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/* Glue Proof for Water tank Example typeset in ASCII */

\functions {
        R f(R);

}

\programVariables {

R tick; R y; R x; R new; R valve; R oldj; R result; R tickj; R yj;
}


\rules {
  fdef {
    \schemaVar \term R x;
    \schemaVar \skolemTerm R c;
    \find(f(x))
    \sameUpdateLevel
    \varcond ( \new(c, \dependingOn(x)) )
    \replacewith(c)
    \add(x-1 < c & c <= x & (x >= 0 -> c >= 0) & (x < 0 -> c < 0) ==> )
    \heuristics(simplify)
    };

}

\problem {

(\forall R y . \forall R yj . \forall R valve .\forall R tick .\forall R tickj .\forall R new
.\forall R result .
 ((yj = f(10 * y)  & oldj =  f(10 * valve) & tickj = f(10 * tick) & result = 10 * new) & y >= 1
 & y <= 12 & (valve = 1 | valve = -2) & tick  > 2 ->

((result * tickj/10 + yj + 2 * oldj <= 116 & result * tickj/10 + yj + 2 * oldj >= 12 & (result
= 10 | result = -20)) ->
(y + 2 * valve + tick * new >= 1 & y + 2 * valve + tick * new <= 12 & (new = 1 | new = -2)))))

}
```