Latex CBD representations

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1 DerivatorBlock

$$
\begin{cases}
b7.OUT1(i) &= 1/b7.IN1\,(i) \\
b11.OUT1(i) &= b11.IN1\,(i-1) \\
b15.OUT1(i) &= -b15.IN1\,(i) \\
b18.OUT1(i) &= b18.IN1\,(i) + b18.IN2\,(i) \\
b30.OUT1(i) &= b30.IN1\,(i) \cdot b30.IN2\,(i) \\
b48.OUT1(i) &= b48.IN1\,(i) + b48.IN2\,(i) \\
b52.OUT1(i) &= -b52.IN1\,(i) \\
b62.OUT1(i) &= b62.IN1\,(i) \cdot b62.IN2\,(i) \\
OUT1(i) &= b30.OUT1\,(i) \\
b7.IN1(i) &= delta\_t.OUT1\,(i) \\
b11.IN1(i) &= IN1.OUT1\,(i) \\
b11.IC(i) &= b48.OUT1\,(i) \\
b15.IN1(i) &= b11.OUT1\,(i) \\
b18.IN2(i) &= IN1.OUT1\,(i) \\
b18.IN1(i) &= b15.OUT1\,(i) \\
b30.IN1(i) &= b18.OUT1\,(i) \\
b30.IN2(i) &= b7.OUT1\,(i) \\
b48.IN2(i) &= IN1.OUT1\,(i) \\
b48.IN1(i) &= b62.OUT1\,(i) \\
b52.IN1(i) &= delta\_t.OUT1\,(i) \\
b62.IN2(i) &= b52.OUT1\,(i) \\
b62.IN1(i) &= IC.OUT1\,(i) \\
b11.OUT1(0) &= b11.IC(0)
\end{cases}
$$

2 IntegratorBlock

$$\begin{cases} a-6.OUT1(i) & = & a-6.IN1\,(i-1) \\ a-11.OUT1(i) & = & a-11.IN1\,(i)\cdot a-11.IN2\,(i) \\ a-17.OUT1(i) & = & a-17.IN1\,(i)+a-17.IN2\,(i) \\ a-22.OUT1(i) & = & a-22.IN1\,(i-1) \\ b-1.OUT1(i) & = & 0 \\ b-6.OUT1(i) & = & 1/b-6.IN1\,(i) \\ b-10.OUT1(i) & = & b-10.IN1\,(i)\cdot b-10.IN2\,(i) \\ OUT1(i) & = & a-17.OUT1\,(i) \\ a-6.IN1(i) & = & IN1.OUT1\,(i) \\ a-6.IC(i) & = & b-10.OUT1\,(i) \\ a-11.IN2(i) & = & delta\_t.OUT1\,(i) \\ a-11.IN1(i) & = & a-6.OUT1\,(i) \\ a-17.IN2(i) & = & a-11.OUT1\,(i) \\ a-17.IN1(i) & = & a-22.OUT1\,(i) \\ a-22.IN1(i) & = & a-17.OUT1\,(i) \\ a-22.IC(i) & = & b-1.OUT1\,(i) \\ b-6.IN1(i) & = & delta\_t.OUT1\,(i) \\ b-10.IN1(i) & = & IC.OUT1\,(i) \\ b-10.IN2(i) & = & b-6.OUT1\,(i) \\ a-6.OUT1(0) & = & a-6.IC(0) \\ a-22.OUT1(0) & = & a-22.IC(0) \end{cases}$$

3 FactorialBlock

$$\begin{cases} a-7.OUT1(i) & = & a-7.IN1\,(i)\cdot a-7.IN2\,(i) \\ a-12.OUT1(i) & = & a-12.IN1\,(i-1) \\ a-18.OUT1(i) & = & a-18.IN1\,(i)\leftrightarrow a-18.IN2\,(i) \\ a-22.OUT1(i) & = & 0 \\ a-27.OUT1(i) & = & a-27.IN1\,(i)+a-27.IN2\,(i) \\ a-35.OUT1(i) & = & 1 \\ b-6.OUT1(i) & = & i\,(i) \\ OUT1(i) & = & a-27.OUT1\,(i) \\ a-7.IN2(i) & = & a-12.OUT1\,(i) \\ a-7.IN1(i) & = & b-6.OUT1\,(i) \\ a-12.IN1(i) & = & a-27.OUT1\,(i) \\ a-12.IC(i) & = & a-35.OUT1\,(i) \\ a-18.IN1(i) & = & a-22.OUT1\,(i) \\ a-18.IN2(i) & = & b-6.OUT1\,(i) \\ a-27.IN1(i) & = & a-18.OUT1\,(i) \\ a-27.IN2(i) & = & a-7.OUT1\,(i) \\ a-12.OUT1(0) & = & a-12.IC(0) \end{cases}$$

4 Forward DerivatorBlock

$$
\begin{cases}
a-6.OUT1(i) &= a-6.IN1\,(i-1) \\
a-10.OUT1(i) &= a-10.IN1\,(i)+a-10.IN2\,(i) \\
a-14.OUT1(i) &= a-14.IN1\,(i)+a-14.IN2\,(i) \\
a-18.OUT1(i) &= a-18.IN1\,(i)\cdot a-18.IN2\,(i) \\
a-22.OUT1(i) &= -a-22.IN1\,(i) \\
OUT1(i) &= a-14.OUT1\,(i) \\
a-6.IC(i) &= a-10.OUT1\,(i) \\
a-6.IN1(i) &= a-14.OUT1\,(i) \\
a-10.IN1(i) &= IC.OUT1\,(i) \\
a-10.IN2(i) &= a-22.OUT1\,(i) \\
a-14.IN2(i) &= a-18.OUT1\,(i) \\
a-14.IN1(i) &= a-6.OUT1\,(i) \\
a-18.IN1(i) &= IN1.OUT1\,(i) \\
a-18.IN2(i) &= delta\_t.OUT1\,(i) \\
a-22.IN1(i) &= a-18.OUT1\,(i) \\
a-6.OUT1(0) &= a-6.IC(0)
\end{cases}
$$

5 Trapezoid Integrator

$$
\begin{cases}
a-0.OUT1(i) &= b-0.IN1\left(i\right)+b-0.IN2\left(i\right) \\
a-4.OUT1(i) &= b-4.IN1\left(i-1\right) \\
a-8.OUT1(i) &= b-8.IN1\left(i\right)\cdot b-8.IN2\left(i\right) \\
a-12.OUT1(i) &= 2 \\
a-14.OUT1(i) &= 1/a-14.IN1\left(i\right) \\
a-25.OUT1(i) &= b-25.IN1\left(i\right)\cdot b-25.IN2\left(i\right) \\
a-31.OUT1(i) &= b-31.IN1\left(i\right)+b-31.IN2\left(i\right) \\
a-37.OUT1(i) &= b-37.IN1\left(i-1\right) \\
a-44.OUT1(i) &= 0 \\
c-39.OUT1(i) &= TrapezoidInitialCondition\left(c-39.delta\_t\left(i\right),c-39.IC\left(i\right),c-39.IN1\left(i\right)\right) \\
OUT1(i) &= a-31.OUT1\left(i\right) \\
a-0.IN2(i) &= a-4.OUT1\left(i\right) \\
a-0.IN1(i) &= IN1.OUT1\left(i\right) \\
a-4.IC(i) &= c-39.OUT1\left(i\right) \\
a-4.IN1(i) &= IN1.OUT1\left(i\right) \\
a-8.IN1(i) &= a-14.OUT1\left(i\right) \\
a-8.IN2(i) &= a-0.OUT1\left(i\right) \\
a-14.IN1(i) &= a-12.OUT1\left(i\right) \\
a-25.IN2(i) &= delta\_t.OUT1\left(i\right) \\
a-25.IN1(i) &= a-8.OUT1\left(i\right) \\
a-31.IN2(i) &= a-25.OUT1\left(i\right) \\
a-31.IN1(i) &= a-37.OUT1\left(i\right) \\
a-37.IN1(i) &= a-31.OUT1\left(i\right) \\
a-37.IC(i) &= a-44.OUT1\left(i\right) \\
c-39.delta\_t(i) &= delta\_t.OUT1\left(i\right) \\
c-39.IC(i) &= IC.OUT1\left(i\right) \\
c-39.IN1(i) &= IN1.OUT1\left(i\right) \\
a-4.OUT1(0) &= b-4.IC(0) \\
a-37.OUT1(0) &= b-37.IC(0)
\end{cases}
$$

6 Simpson

$$
\begin{cases}
a-36.OUT1(i) &= i\,(i) \\
a-61.OUT1(i) &= MUX\,(a-61.IN1\,(i)\,, a-61.IN2\,(i)\,, a-61.select\,(i)) \\
a-71.OUT1(i) &= a-71.IN1\,(i-1) \\
a-75.OUT1(i) &= a-75.IN1\,(i-1) \\
a-81.OUT1(i) &= 0 \\
b-7.OUT1(i) &= 0 \\
b-10.OUT1(i) &= b-10.IN1\,(i)+b-10.IN2\,(i) \\
b-14.OUT1(i) &= b-14.IN1\,(i-1) \\
b-22.OUT1(i) &= -b-22.IN1\,(i) \\
b-26.OUT1(i) &= b-26.IN1\,(i)+b-26.IN2\,(i) \\
b-37.OUT1(i) &= SimpsonFormula\,(b-37.IN1\,(i)\,, b-37.IN2\,(i)\,, b-37.IN3\,(i)) \\
b-45.OUT1(i) &= b-45.IN1\,(i)+b-45.IN2\,(i) \\
b-52.OUT1(i) &= MUX\,(b-52.IN1\,(i)\,, b-52.IN2\,(i)\,, b-52.select\,(i)) \\
b-60.OUT1(i) &= b-60.IN1\,(i) \mod b-60.IN2\,(i) \\
b-66.OUT1(i) &= 2 \\
c-37.OUT1(i) &= TrapezoidFormula\,(c-37.IN1\,(i)\,, c-37.IN2\,(i)\,, c-37.delta\_t\,(i)) \\
c-49.OUT1(i) &= c-49.IN1\,(i)\cdot c-49.IN2\,(i) \\
OUT1(i) &= a-61.OUT1\,(i) \\
a-61.IN1(i) &= IC.OUT1\,(i) \\
a-61.select(i) &= a-36.OUT1\,(i) \\
a-61.IN2(i) &= b-52.OUT1\,(i) \\
a-71.IN1(i) &= IN1.OUT1\,(i) \\
a-71.IC(i) &= IC.OUT1\,(i) \\
a-75.IC(i) &= a-81.OUT1\,(i) \\
a-75.IN1(i) &= a-71.OUT1\,(i) \\
b-10.IN1(i) &= b-14.OUT1\,(i) \\
b-10.IN2(i) &= c-37.OUT1\,(i) \\
b-14.IN1(i) &= a-61.OUT1\,(i) \\
b-14.IC(i) &= b-7.OUT1\,(i) \\
b-22.IN1(i) &= c-37.OUT1\,(i) \\
b-26.IN1(i) &= b-14.OUT1\,(i) \\
b-26.IN2(i) &= b-22.OUT1\,(i) \\
b-37.IN1(i) &= IN1.OUT1\,(i) \\
b-37.IN3(i) &= a-75.OUT1\,(i) \\
b-37.IN2(i) &= a-71.OUT1\,(i) \\
b-45.IN1(i) &= b-26.OUT1\,(i) \\
b-45.IN2(i) &= c-49.OUT1\,(i) \\
b-52.IN1(i) &= b-10.OUT1\,(i) \\
b-52.IN2(i) &= b-45.OUT1\,(i) \\
b-52.select(i) &= b-60.OUT1\,(i) \\
b-60.IN1(i) &= a-36.OUT1\,(i) \\
b-60.IN2(i) &= b-66.OUT1\,(i) \\
c-37.delta\_t(i) &= delta\_t.OUT1\,(i) \\
c-37.IN1(i) &= IN1.OUT1\,(i) \\
c-37.IN2(i) &= a-71.OUT1\,(i) \\
c-49.IN1(i) &= delta\_t.OUT1\,(i) \\
c-49.IN2(i) &= b-37.OUT1\,(i) \\
a-71.OUT1(0) &= a-71.IC(0) \\
a-75.OUT1(0) &= a-75.IC(0) \\
b-14.OUT1(0) &= b-14.IC(0)
\end{cases}
$$

7 LookUpTableBlock

$$
\begin{cases}
\lrcorner l - YlHAasBxaOKrxFiZ4 - 4.OUT1(i) & = & \lrcorner l - YlHAasBxaOKrxFiZ4 - 4.IN1\,(i) < \lrcorner l - Yl \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 9.OUT1(i) & = & 10 \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 20.OUT1(i) & = & MUX\,(\\
{}_l - YlHAasBxaOKrxFiZ4 - 20.IN1\,(i)\,, & & \\
{}_l - YlHAasBxaOKrxFiZ4 - 20.IN2\,(i)\,, & & \\
{}_l - YlHAasBxaOKrxFiZ4 - 20.select\,(i) & & \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 26.OUT1(i) & = & 0 \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 34.OUT1(i) & = & 170 \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 36.OUT1(i) & = & \lrcorner l - YlHAasBxaOKrxFiZ4 - 36.IN1\,(i) < \lrcorner l - Y \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 42.OUT1(i) & = & MUX\,(\\
{}_l - YlHAasBxaOKrxFiZ4 - 42.IN1\,(i)\,, & & \\
{}_l - YlHAasBxaOKrxFiZ4 - 42.IN2\,(i)\,, & & \\
{}_l - YlHAasBxaOKrxFiZ4 - 42.select\,(i) & & \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 49.OUT1(i) & = & 10 \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 56.OUT1(i) & = & 200 \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 58.OUT1(i) & = & \lrcorner l - YlHAasBxaOKrxFiZ4 - 58.IN1\,(i) < \lrcorner l - Y \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 62.OUT1(i) & = & MUX\,(\\
{}_l - YlHAasBxaOKrxFiZ4 - 62.IN1\,(i)\,, & & \\
{}_l - YlHAasBxaOKrxFiZ4 - 62.IN2\,(i)\,, & & \\
{}_l - YlHAasBxaOKrxFiZ4 - 62.select\,(i) & & \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 67.OUT1(i) & = & 8 \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 76.OUT1(i) & = & i\,(i) \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 78.OUT1(i) & = & 260 \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 80.OUT1(i) & = & \lrcorner l - YlHAasBxaOKrxFiZ4 - 80.IN1\,(i) < \lrcorner l - Y \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 84.OUT1(i) & = & MUX\,(\\
{}_l - YlHAasBxaOKrxFiZ4 - 84.IN1\,(i)\,, & & \\
{}_l - YlHAasBxaOKrxFiZ4 - 84.IN2\,(i)\,, & & \\
{}_l - YlHAasBxaOKrxFiZ4 - 84.select\,(i) & & \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 89.OUT1(i) & = & 18 \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 138.OUT1(i) & = & 12 \\
OUT1(i) & = & \lrcorner l - YlHAasBxaOKrxFiZ4 - 20.OUT1\,(i) \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 4.IN2(i) & = & \lrcorner l - YlHAasBxaOKrxFiZ4 - 9.OUT1\,(i) \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 4.IN1(i) & = & \lrcorner l - YlHAasBxaOKrxFiZ4 - 76.OUT1\,(i) \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 20.select(i) & = & \lrcorner l - YlHAasBxaOKrxFiZ4 - 4.OUT1\,(i) \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 20.IN1(i) & = & \lrcorner l - YlHAasBxaOKrxFiZ4 - 26.OUT1\,(i) \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 20.IN2(i) & = & \lrcorner l - YlHAasBxaOKrxFiZ4 - 42.OUT1\,(i) \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 36.IN2(i) & = & \lrcorner l - YlHAasBxaOKrxFiZ4 - 34.OUT1\,(i) \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 36.IN1(i) & = & \lrcorner l - YlHAasBxaOKrxFiZ4 - 76.OUT1\,(i) \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 42.select(i) & = & \lrcorner l - YlHAasBxaOKrxFiZ4 - 36.OUT1\,(i) \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 42.IN1(i) & = & \lrcorner l - YlHAasBxaOKrxFiZ4 - 49.OUT1\,(i) \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 42.IN2(i) & = & \lrcorner l - YlHAasBxaOKrxFiZ4 - 62.OUT1\,(i) \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 58.IN2(i) & = & \lrcorner l - YlHAasBxaOKrxFiZ4 - 56.OUT1\,(i) \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 58.IN1(i) & = & \lrcorner l - YlHAasBxaOKrxFiZ4 - 76.OUT1\,(i) \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 62.select(i) & = & \lrcorner l - YlHAasBxaOKrxFiZ4 - 58.OUT1\,(i) \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 62.IN1(i) & = & \lrcorner l - YlHAasBxaOKrxFiZ4 - 67.OUT1\,(i) \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 62.IN2(i) & = & \lrcorner l - YlHAasBxaOKrxFiZ4 - 84.OUT1\,(i) \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 80.IN1(i) & = & \lrcorner l - YlHAasBxaOKrxFiZ4 - 76.OUT1\,(i) \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 80.IN2(i) & = & \lrcorner l - YlHAasBxaOKrxFiZ4 - 78.OUT1\,(i) \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 84.select(i) & = & \lrcorner l - YlHAasBxaOKrxFiZ4 - 80.OUT1\,(i) \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 84.IN1(i) & = & \lrcorner l - YlHAasBxaOKrxFiZ4 - 89.OUT1\,(i) \\
\lrcorner l - YlHAasBxaOKrxFiZ4 - 84.IN2(i) & = & \lrcorner l - YlHAasBxaOKrxFiZ4 - 138.OUT1\,(i)
\end{cases}
$$