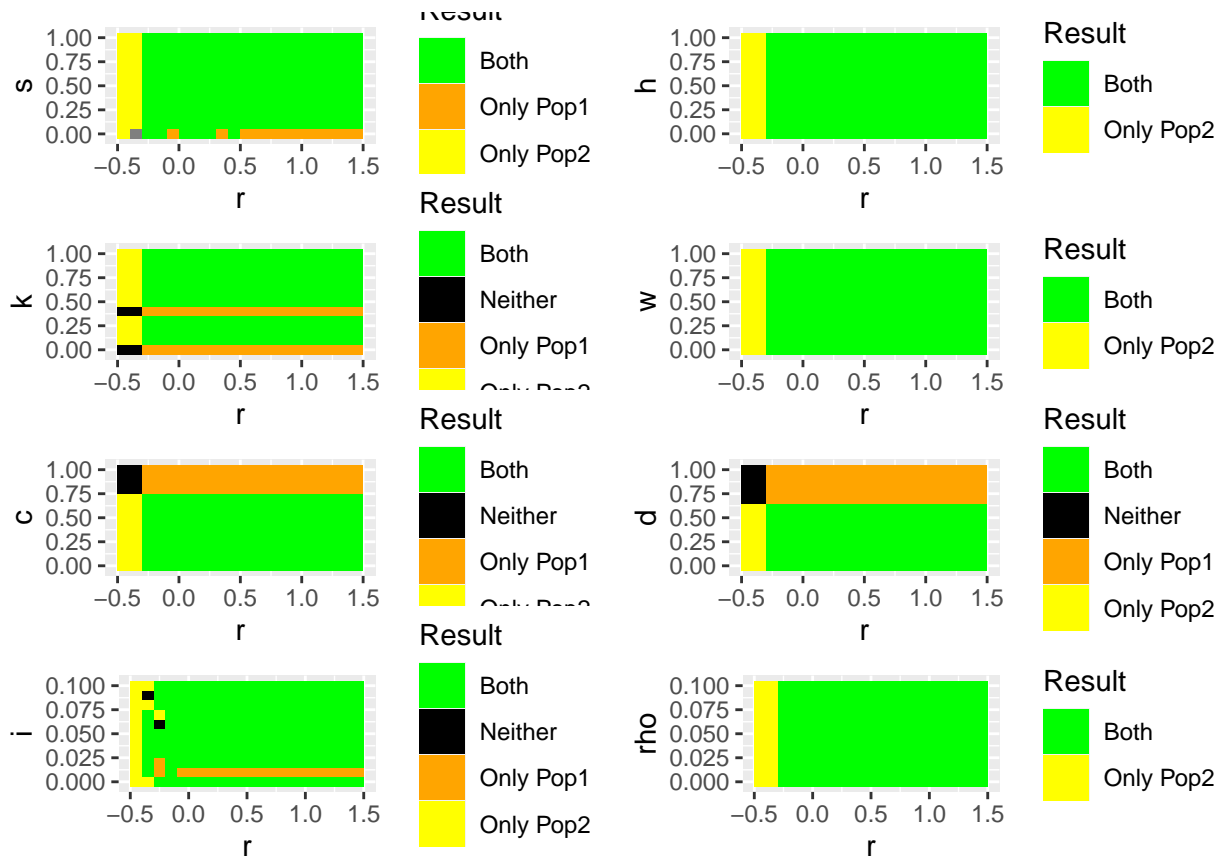


Figure 11: R parameter planes

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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 = 398.569, R2 = 2.65876e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.65876e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.20235e-14
##
## DLSODA- Warning..Internal T (=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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##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.76055e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.76055e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.45833e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.45833e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.45833e-14
##
## 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 = 398.569
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 304.097, R2 = 2.79154e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 304.097, R2 = 2.79154e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 304.097, R2 = 2.79154e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 304.097, R2 = 2.28456e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 304.097, R2 = 2.28456e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 304.097, R2 = 2.28456e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 304.097, R2 = 1.86964e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 304.097, R2 = 1.86964e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 304.097, R2 = 1.86964e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
```

```
## In above message, R1 = 304.097, R2 = 1.53009e-14
##
## 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 = 304.097
##
## 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 = 420.851, R2 = 2.70364e-14
##
## 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 = 420.851, R2 = 2.70364e-14
##
## 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 = 420.851, R2 = 2.70364e-14
##
## 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 = 420.851, R2 = 2.22449e-14
##
## 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 = 420.851, R2 = 2.22449e-14
##
## 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 = 420.851, R2 = 2.22449e-14
##
## 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 = 420.851, R2 = 2.22449e-14
##
## 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 = 420.851, R2 = 1.83025e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 420.851, R2 = 1.83025e-14
##
## 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 = 420.851
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 293.152, R2 = 2.75881e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 293.152, R2 = 2.75881e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 293.152, R2 = 2.75881e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 293.152, R2 = 2.25777e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 293.152, R2 = 2.25777e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 293.152, R2 = 2.25777e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 293.152, R2 = 1.84772e-14
##
## 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 = 293.152, R2 = 1.84772e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 293.152, R2 = 1.84772e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 293.152, R2 = 1.51215e-14
##
## 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 = 293.152
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55475e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55475e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69169e-14
##

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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 = 403.152, R2 = 1.69169e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## 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 = 403.152
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 303.272, R2 = 2.7194e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 303.272, R2 = 2.7194e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 303.272, R2 = 2.25258e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 303.272, R2 = 2.25258e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 303.272, R2 = 2.25258e-14

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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 = 303.272, R2 = 1.80071e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 303.272, R2 = 1.80071e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 303.272, R2 = 1.4916e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 303.272, R2 = 1.4916e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 303.272, R2 = 1.4916e-14
##
## 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 = 303.272
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 376.745, R2 = 2.54564e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 376.745, R2 = 2.54564e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 376.745, R2 = 2.10865e-14
##
## DLSODA- Warning..Internal T (=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 = 376.745, R2 = 2.10865e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 376.745, R2 = 2.10865e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 376.745, R2 = 1.68565e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 376.745, R2 = 1.68565e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 376.745, R2 = 1.39629e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 376.745, R2 = 1.39629e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 376.745, R2 = 1.39629e-14
##
## 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 = 376.745
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 286.892, R2 = 2.55899e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 286.892, R2 = 2.55899e-14
##
## 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 = 286.892, R2 = 2.11971e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 286.892, R2 = 2.11971e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 286.892, R2 = 2.11971e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 286.892, R2 = 1.69449e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 286.892, R2 = 1.69449e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 286.892, R2 = 1.40361e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 286.892, R2 = 1.40361e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 286.892, R2 = 1.40361e-14
##
## 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 = 286.892
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 291.842, R2 = 2.62429e-14
##
## 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 = 291.842, R2 = 2.62429e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 291.842, R2 = 2.1738e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 291.842, R2 = 2.1738e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 291.842, R2 = 2.1738e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 291.842, R2 = 1.73774e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 291.842, R2 = 1.73774e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 291.842, R2 = 1.43943e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 291.842, R2 = 1.43943e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 291.842, R2 = 1.43943e-14
##
## 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 = 291.842
##

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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 = 398.568, R2 = 2.65865e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 2.65865e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 2.20226e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 2.20226e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 2.20226e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 1.76049e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 1.76049e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 1.45828e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 1.45828e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 1.45828e-14
##
## 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 = 398.568
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.65874e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.65874e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.20233e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.20233e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.76054e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.76054e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.45832e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.45832e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
```

```

## In above message, R1 = 398.569, R2 = 1.45832e-14
##
## 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 = 398.569
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.7426e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.7426e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.2718e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.2718e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.2718e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.81607e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.81607e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.50432e-14
##
## 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 = 402.904, R2 = 1.50432e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.50432e-14
##
## 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 = 402.904
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 409.555, R2 = 2.54445e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 409.555, R2 = 2.54445e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 409.555, R2 = 2.10659e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 409.555, R2 = 2.10659e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 409.555, R2 = 1.74408e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 409.555, R2 = 1.74408e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 409.555, R2 = 1.44395e-14
##
## 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 = 409.555, R2 = 1.44395e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 409.555, R2 = 1.19547e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 409.555, R2 = 1.19547e-14
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 439.295, R2 = 2.604e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 439.295, R2 = 2.604e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 439.295, R2 = 2.15699e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 439.295, R2 = 2.15699e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 439.295, R2 = 2.15699e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 439.295, R2 = 1.7243e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 439.295, R2 = 1.7243e-14
##
## 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 = 439.295, R2 = 1.4283e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 439.295, R2 = 1.4283e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 439.295, R2 = 1.4283e-14
##
## 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 = 439.295
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.682, R2 = 2.60447e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.682, R2 = 2.60447e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.682, R2 = 2.15738e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.682, R2 = 2.15738e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.682, R2 = 2.15738e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.682, R2 = 1.72461e-14
##

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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 = 404.682, R2 = 1.72461e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.682, R2 = 1.42856e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.682, R2 = 1.42856e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.682, R2 = 1.42856e-14
##
## 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 = 404.682
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 473.169, R2 = 2.75126e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 473.169, R2 = 2.75126e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 473.169, R2 = 2.75126e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 473.169, R2 = 2.25159e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 473.169, R2 = 2.25159e-14

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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 = 473.169, R2 = 2.25159e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 473.169, R2 = 1.84267e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 473.169, R2 = 1.84267e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 473.169, R2 = 1.84267e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 473.169, R2 = 1.50801e-14
##
## 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 = 473.169
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 430.227, R2 = 2.59087e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 430.227, R2 = 2.59087e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 430.227, R2 = 2.14612e-14
##
## DLSODA- Warning..Internal T (=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 = 430.227, R2 = 2.14612e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 430.227, R2 = 2.14612e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 430.227, R2 = 1.7156e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 430.227, R2 = 1.7156e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 430.227, R2 = 1.4211e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 430.227, R2 = 1.4211e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 430.227, R2 = 1.4211e-14
##
## 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 = 430.227
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 440.237, R2 = 2.71628e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 440.237, R2 = 2.71628e-14
##
## 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 = 440.237, R2 = 2.24999e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 440.237, R2 = 2.24999e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 440.237, R2 = 2.24999e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 440.237, R2 = 1.79864e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 440.237, R2 = 1.79864e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 440.237, R2 = 1.48988e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 440.237, R2 = 1.48988e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 440.237, R2 = 1.48988e-14
##
## 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 = 440.237
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 455.314, R2 = 2.72193e-14
##
## 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 = 455.314, R2 = 2.72193e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 455.314, R2 = 2.25468e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 455.314, R2 = 2.25468e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 455.314, R2 = 2.25468e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 455.314, R2 = 1.80239e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 455.314, R2 = 1.80239e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 455.314, R2 = 1.49299e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 455.314, R2 = 1.49299e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 455.314, R2 = 1.49299e-14
##
## 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 = 455.314
##

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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 = 276.175, R2 = 2.76765e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 276.175, R2 = 2.76765e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 276.175, R2 = 2.29255e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 276.175, R2 = 2.29255e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 276.175, R2 = 2.29255e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 276.175, R2 = 1.83266e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 276.175, R2 = 1.83266e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 276.175, R2 = 1.51807e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 276.175, R2 = 1.51807e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 276.175, R2 = 1.51807e-14
##
## 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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## In above message, R1 = 381.652, R2 = 1.46675e-14
##
## 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 = 381.652
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 404.327, R2 = 2.58426e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 404.327, R2 = 2.58426e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 404.327, R2 = 2.14064e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 404.327, R2 = 2.14064e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 404.327, R2 = 2.14064e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 404.327, R2 = 1.71122e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 404.327, R2 = 1.71122e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 404.327, R2 = 1.41747e-14
##
## 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 = 404.327, R2 = 1.41747e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.327, R2 = 1.41747e-14
##
## 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 = 404.327
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55475e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55475e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69169e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69169e-14
##
## 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 = 403.152, R2 = 1.40129e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## 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 = 403.152
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.681, R2 = 2.708e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.681, R2 = 2.708e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.681, R2 = 2.24314e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.681, R2 = 2.24314e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.681, R2 = 2.24314e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.681, R2 = 1.79316e-14
##

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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 = 465.681, R2 = 1.79316e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.681, R2 = 1.48535e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.681, R2 = 1.48535e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.681, R2 = 1.48535e-14
##
## 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 = 465.681
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 306.428, R2 = 2.56016e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 306.428, R2 = 2.56016e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 306.428, R2 = 2.12068e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 306.428, R2 = 2.12068e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 306.428, R2 = 2.12068e-14

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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 = 306.428, R2 = 1.69527e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 306.428, R2 = 1.69527e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 306.428, R2 = 1.40425e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 306.428, R2 = 1.40425e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 306.428, R2 = 1.40425e-14
##
## 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 = 306.428
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55475e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55475e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=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 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69169e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69169e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## 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 = 403.152
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.65873e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.65873e-14
##
## 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 = 398.569, R2 = 2.20233e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.20233e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.20233e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.76054e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.76054e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.45832e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.45832e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.45832e-14
##
## 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 = 398.569
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.55, R2 = 2.65419e-14
##
## 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 = 398.55, R2 = 2.65419e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.55, R2 = 2.19856e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.55, R2 = 2.19856e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.55, R2 = 2.19856e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.55, R2 = 1.75753e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.55, R2 = 1.75753e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.55, R2 = 1.45583e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.55, R2 = 1.45583e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.55, R2 = 1.45583e-14
##
## 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 = 398.55
##

```



```

## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.71267e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.71267e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.247e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.247e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.247e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.79625e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.79625e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.4879e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.4879e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.4879e-14
##
## 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 = 398.784
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.71267e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.71267e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.247e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.247e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.247e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.79625e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.79625e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.4879e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.4879e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.

```

```

## In above message, R1 = 398.784, R2 = 1.4879e-14
##
## 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 = 398.784
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.65875e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.65875e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.20234e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.20234e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.20234e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.76055e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.76055e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.45833e-14
##
## 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 = 398.569, R2 = 1.45833e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.45833e-14
##
## 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 = 398.569
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55475e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55475e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69169e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69169e-14
##
## 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 = 403.152, R2 = 1.40129e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## 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 = 403.152
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.782, R2 = 2.71214e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.782, R2 = 2.71214e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.782, R2 = 2.24657e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.782, R2 = 2.24657e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.782, R2 = 2.24657e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.782, R2 = 1.7959e-14
##

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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 = 398.782, R2 = 1.7959e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.782, R2 = 1.48761e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.782, R2 = 1.48761e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.782, R2 = 1.48761e-14
##
## 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 = 398.782
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.71267e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.71267e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.24701e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.24701e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.24701e-14

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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 = 398.784, R2 = 1.79625e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.79625e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.48791e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.48791e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.48791e-14
##
## 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 = 398.784
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 2.65873e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 2.65873e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 2.20232e-14
##
## DLSODA- Warning..Internal T (=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 = 398.568, R2 = 2.20232e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 2.20232e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 1.76054e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 1.76054e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 1.45832e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 1.45832e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 1.45832e-14
##
## 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 = 398.568
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 435.751, R2 = 2.67287e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 435.751, R2 = 2.67287e-14
##
## 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 = 435.751, R2 = 2.21404e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 435.751, R2 = 2.21404e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 435.751, R2 = 2.21404e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 435.751, R2 = 1.7699e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 435.751, R2 = 1.7699e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 435.751, R2 = 1.46607e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 435.751, R2 = 1.46607e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 435.751, R2 = 1.46607e-14
##
## 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 = 435.751
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 355.187, R2 = 2.60595e-14
##
## 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 = 355.187, R2 = 2.60595e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 355.187, R2 = 2.1586e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 355.187, R2 = 2.1586e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 355.187, R2 = 2.1586e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 355.187, R2 = 1.72559e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 355.187, R2 = 1.72559e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 355.187, R2 = 1.42937e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 355.187, R2 = 1.42937e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 355.187, R2 = 1.42937e-14
##
## 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 = 355.187
##

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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 = 403.152, R2 = 2.55475e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55475e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69169e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69169e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## 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 = 403.152
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 614.224, R2 = 5.58141e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 614.224, R2 = 3.69207e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 614.224, R2 = 2.43466e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 614.224, R2 = 1.60082e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 614.224, R2 = 1.04957e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 614.224, R2 = 6.85447e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 614.224, R2 = 8.91396e-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 = 614.224, R2 = 8.91396e-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 = 614.224, R2 = 1.78279e-15
##
## DLSODA- Warning..Internal T (=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 = 614.224, R2 = 1.78279e-15
##
## DLSODA- Above warning has been issued I1 times.
## It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55475e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55475e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69169e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69169e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## DLSODA- Warning..Internal T (=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 = 403.152, R2 = 1.40129e-14
##
## 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 = 403.152
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55471e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55471e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.11617e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.11617e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.11617e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69166e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69166e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40127e-14
##
## 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 = 403.152, R2 = 1.40127e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40127e-14
##
## 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 = 403.152
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55473e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55473e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.11618e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.11618e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.11618e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69167e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69167e-14
##
## 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 = 403.152, R2 = 1.40128e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40128e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40128e-14
##
## 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 = 403.152
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55471e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55471e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.11616e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.11616e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.11616e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69166e-14
##

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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 = 403.152, R2 = 1.69166e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40127e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40127e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40127e-14
##
## 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 = 403.152
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55471e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55471e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.11616e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.11616e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.11616e-14

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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 = 403.152, R2 = 1.69166e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69166e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40126e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40126e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40126e-14
##
## 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 = 403.152
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.74256e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.74256e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.27177e-14
##
## DLSODA- Warning..Internal T (=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 = 402.904, R2 = 2.27177e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.27177e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.81605e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.81605e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.5043e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.5043e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.5043e-14
##
## 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 = 402.904
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.74255e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.74255e-14
##
## 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 = 402.904, R2 = 2.27176e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.27176e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.27176e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.81604e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.81604e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.5043e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.5043e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.5043e-14
##
## 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 = 402.904
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.74255e-14
##
## 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 = 402.904, R2 = 2.74255e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.27176e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.27176e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.27176e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.81604e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.81604e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.5043e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.5043e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.5043e-14
##
## 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 = 402.904
##

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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 = 403.24, R2 = 2.57661e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.24, R2 = 2.57661e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.24, R2 = 2.1343e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.24, R2 = 2.1343e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.24, R2 = 2.1343e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.24, R2 = 1.70616e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.24, R2 = 1.70616e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.24, R2 = 1.41328e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.24, R2 = 1.41328e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.24, R2 = 1.41328e-14
##
## 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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## In above message, R1 = 403.115, R2 = 1.39945e-14
##
## 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 = 403.115
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 404.097, R2 = 2.57544e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 404.097, R2 = 2.57544e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 404.097, R2 = 2.13334e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 404.097, R2 = 2.13334e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 404.097, R2 = 2.13334e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 404.097, R2 = 1.70539e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 404.097, R2 = 1.70539e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 404.097, R2 = 1.41264e-14
##
## 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 = 404.097, R2 = 1.41264e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine, T + H = T on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.097, R2 = 1.41264e-14
##
## 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 = 404.097
##

```

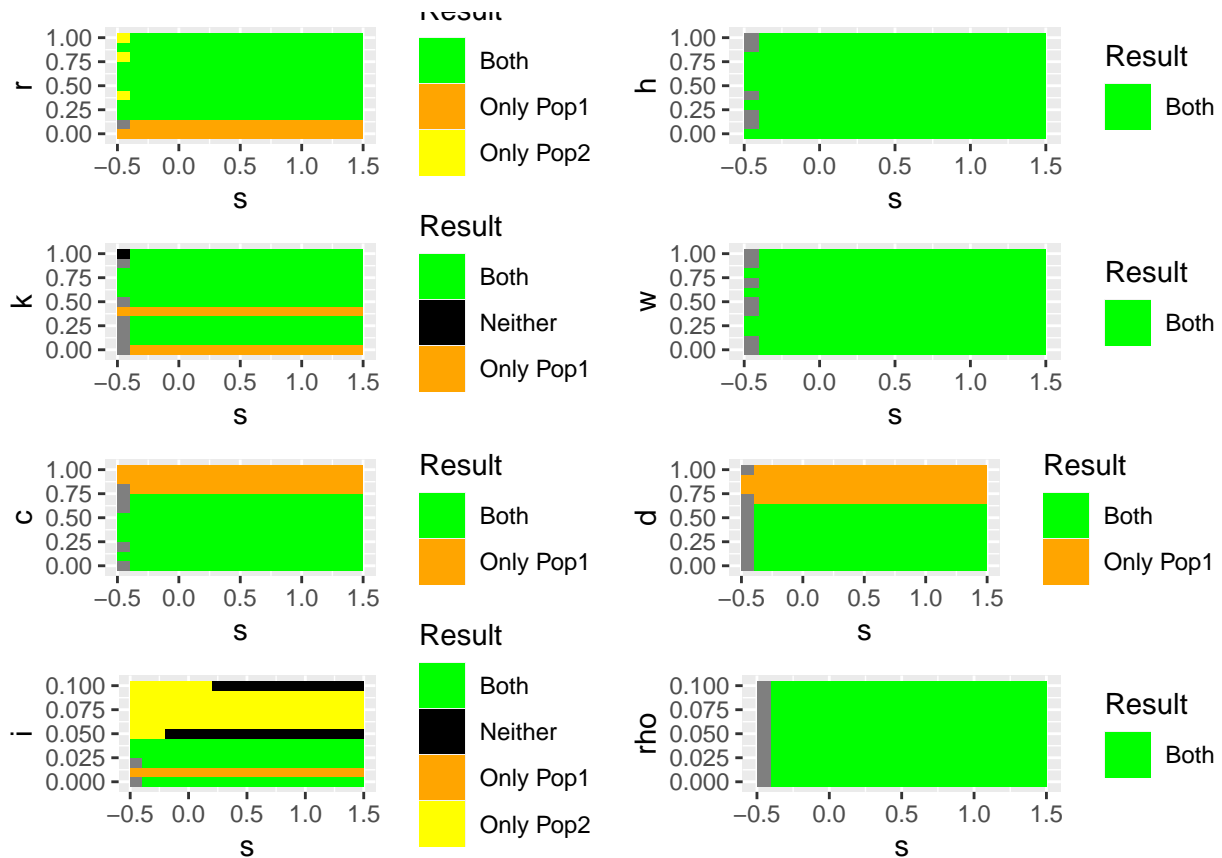


Figure 12: S parameter planes

```

## 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 = 403.152, R2 = 2.55475e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55475e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69169e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69169e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## 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 = 403.152
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 303.272, R2 = 2.7194e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 303.272, R2 = 2.7194e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 303.272, R2 = 2.25258e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 303.272, R2 = 2.25258e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 303.272, R2 = 2.25258e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 303.272, R2 = 1.80071e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 303.272, R2 = 1.80071e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 303.272, R2 = 1.4916e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 303.272, R2 = 1.4916e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.

```

```

## In above message, R1 = 303.272, R2 = 1.4916e-14
##
## 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 = 303.272
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 376.745, R2 = 2.54564e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 376.745, R2 = 2.54564e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 376.745, R2 = 2.10865e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 376.745, R2 = 2.10865e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 376.745, R2 = 2.10865e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 376.745, R2 = 1.68565e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 376.745, R2 = 1.68565e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 376.745, R2 = 1.39629e-14
##
## 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 = 376.745, R2 = 1.39629e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 376.745, R2 = 1.39629e-14
##
## 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 = 376.745
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 286.892, R2 = 2.55899e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 286.892, R2 = 2.55899e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 286.892, R2 = 2.11971e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 286.892, R2 = 2.11971e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 286.892, R2 = 2.11971e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 286.892, R2 = 1.69449e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 286.892, R2 = 1.69449e-14
##
## 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 = 286.892, R2 = 1.40361e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 286.892, R2 = 1.40361e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 286.892, R2 = 1.40361e-14
##
## 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 = 286.892
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 291.842, R2 = 2.62429e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 291.842, R2 = 2.62429e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 291.842, R2 = 2.1738e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 291.842, R2 = 2.1738e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 291.842, R2 = 2.1738e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 291.842, R2 = 1.73774e-14
##

```

```

## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 291.842, R2 = 1.73774e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 291.842, R2 = 1.43943e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 291.842, R2 = 1.43943e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 291.842, R2 = 1.43943e-14
##
## 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 = 291.842
##

```

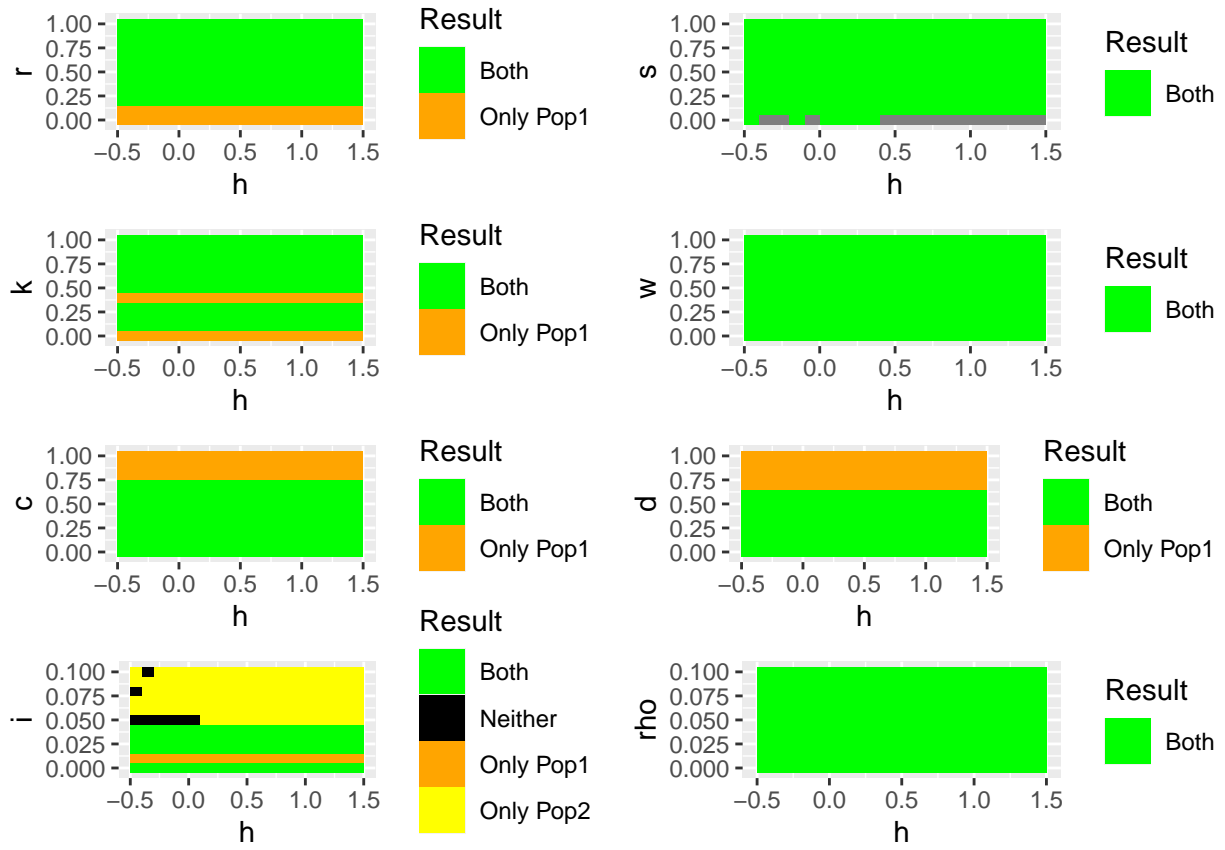


Figure 13:  $h$  parameter planes



```

## 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 = 398.568, R2 = 2.65865e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 2.65865e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 2.20226e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 2.20226e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 2.20226e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 1.76049e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 1.76049e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 1.45828e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 1.45828e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 1.45828e-14
##
## 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 = 398.568
##
## 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 = 398.569, R2 = 2.65874e-14
##
## 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 = 398.569, R2 = 2.65874e-14
##
## 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 = 398.569, R2 = 2.20233e-14
##
## 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 = 398.569, R2 = 2.20233e-14
##
## 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 = 398.569, R2 = 1.76054e-14
##
## 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 = 398.569, R2 = 1.76054e-14
##
## 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 = 398.569, R2 = 1.45832e-14
##
## 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 = 398.569, R2 = 1.45832e-14
##
## 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 = 398.569, R2 = 1.45832e-14
##
## 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 = 398.569
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.7426e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.7426e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.2718e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.2718e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.2718e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.81607e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.81607e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.50432e-14
##
## 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 = 402.904, R2 = 1.50432e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.50432e-14
##
## 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 = 402.904
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 409.555, R2 = 2.54445e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 409.555, R2 = 2.54445e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 409.555, R2 = 2.10659e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 409.555, R2 = 2.10659e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 409.555, R2 = 1.74408e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 409.555, R2 = 1.74408e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 409.555, R2 = 1.44395e-14
##
## 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 = 409.555, R2 = 1.44395e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 409.555, R2 = 1.19547e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 409.555, R2 = 1.19547e-14
##
## DLSODA- Above warning has been issued I1 times.
##      It will not be issued again for this problem.
## In above message, I1 = 10
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 439.295, R2 = 2.604e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 439.295, R2 = 2.604e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 439.295, R2 = 2.15699e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 439.295, R2 = 2.15699e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 439.295, R2 = 2.15699e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 439.295, R2 = 1.7243e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 439.295, R2 = 1.7243e-14
##
## 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 = 439.295, R2 = 1.4283e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 439.295, R2 = 1.4283e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 439.295, R2 = 1.4283e-14
##
## 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 = 439.295
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.682, R2 = 2.60447e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.682, R2 = 2.60447e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.682, R2 = 2.15738e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.682, R2 = 2.15738e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.682, R2 = 2.15738e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.682, R2 = 1.72461e-14
##

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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 = 404.682, R2 = 1.72461e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.682, R2 = 1.42856e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.682, R2 = 1.42856e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.682, R2 = 1.42856e-14
##
## 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 = 404.682
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 473.169, R2 = 2.75126e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 473.169, R2 = 2.75126e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 473.169, R2 = 2.75126e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 473.169, R2 = 2.25159e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 473.169, R2 = 2.25159e-14

```

```

##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 473.169, R2 = 2.25159e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 473.169, R2 = 1.84267e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 473.169, R2 = 1.84267e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 473.169, R2 = 1.84267e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 473.169, R2 = 1.50801e-14
##
## 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 = 473.169
##

```



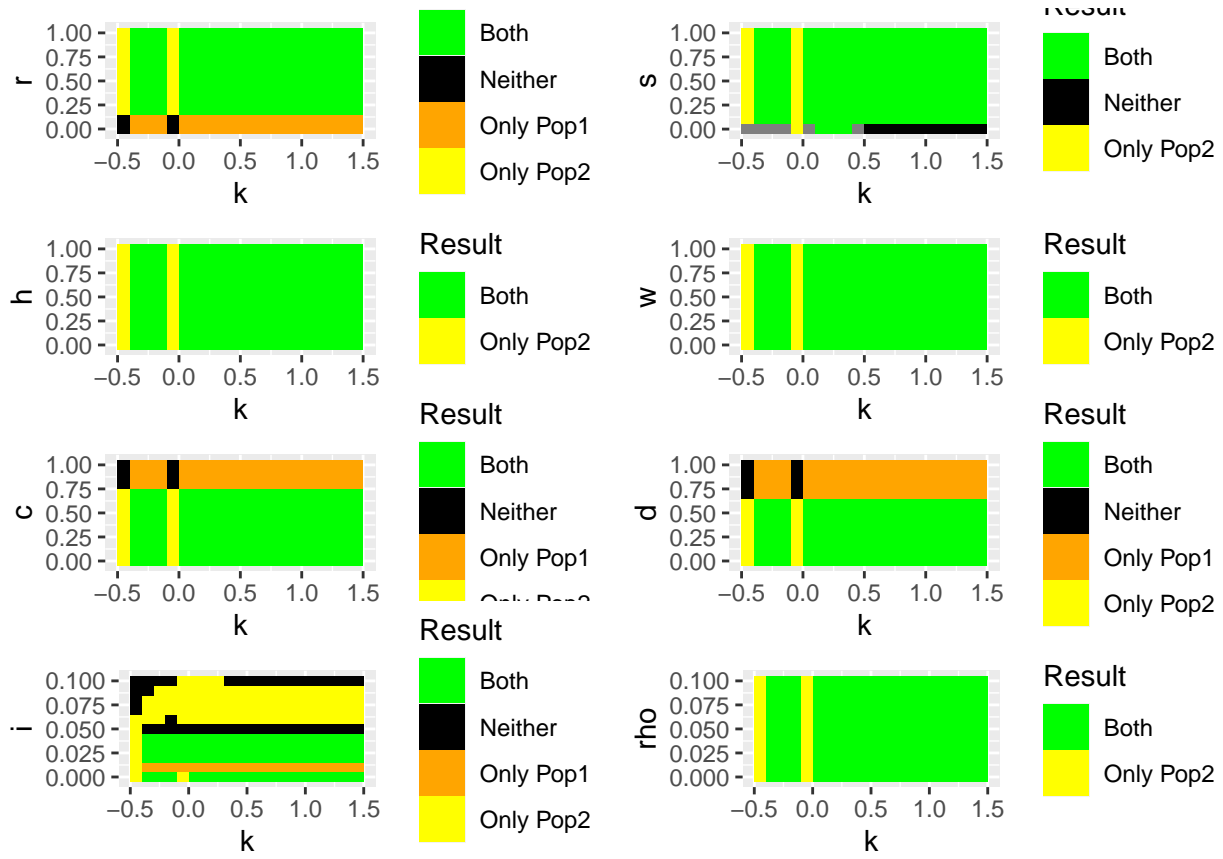


Figure 14: K parameter planes ranging from 0-1

```

## 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 = 430.227, R2 = 2.59087e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 430.227, R2 = 2.59087e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 430.227, R2 = 2.14612e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 430.227, R2 = 2.14612e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 430.227, R2 = 2.14612e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 430.227, R2 = 1.7156e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 430.227, R2 = 1.7156e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 430.227, R2 = 1.4211e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 430.227, R2 = 1.4211e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 430.227, R2 = 1.4211e-14
##
## 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 = 430.227
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 440.237, R2 = 2.71628e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 440.237, R2 = 2.71628e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 440.237, R2 = 2.24999e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 440.237, R2 = 2.24999e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 440.237, R2 = 2.24999e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 440.237, R2 = 1.79864e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 440.237, R2 = 1.79864e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 440.237, R2 = 1.48988e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 440.237, R2 = 1.48988e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
```

```

## In above message, R1 = 440.237, R2 = 1.48988e-14
##
## 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 = 440.237
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 455.314, R2 = 2.72193e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 455.314, R2 = 2.72193e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 455.314, R2 = 2.25468e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 455.314, R2 = 2.25468e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 455.314, R2 = 2.25468e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 455.314, R2 = 1.80239e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 455.314, R2 = 1.80239e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 455.314, R2 = 1.49299e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step

```

```

##      (H = step size). Solver will continue anyway.
## In above message, R1 = 455.314, R2 = 1.49299e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 455.314, R2 = 1.49299e-14
##
## 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 = 455.314
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 276.175, R2 = 2.76765e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 276.175, R2 = 2.76765e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 276.175, R2 = 2.29255e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 276.175, R2 = 2.29255e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 276.175, R2 = 2.29255e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 276.175, R2 = 1.83266e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 276.175, R2 = 1.83266e-14
##
## 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 = 276.175, R2 = 1.51807e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 276.175, R2 = 1.51807e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 276.175, R2 = 1.51807e-14
##
## 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 = 276.175
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 381.652, R2 = 2.6741e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 381.652, R2 = 2.6741e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 381.652, R2 = 2.21506e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 381.652, R2 = 2.21506e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 381.652, R2 = 2.21506e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 381.652, R2 = 1.77072e-14
##

```

```

## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 381.652, R2 = 1.77072e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 381.652, R2 = 1.46675e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 381.652, R2 = 1.46675e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 381.652, R2 = 1.46675e-14
##
## 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 = 381.652
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.327, R2 = 2.58426e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.327, R2 = 2.58426e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.327, R2 = 2.14064e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.327, R2 = 2.14064e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.327, R2 = 2.14064e-14

```

```

##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.327, R2 = 1.71122e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.327, R2 = 1.71122e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.327, R2 = 1.41747e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.327, R2 = 1.41747e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 404.327, R2 = 1.41747e-14
##
## 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 = 404.327
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55475e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55475e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.

```



```

## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69169e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69169e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## 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 = 403.152
##

```

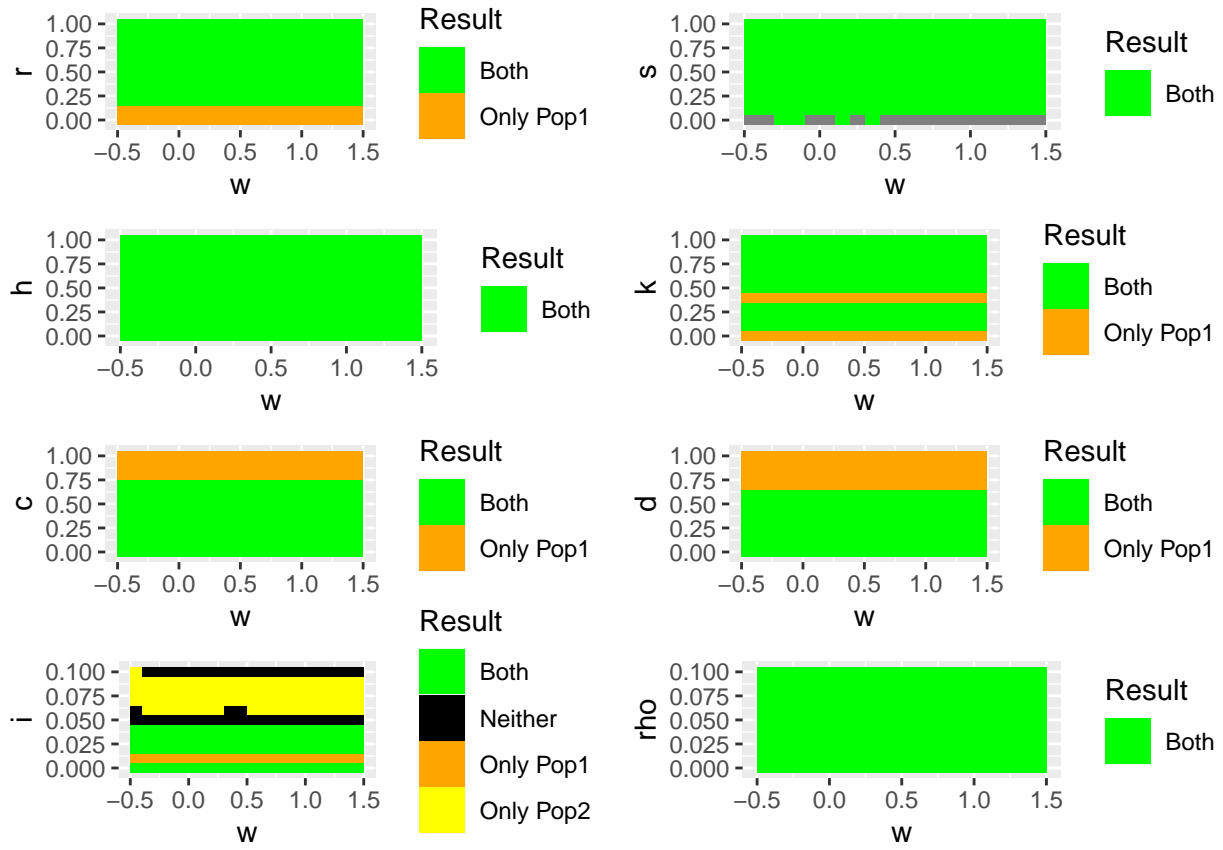


Figure 15:  $w$  parameter planes

```

## 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 = 465.681, R2 = 2.708e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.681, R2 = 2.708e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.681, R2 = 2.24314e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.681, R2 = 2.24314e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.681, R2 = 2.24314e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.681, R2 = 1.79316e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.681, R2 = 1.79316e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.681, R2 = 1.48535e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.681, R2 = 1.48535e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.681, R2 = 1.48535e-14
##
## 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 = 465.681
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 306.428, R2 = 2.56016e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 306.428, R2 = 2.56016e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 306.428, R2 = 2.12068e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 306.428, R2 = 2.12068e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 306.428, R2 = 2.12068e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 306.428, R2 = 1.69527e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 306.428, R2 = 1.69527e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 306.428, R2 = 1.40425e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 306.428, R2 = 1.40425e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.

```

```

## In above message, R1 = 306.428, R2 = 1.40425e-14
##
## 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 = 306.428
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55475e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55475e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69169e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69169e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## 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 = 403.152, R2 = 1.40129e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## 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 = 403.152
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.65873e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.65873e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.20233e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.20233e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.20233e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.20233e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.76054e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.76054e-14
##
## 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 = 398.569, R2 = 1.45832e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.45832e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.45832e-14
##
## 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 = 398.569
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.55, R2 = 2.65419e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.55, R2 = 2.65419e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.55, R2 = 2.19856e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.55, R2 = 2.19856e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.55, R2 = 2.19856e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.55, R2 = 1.75753e-14
##

```

```

## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.55, R2 = 1.75753e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.55, R2 = 1.45583e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.55, R2 = 1.45583e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.55, R2 = 1.45583e-14
##
## 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 = 398.55
##
## DLSODA- At T (=R1) and step size H (=R2), the
##      corrector convergence failed repeatedly
##      or with  $ABS(H) = HMIN$ 
## In above message, R1 = 967.129, R2 = 3.69562e-10
##

```



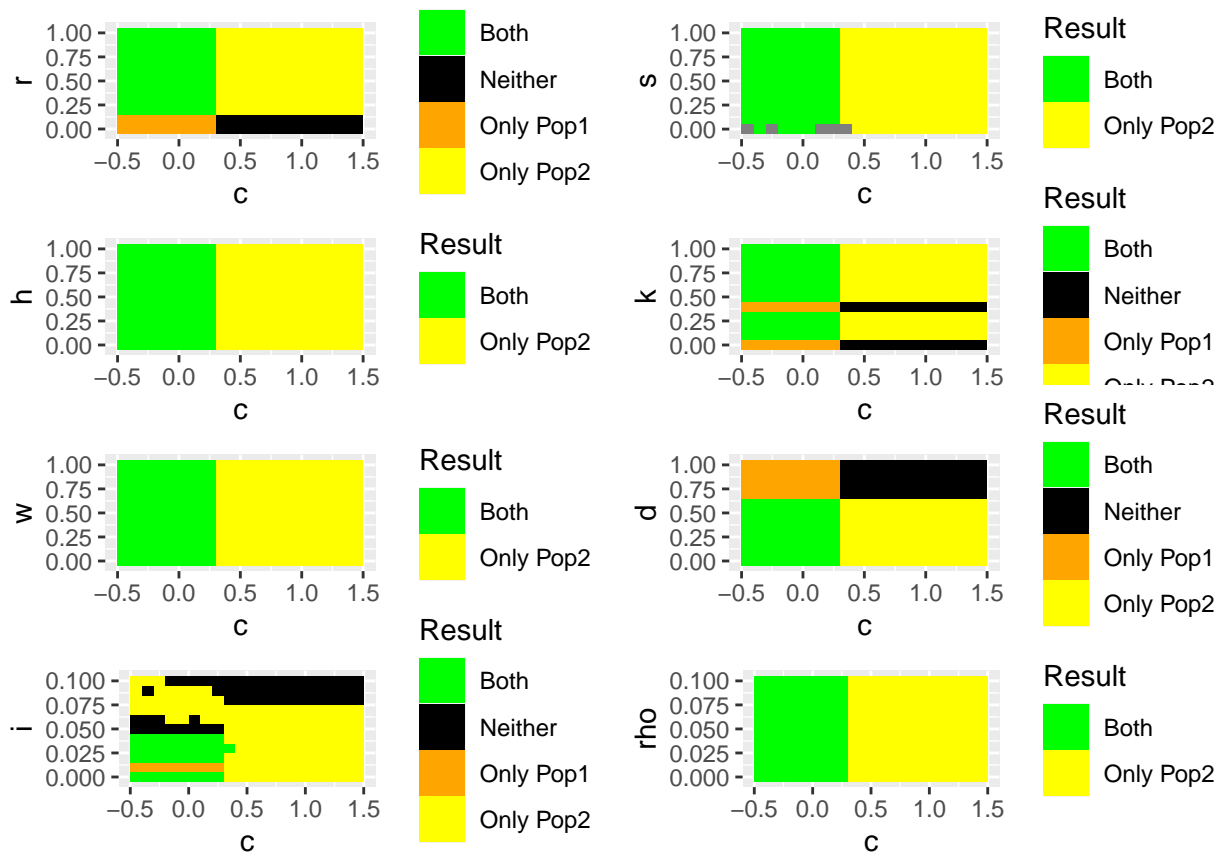


Figure 16: c parameter planes

```

## 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 = 398.784, R2 = 2.71267e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.71267e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.247e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.247e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.247e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.79625e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.79625e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.4879e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.4879e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.4879e-14
##
## 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 = 398.784
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.71267e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.71267e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.247e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.247e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.79625e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.79625e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.4879e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.4879e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
```

```

## In above message, R1 = 398.784, R2 = 1.4879e-14
##
## 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 = 398.784
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.65875e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.65875e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.20234e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.20234e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 2.20234e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.76055e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.76055e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.45833e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step

```

```

##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.45833e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.569, R2 = 1.45833e-14
##
## 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 = 398.569
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55475e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55475e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69169e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69169e-14
##
## 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 = 403.152, R2 = 1.40129e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## 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 = 403.152
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.782, R2 = 2.71214e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.782, R2 = 2.71214e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.782, R2 = 2.24657e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.782, R2 = 2.24657e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.782, R2 = 2.24657e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.782, R2 = 1.7959e-14
##

```

```

## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.782, R2 = 1.7959e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.782, R2 = 1.48761e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.782, R2 = 1.48761e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.782, R2 = 1.48761e-14
##
## 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 = 398.782
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.71267e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.71267e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.24701e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.24701e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.24701e-14

```

```

##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.79625e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.79625e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.48791e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.48791e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.48791e-14
##
## 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 = 398.784
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 2.65873e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 2.65873e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 2.20232e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.

```



```

## In above message, R1 = 398.568, R2 = 2.20232e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 2.20232e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 1.76054e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 1.76054e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 1.45832e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 1.45832e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.568, R2 = 1.45832e-14
##
## 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 = 398.568
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 435.751, R2 = 2.67287e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 435.751, R2 = 2.67287e-14
##
## 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 = 435.751, R2 = 2.21404e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 435.751, R2 = 2.21404e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 435.751, R2 = 2.21404e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 435.751, R2 = 1.7699e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 435.751, R2 = 1.7699e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 435.751, R2 = 1.46607e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 435.751, R2 = 1.46607e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 435.751, R2 = 1.46607e-14
##
## 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 = 435.751
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 355.187, R2 = 2.60595e-14
##
## 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 = 355.187, R2 = 2.60595e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 355.187, R2 = 2.1586e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 355.187, R2 = 2.1586e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 355.187, R2 = 2.1586e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 355.187, R2 = 1.72559e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 355.187, R2 = 1.72559e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 355.187, R2 = 1.42937e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 355.187, R2 = 1.42937e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 355.187, R2 = 1.42937e-14
##
## 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 = 355.187
##

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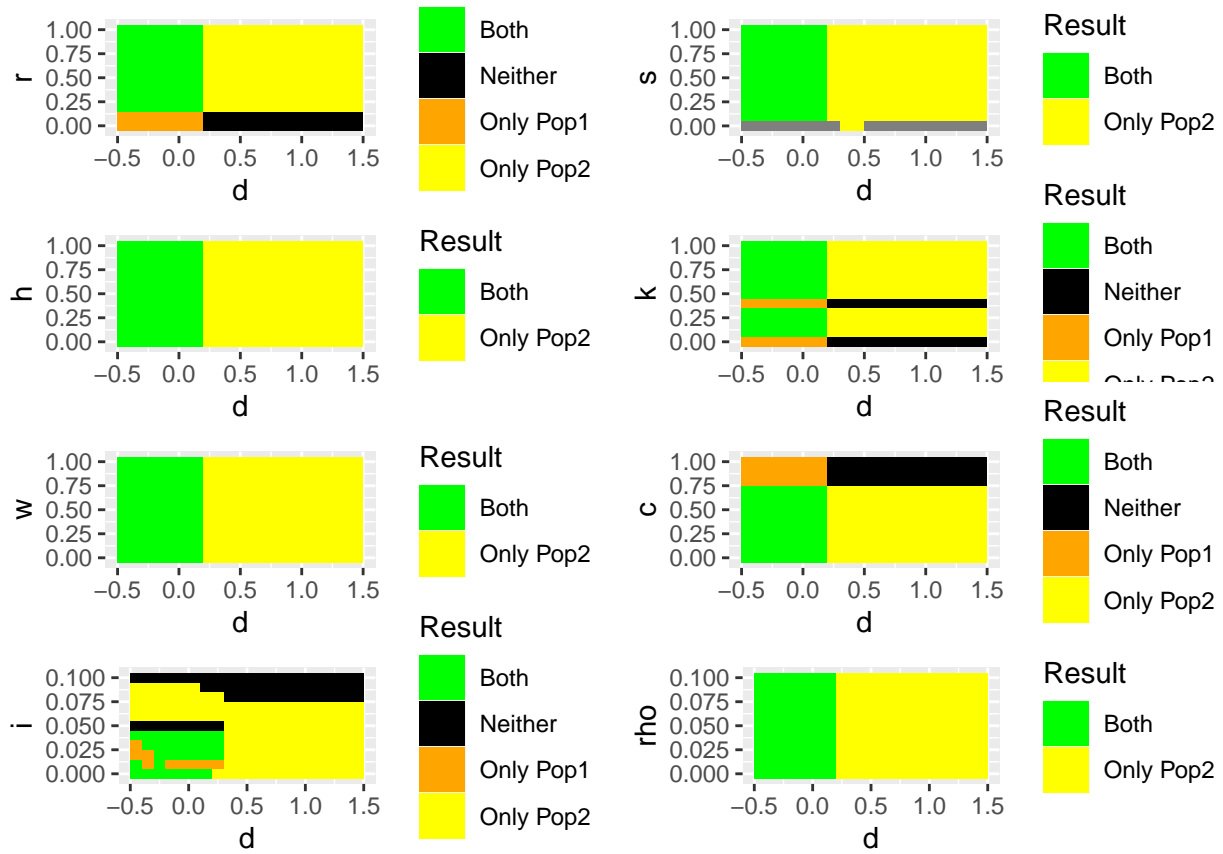


Figure 17: d parameter planes

```

## 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 = 403.152, R2 = 2.55475e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55475e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69169e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69169e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## 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 = 403.152
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 614.224, R2 = 5.58141e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 614.224, R2 = 3.69207e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 614.224, R2 = 2.43466e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 614.224, R2 = 1.60082e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 614.224, R2 = 1.04957e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 614.224, R2 = 6.85447e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 614.224, R2 = 8.91396e-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 = 614.224, R2 = 8.91396e-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 = 614.224, R2 = 1.78279e-15
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.

```

```

## In above message, R1 = 614.224, R2 = 1.78279e-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 T (=R1) and step size H (=R2), the
##      corrector convergence failed repeatedly
##      or with ABS(H) = HMIN
## In above message, R1 = 986.917, R2 = 7.62939e-10
##

```

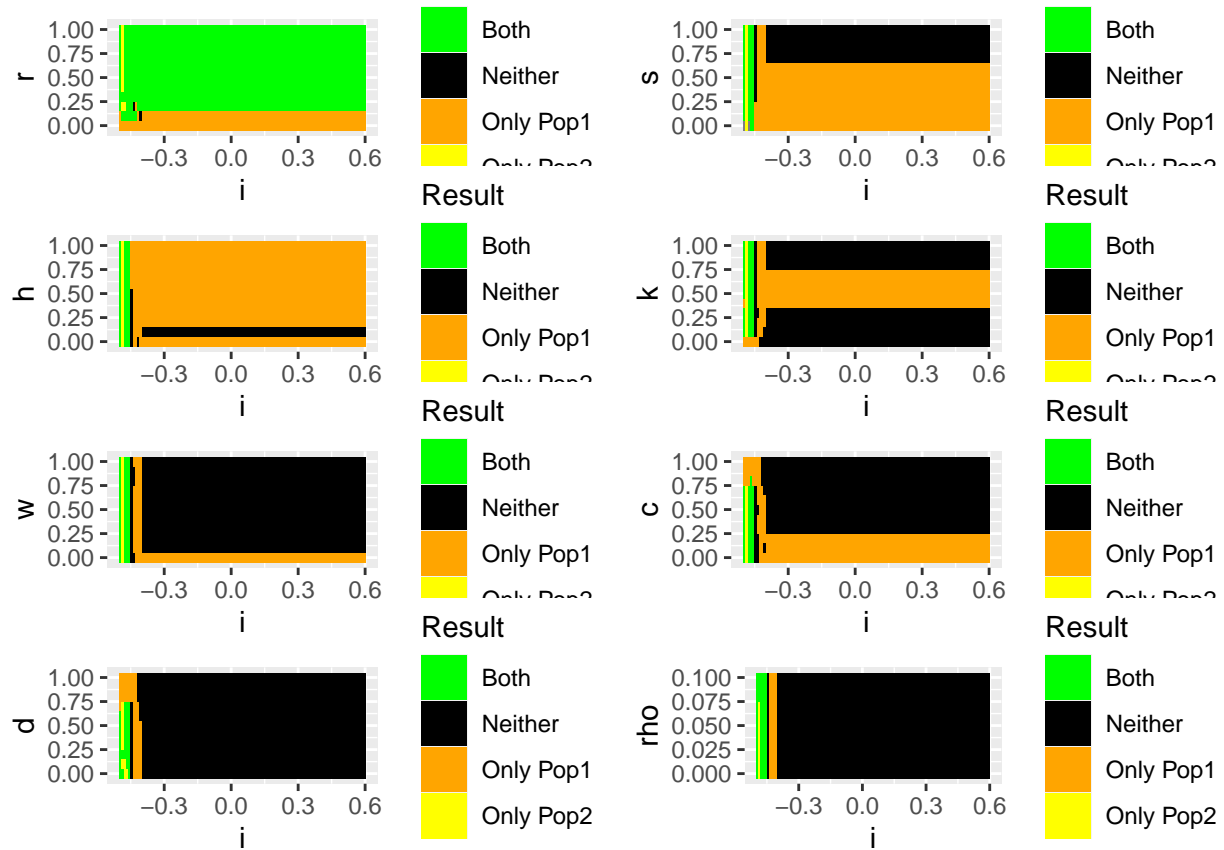


Figure 18:  $i$  parameter planes

```

## 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 = 403.152, R2 = 2.55475e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55475e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.1162e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69169e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69169e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40129e-14
##
## 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 = 403.152
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55471e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55471e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.11617e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.11617e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.11617e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69166e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69166e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40127e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40127e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40127e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.

```

```

## In above message, R1 = 403.152, R2 = 1.40127e-14
##
## 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 = 403.152
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55473e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55473e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.11618e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.11618e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.11618e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69167e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69167e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40128e-14
##
## 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 = 403.152, R2 = 1.40128e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40128e-14
##
## 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 = 403.152
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55471e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55471e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.11616e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.11616e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.11616e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69166e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69166e-14
##
## 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 = 403.152, R2 = 1.40127e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40127e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40127e-14
##
## 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 = 403.152
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55471e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55471e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.11616e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.11616e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.11616e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69166e-14
##

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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 = 403.152, R2 = 1.69166e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40126e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40126e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40126e-14
##
## 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 = 403.152
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.74256e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.74256e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.27177e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.27177e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.27177e-14

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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 = 402.904, R2 = 1.81605e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.81605e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.5043e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.5043e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.5043e-14
##
## 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 = 402.904
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.74255e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.74255e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.27176e-14
##
## DLSODA- Warning..Internal T (=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 = 402.904, R2 = 2.27176e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.27176e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.81604e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.81604e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.5043e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.5043e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.5043e-14
##
## 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 = 402.904
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.74255e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.74255e-14
##
## 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 = 402.904, R2 = 2.27176e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.27176e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 2.27176e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.81604e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.81604e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.5043e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.5043e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 402.904, R2 = 1.5043e-14
##
## 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 = 402.904
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.24, R2 = 2.57661e-14
##
## 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 = 403.24, R2 = 2.57661e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.24, R2 = 2.1343e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.24, R2 = 2.1343e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.24, R2 = 2.1343e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.24, R2 = 1.70616e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.24, R2 = 1.70616e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.24, R2 = 1.41328e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.24, R2 = 1.41328e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.24, R2 = 1.41328e-14
##
## 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 = 403.24
##

```

```

## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.115, R2 = 2.5514e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.115, R2 = 2.5514e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.115, R2 = 2.11342e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.115, R2 = 2.11342e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.115, R2 = 2.11342e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.115, R2 = 1.68947e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.115, R2 = 1.68947e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.115, R2 = 1.39945e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.115, R2 = 1.39945e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.115, R2 = 1.39945e-14
##
## 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 = 403.115
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 404.097, R2 = 2.57544e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 404.097, R2 = 2.57544e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 404.097, R2 = 2.13334e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 404.097, R2 = 2.13334e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 404.097, R2 = 2.13334e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 404.097, R2 = 1.70539e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 404.097, R2 = 1.70539e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 404.097, R2 = 1.41264e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
## In above message, R1 = 404.097, R2 = 1.41264e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
## such that in the machine,  $T + H = T$  on the next step
## (H = step size). Solver will continue anyway.
```

```

## In above message, R1 = 404.097, R2 = 1.41264e-14
##
## 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 = 404.097
##

```

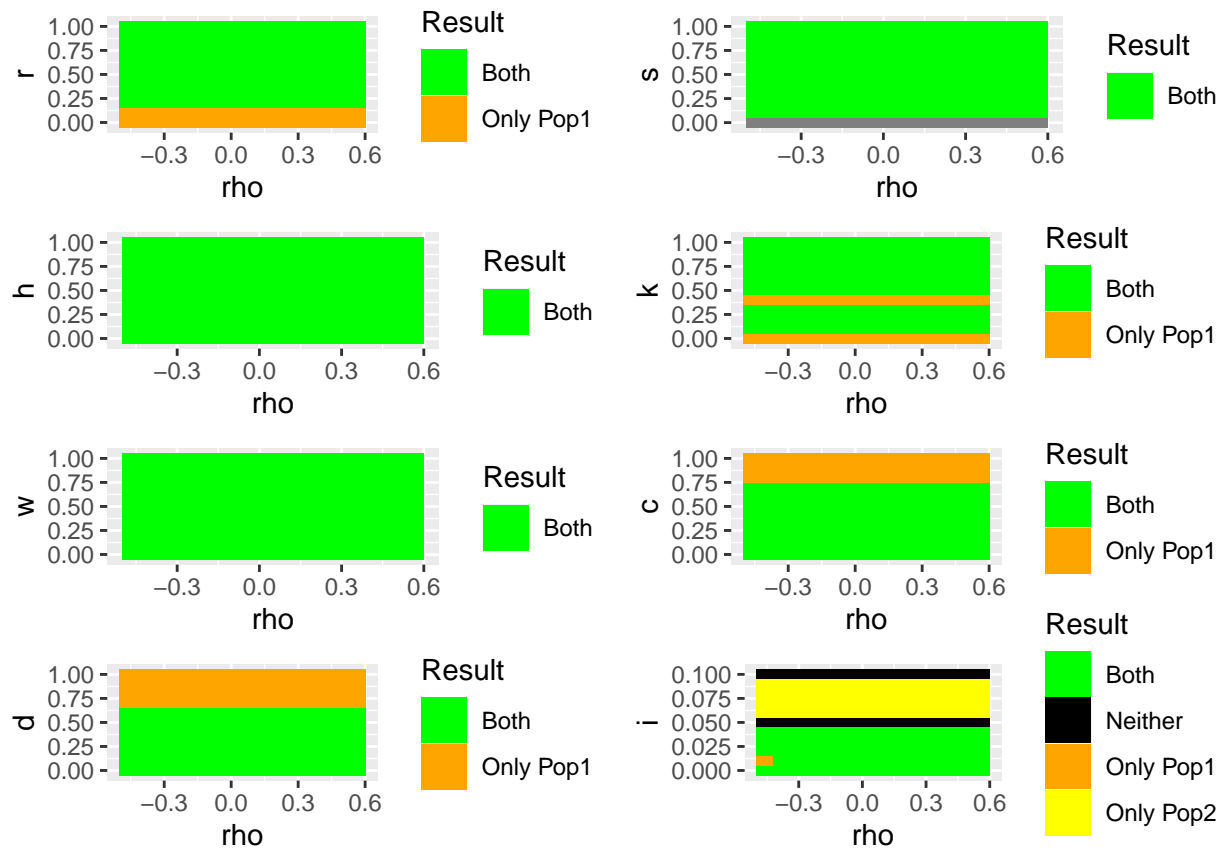


Figure 19:  $\rho$  parameter planes

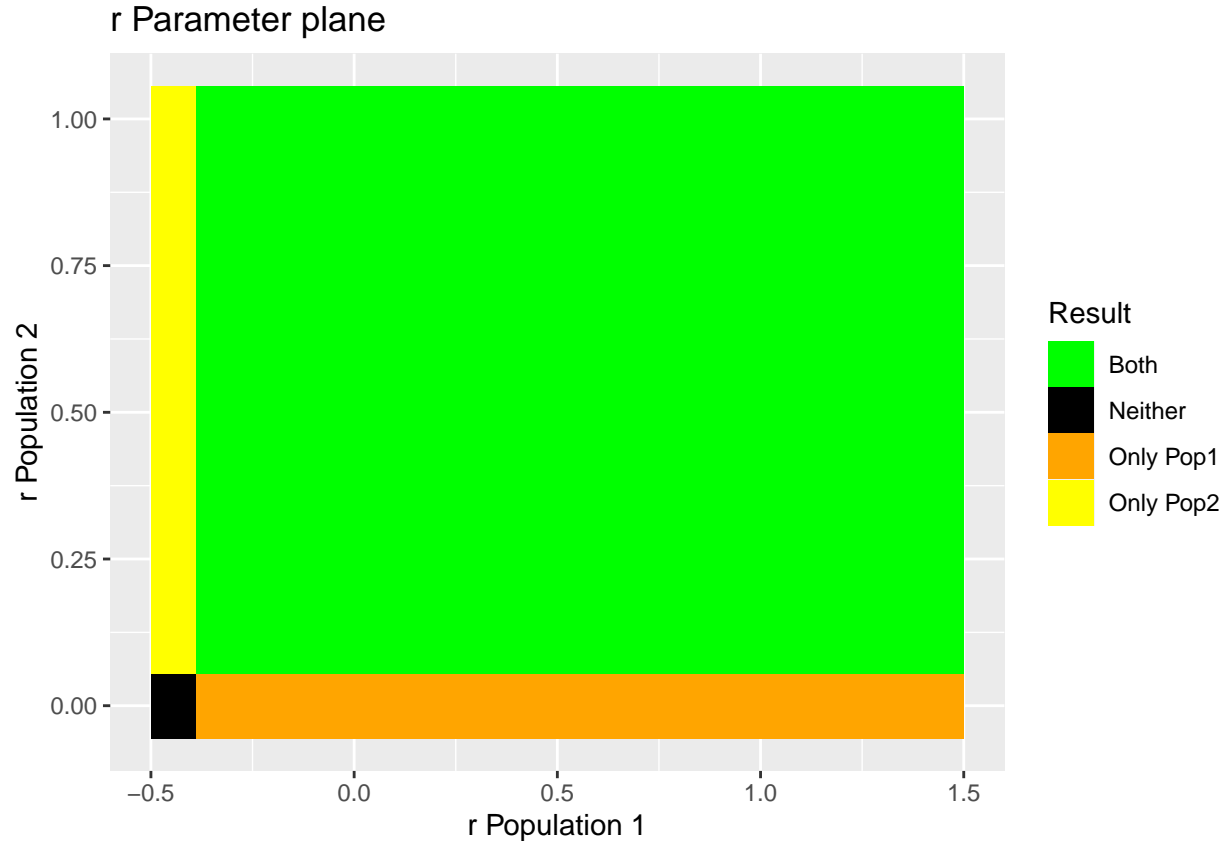


Figure 20: r population planes

```
## 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 = 396.592, R2 = 2.66468e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine, T + H = T on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 396.592, R2 = 2.66468e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine, T + H = T on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 396.592, R2 = 2.20725e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine, T + H = T on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 396.592, R2 = 2.20725e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine, T + H = T on the next step
##      (H = step size). Solver will continue anyway.
```

```

## In above message, R1 = 396.592, R2 = 2.20725e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 396.592, R2 = 1.76447e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 396.592, R2 = 1.76447e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 396.592, R2 = 1.46158e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 396.592, R2 = 1.46158e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 396.592, R2 = 1.46158e-14
##
## 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 = 396.592
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 391.654, R2 = 2.70781e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 391.654, R2 = 2.70781e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 391.654, R2 = 2.24298e-14
##
## 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 = 391.654, R2 = 2.24298e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 391.654, R2 = 2.24298e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 391.654, R2 = 1.79304e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 391.654, R2 = 1.79304e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 391.654, R2 = 1.48524e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 391.654, R2 = 1.48524e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 391.654, R2 = 1.48524e-14
##
## 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 = 391.654
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.939, R2 = 2.55612e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.939, R2 = 2.55612e-14
##
## 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 = 465.939, R2 = 2.11733e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.939, R2 = 2.11733e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.939, R2 = 2.11733e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.939, R2 = 1.69259e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.939, R2 = 1.69259e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.939, R2 = 1.40204e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.939, R2 = 1.40204e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.939, R2 = 1.40204e-14
##
## 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 = 465.939
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 400.331, R2 = 2.67914e-14
##

```



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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 = 400.331, R2 = 2.67914e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 400.331, R2 = 2.21923e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 400.331, R2 = 2.21923e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 400.331, R2 = 2.21923e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 400.331, R2 = 1.77405e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 400.331, R2 = 1.77405e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 400.331, R2 = 1.46951e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 400.331, R2 = 1.46951e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 400.331, R2 = 1.46951e-14
##
## 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 = 400.331

```

```

##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55473e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55473e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.11618e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.11618e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.11618e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69167e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69167e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40128e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40128e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40128e-14
##
## 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 = 403.152
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.71265e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.71265e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.24699e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.24699e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.24699e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.79624e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.79624e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.4879e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##         such that in the machine,  $T + H = T$  on the next step
##         (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.4879e-14
##
## 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 = 398.784, R2 = 1.4879e-14
##
## 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 = 398.784
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.563, R2 = 2.65746e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.563, R2 = 2.65746e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.563, R2 = 2.20127e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.563, R2 = 2.20127e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.563, R2 = 2.20127e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.563, R2 = 1.7597e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.563, R2 = 1.7597e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.563, R2 = 1.45762e-14
##
## 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 = 398.563, R2 = 1.45762e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.563, R2 = 1.45762e-14
##
## 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 = 398.563
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 391.654, R2 = 2.70781e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 391.654, R2 = 2.70781e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 391.654, R2 = 2.24298e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 391.654, R2 = 2.24298e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 391.654, R2 = 2.24298e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 391.654, R2 = 1.79304e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 391.654, R2 = 1.79304e-14
##

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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 = 391.654, R2 = 1.48524e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 391.654, R2 = 1.48524e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 391.654, R2 = 1.48524e-14
##
## 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 = 391.654
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.939, R2 = 2.55612e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.939, R2 = 2.55612e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.939, R2 = 2.11733e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.939, R2 = 2.11733e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.939, R2 = 2.11733e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.939, R2 = 1.69259e-14

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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 = 465.939, R2 = 1.69259e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.939, R2 = 1.40204e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.939, R2 = 1.40204e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 465.939, R2 = 1.40204e-14
##
## 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 = 465.939
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 400.331, R2 = 2.67914e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 400.331, R2 = 2.67914e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 400.331, R2 = 2.21923e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 400.331, R2 = 2.21923e-14
##
## DLSODA- Warning..Internal T (=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 = 400.331, R2 = 2.21923e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 400.331, R2 = 1.77405e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 400.331, R2 = 1.77405e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 400.331, R2 = 1.46951e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 400.331, R2 = 1.46951e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 400.331, R2 = 1.46951e-14
##
## 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 = 400.331
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55473e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.55473e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.11618e-14
##
## 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 = 403.152, R2 = 2.11618e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 2.11618e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69167e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.69167e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40128e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40128e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 403.152, R2 = 1.40128e-14
##
## 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 = 403.152
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.71265e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.71265e-14
##
## 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 = 398.784, R2 = 2.24699e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.24699e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 2.24699e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.79624e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.79624e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.4879e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.4879e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.784, R2 = 1.4879e-14
##
## 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 = 398.784
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.563, R2 = 2.65746e-14
##

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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 = 398.563, R2 = 2.65746e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.563, R2 = 2.20127e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.563, R2 = 2.20127e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.563, R2 = 2.20127e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.563, R2 = 1.7597e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.563, R2 = 1.7597e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.563, R2 = 1.45762e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.563, R2 = 1.45762e-14
##
## DLSODA- Warning..Internal T (=R1) and H (=R2) are
##      such that in the machine,  $T + H = T$  on the next step
##      (H = step size). Solver will continue anyway.
## In above message, R1 = 398.563, R2 = 1.45762e-14
##
## 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 = 398.563

```

##

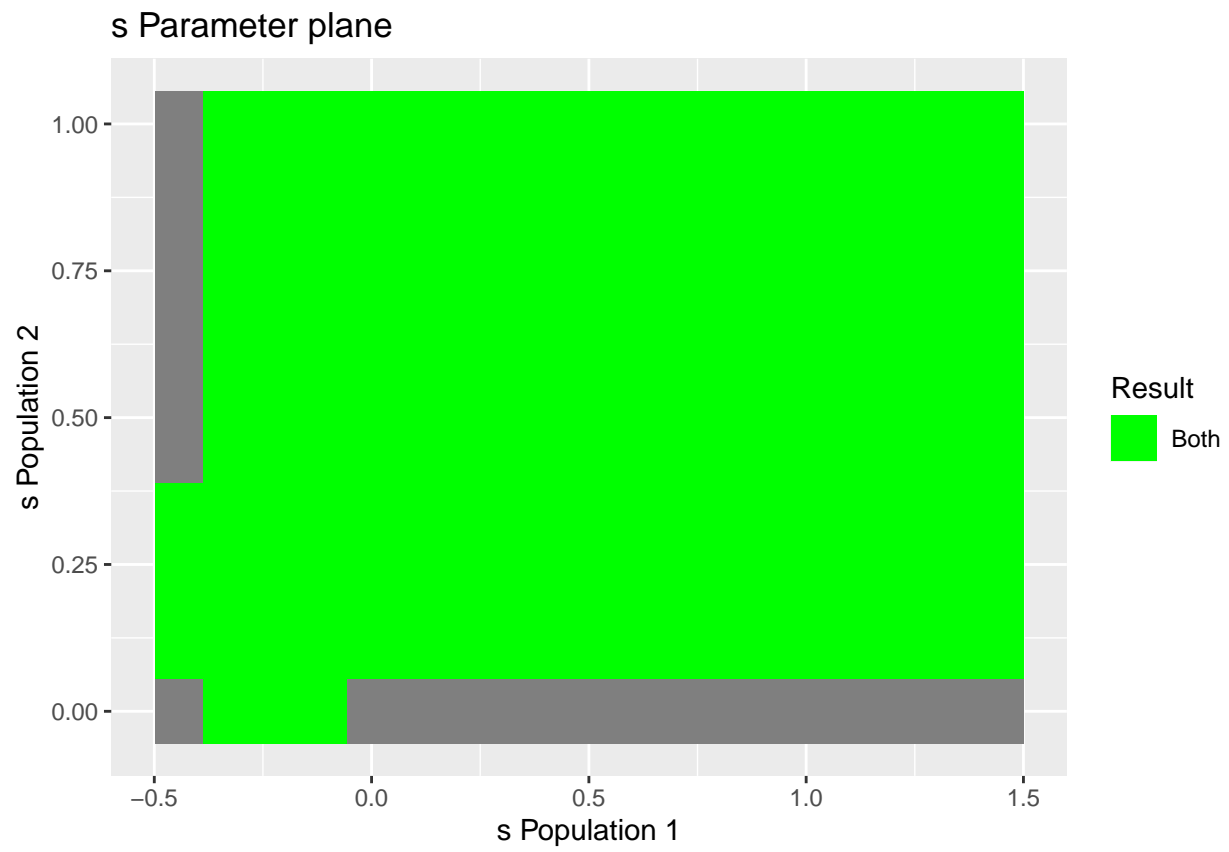


Figure 21: s population planes

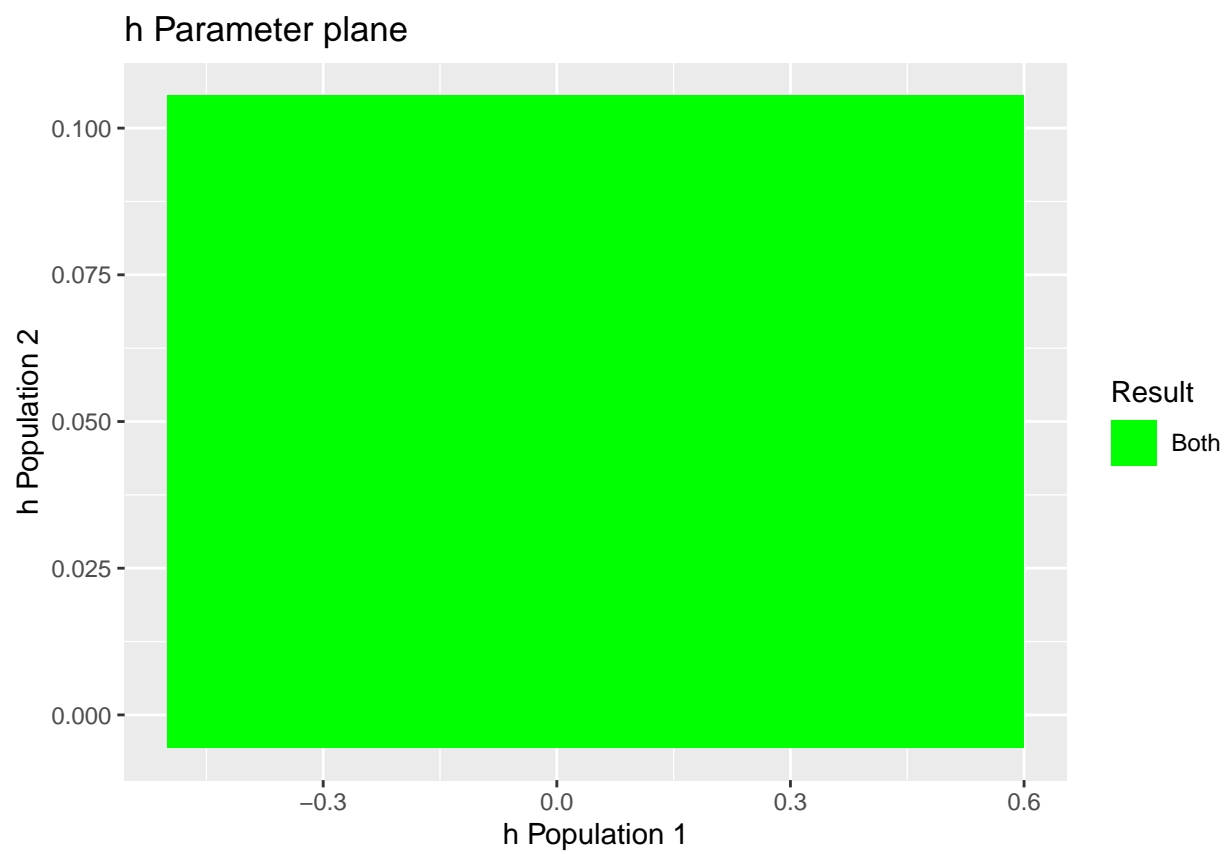


Figure 22: h population planes

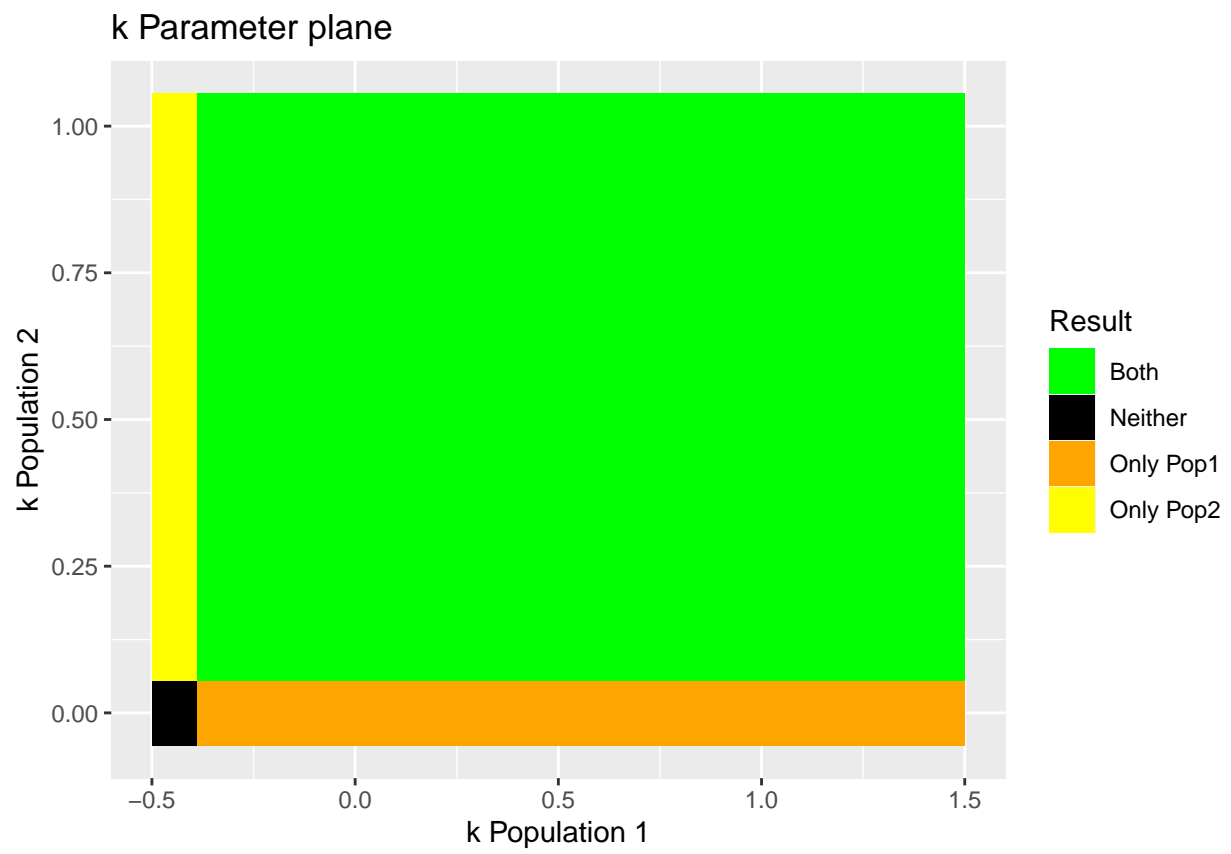


Figure 23: k population planes 0 to 1

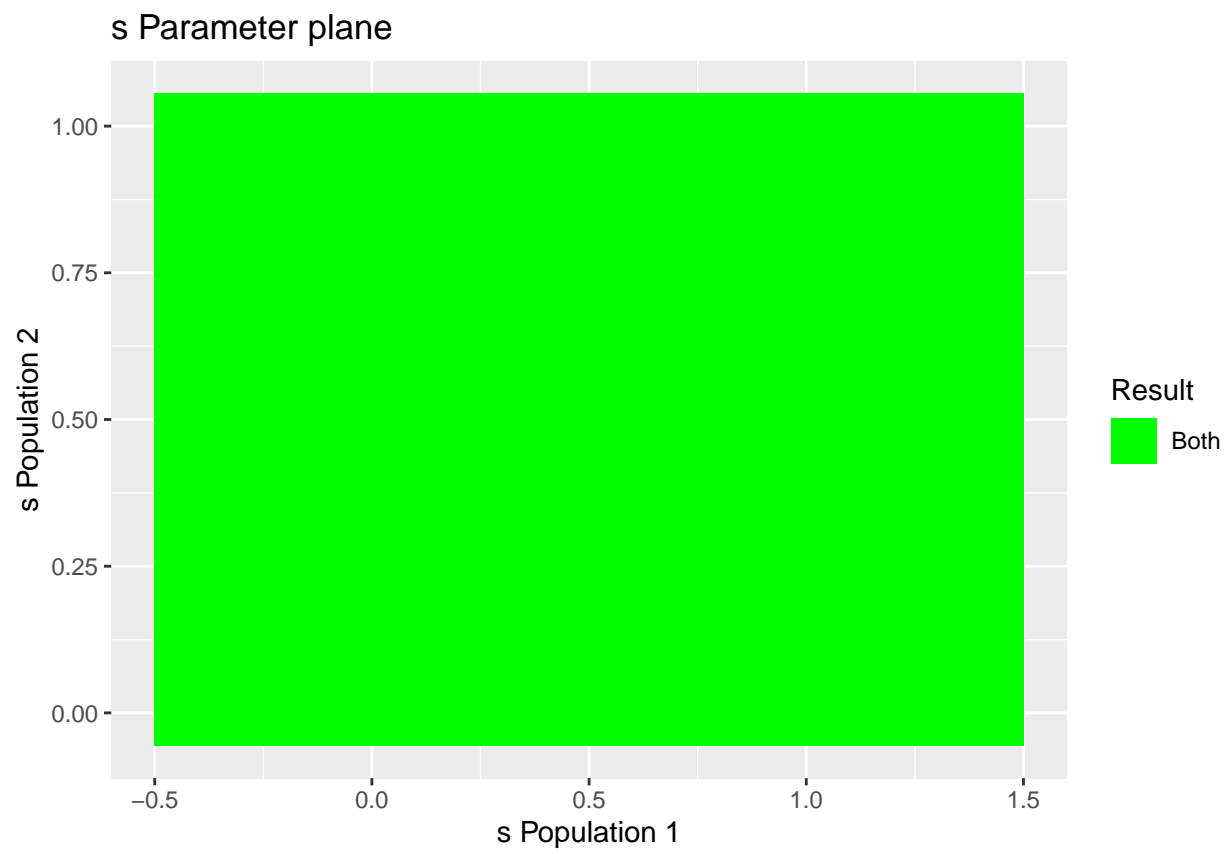


Figure 24: w population planes

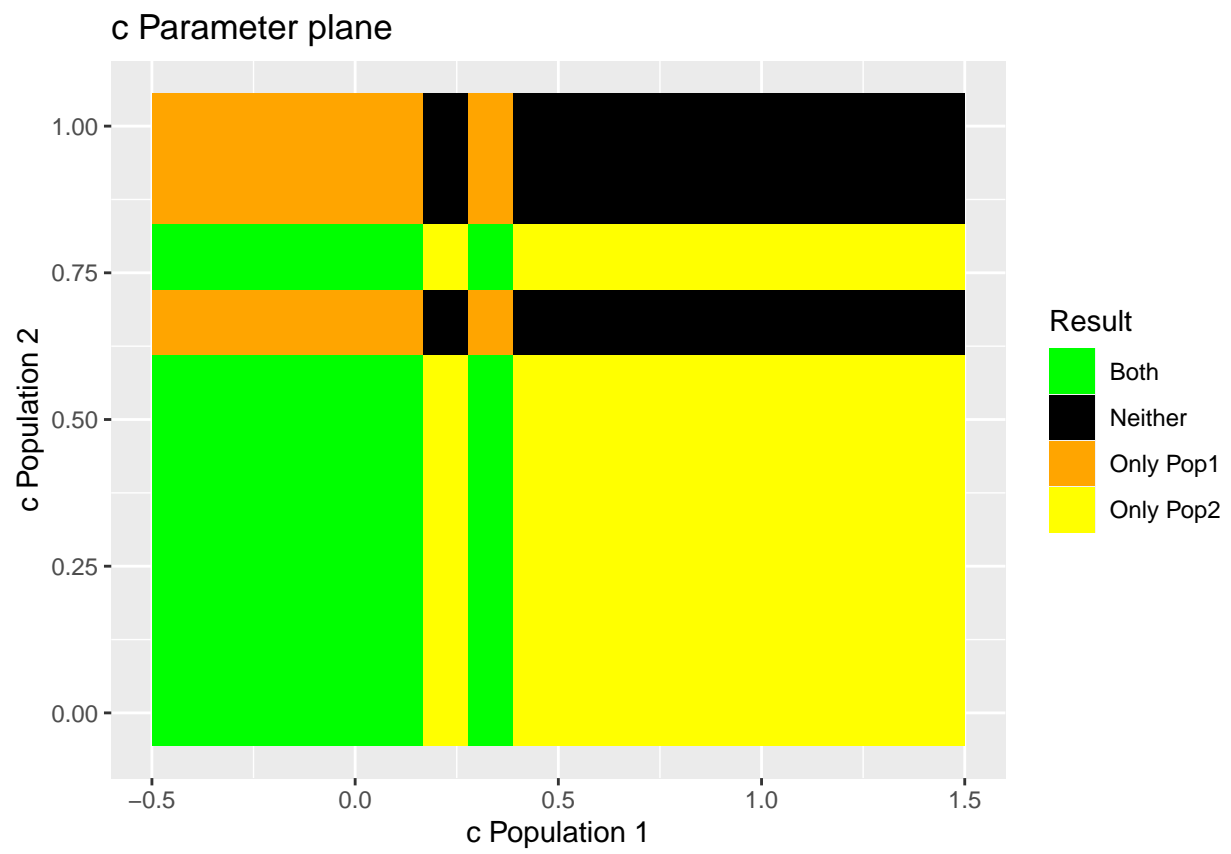


Figure 25: c population planes



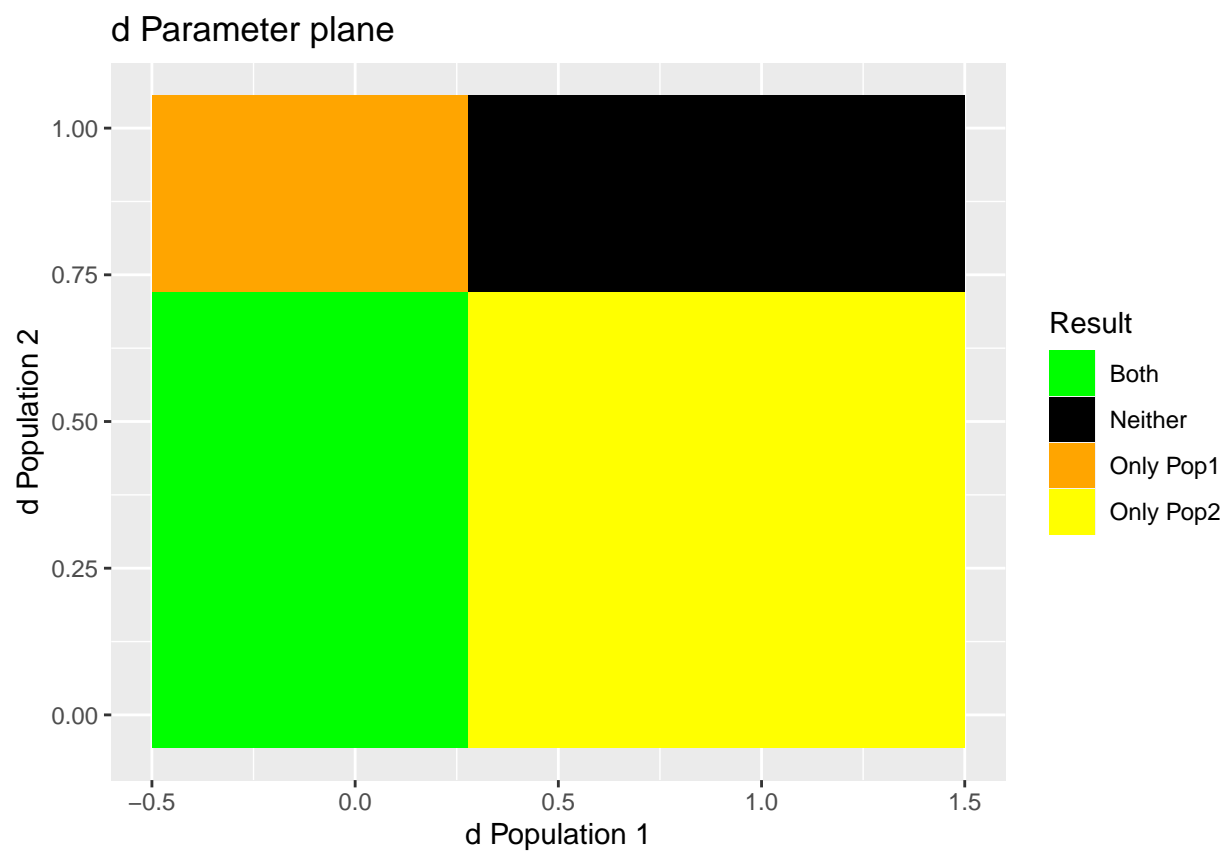


Figure 26: d population planes

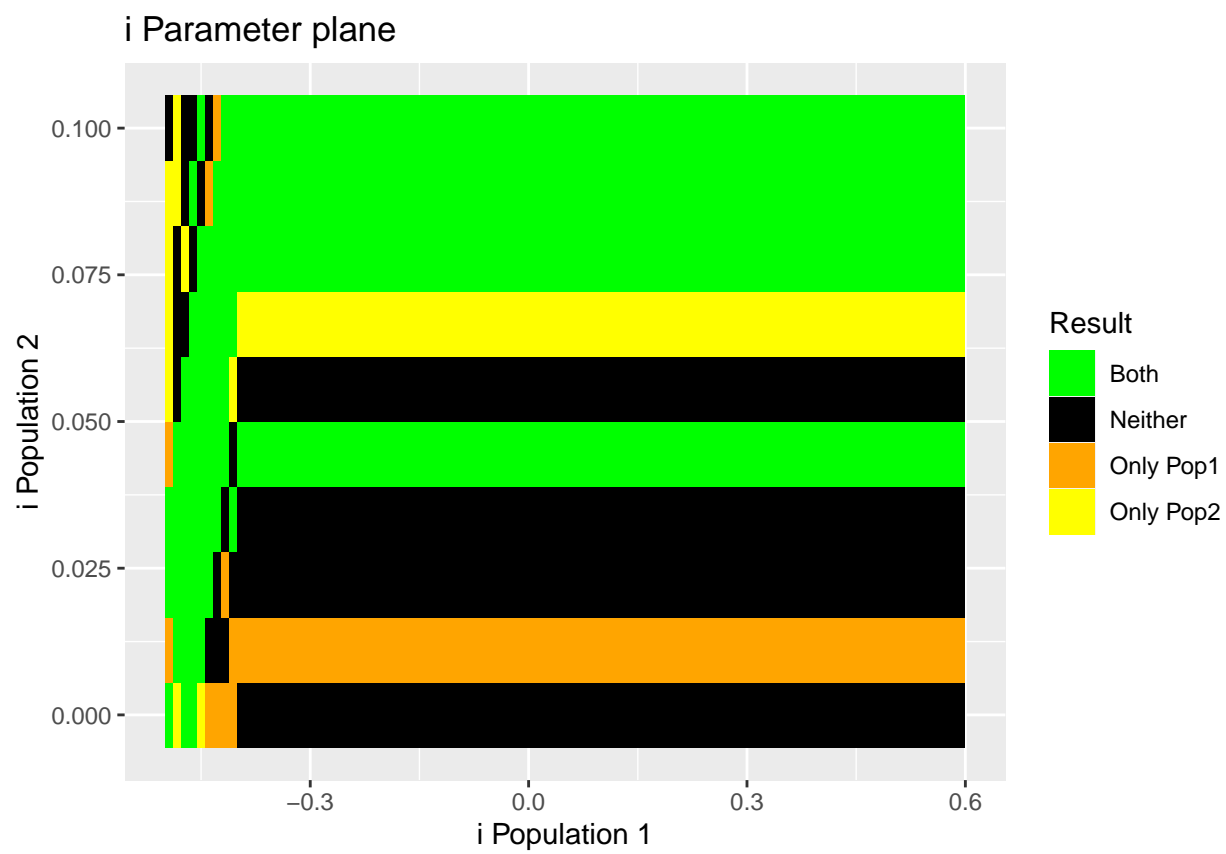


Figure 27: i population planes

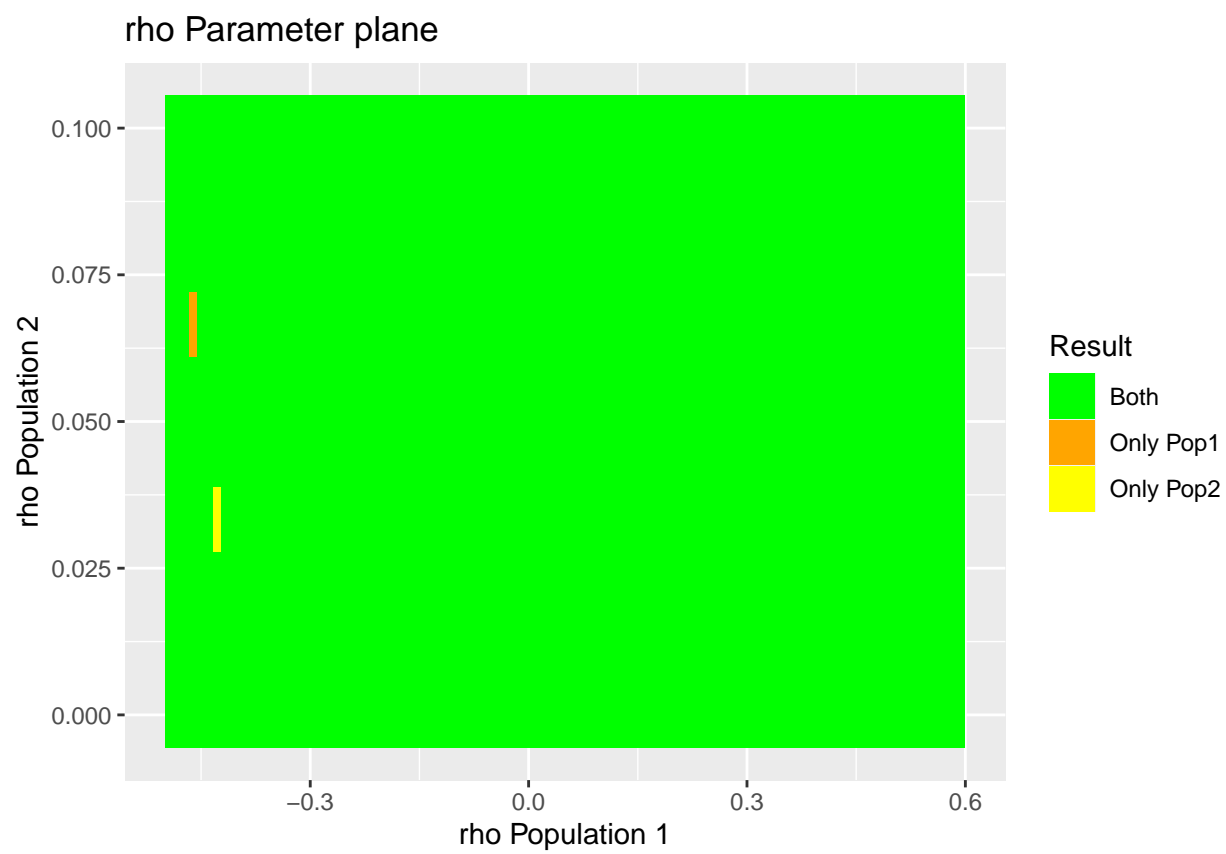


Figure 28: rho population planes