$A == [ns : \mathbb{F}\,\mathbb{N}_1]$
$AInit == [A' \mid ns' = \varnothing]$
$New == [\Delta A;\ n? : \mathbb{N}_1 \mid ns' = ns \cup \{n?\}]$
$MSF == [\Xi A;\ m! : \mathbb{N}_1 \mid ns \neq \varnothing;\ m! = max\ ns]$

Store the two max seen so far as they are observed. For C5 to initialise the two values must both be constrained, else it will be false. Only difference between 8.4 and 8.3 is the weakening of the constraint in 8.3??

$C5 == [c, d : \mathbb{N} \mid c \geq d]$
$C5Init == [C5' \mid c' = 0;\ d' = 0]$
$C5New == [\Delta C5;\ n? : \mathbb{N}_1 \mid c' = \textbf{if } c < n? \textbf{ then } n? \textbf{ else } c;\ d' = \textbf{if } d < n? \textbf{ then } n? \textbf{ else } d]$
$C5MSF == [\Xi C5;\ m! : \mathbb{N} \mid m! = c]$

LI5_BAD

$A;\ C5$

$c = 0 \Rightarrow ns = \varnothing$
$c \neq 0 \Rightarrow (ns \neq \varnothing \land c = max\ ns)$

The second line leaves d unconstrained. Initialising might set of a nuclear warhead, or something.

LI5

$A;\ C5$

$c = 0 \Rightarrow ns = \varnothing$
$(c > 0 \land d = 0) \Rightarrow ns = \{c\}$
$d > 0 \Rightarrow (\{c, d\} \subseteq ns \land c = max\ ns \land d = max(ns \setminus \{c\}))$

C5MSF2

$\Xi C5$
$ma!, mb! : \mathbb{N}$

$ma! = c$
$mb! = d$