

# l42\_dtconstr

(TMU9BefY5VGHZ9Qgw87Kn8Dxr5TAd54KgGn)

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Let  $k6\_numbers : \iota$  be given. Let  $k3\_funct.2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k4\_dtconstr : \iota \Rightarrow \iota$  be given. Let  $k5\_dtconstr : \iota$  be given. Let  $k5\_numbers : \iota$  be given. Let  $k12\_dtconstr : \iota$  be given. Let  $k8\_nat.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k14\_dtconstr : \iota$  be given. Let  $m1\_subset.1 : \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_xboole.0 : \iota \Rightarrow o$  be given. Let  $k1\_xboole.0 : \iota$  be given. Let  $k4\_ordinal1 : \iota$  be given. Let  $k1\_zfmisc.1 : \iota \Rightarrow \iota$  be given. Let  $m2\_subset.1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $v1\_funct.1 : \iota \Rightarrow o$  be given. Let  $v1\_funct.2 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k2\_zfmisc.1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_funct.1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k2\_trees.4 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_trees.4 : \iota \Rightarrow \iota$  be given. Let  $v3\_ordinal1 : \iota \Rightarrow o$  be given. Let  $v2\_struct.0 : \iota \Rightarrow o$  be given. Let  $v1\_lang1 : \iota \Rightarrow o$  be given. Let  $v1\_dtconstr : \iota \Rightarrow o$  be given. Let  $v2\_dtconstr : \iota \Rightarrow o$  be given. Let  $v3\_dtconstr : \iota \Rightarrow o$  be given. Let  $l1\_lang1 : \iota \Rightarrow o$  be given. Let  $v7\_ordinal1 : \iota \Rightarrow o$  be given. Let  $k6\_dtconstr : \iota \Rightarrow \iota$  be given. Let  $u1\_struct.0 : \iota \Rightarrow \iota$  be given. Let  $c6\_dtconstr : \iota$  be given. Let  $c2\_dtconstr : \iota$  be given. Let  $m1\_trees.4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k5\_trees.3 : \iota \Rightarrow \iota$  be given. Let  $r1\_lang1 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow o$  be given. Let  $k1\_dtconstr : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k8\_trees.4 : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k11\_dtconstr : \iota \Rightarrow \iota$  be given. Let  $k4\_finseqop : \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $k1\_nat.1 : \iota \Rightarrow \iota \Rightarrow \iota$  be given. Let  $np.1 : \iota$  be given. Let  $k13\_dtconstr : \iota \Rightarrow \iota$  be given. Assume the following.

$$\forall X0. \forall X1. (m1\_subset.1 X0 X1) \Rightarrow ((v1\_xboole.0 X1) \vee (X0 \in X1)) \quad (1)$$

Assume the following.

$$m1\_subset.1 k1\_xboole.0 k4\_ordinal1 \quad (2)$$

Assume the following.

$$\forall X0. \forall X1. ((\neg v1\_xboole.0 X0) \wedge ((\neg v1\_xboole.0 X1) \wedge (m1\_subset.1 X1 (k1\_zfmisc.1 X0)))) \Rightarrow (\forall X2. (m2\_subset.1 X2 X0 X1) \Leftrightarrow (m1\_subset.1 X2 X1)) \quad (3)$$

Assume the following.

$$k6\_numbers = k1\_xboole.0 \quad (4)$$

Assume the following.

$$k5\_numbers = k4\_ordinal1 \quad (5)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.\forall X3.((\neg v1\_xboole\_0 X0) \wedge \\ & (((v1\_funct\_1 X2) \wedge ((v1\_funct\_2 X2 X0 X1) \wedge (m1\_subset\_1 X2 (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 X0 X1)))))) \wedge (m1\_subset\_1 X3 X0))) \Rightarrow (k3\_funct\_2 X0 \\ & X1 X2 X3 = k1\_funct\_1 X2 X3) \end{aligned} \quad (6)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.((\neg v1\_xboole\_0 X0) \wedge (m1\_subset\_1 X1 X0)) \Rightarrow \\ & (k2\_trees\_4 X0 X1 = k1\_trees\_4 X1) \end{aligned} \quad (7)$$

Assume the following.

$$(\neg v1\_xboole\_0 k4\_ordinal1) \wedge (v3\_ordinal1 k4\_ordinal1) \quad (8)$$

Assume the following.

$$\begin{aligned} & (\neg v2\_struct\_0 k5\_dtconstr) \wedge ((v1\_lang1 k5\_dtconstr) \wedge ((v1\_dtconstr \\ & k5\_dtconstr) \wedge ((v2\_dtconstr k5\_dtconstr) \wedge (v3\_dtconstr k5\_dtconstr)))) \end{aligned} \quad (9)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v1\_dtconstr X0) \wedge (l1\_lang1 X0))) \Rightarrow \\ & (\neg v1\_xboole\_0 (k4\_dtconstr X0)) \end{aligned} \quad (10)$$

Assume the following.

$$\begin{aligned} & \forall X0.\forall X1.\forall X2.(((v1\_funct\_1 X1) \wedge ((v1\_funct\_2 \\ & X1 k5\_numbers X0) \wedge (m1\_subset\_1 X1 (k1\_zfmisc\_1 (k2\_zfmisc\_1 k5\_numbers \\ & X0)))))) \wedge (v7\_ordinal1 X2)) \Rightarrow (m1\_subset\_1 (k8\_nat\_1 X0 X1 X2) X0) \end{aligned} \quad (11)$$

Assume the following.

$$\begin{aligned} & \forall X0.((\neg v2\_struct\_0 X0) \wedge ((v1\_dtconstr X0) \wedge (l1\_lang1 X0))) \Rightarrow \\ & (((\neg v1\_xboole\_0 (k6\_dtconstr X0)) \wedge (m1\_subset\_1 (k6\_dtconstr \\ & X0) (k1\_zfmisc\_1 (u1\_struct\_0 X0)))))) \end{aligned} \quad (12)$$

Assume the following.

$$\begin{aligned} & (\neg v2\_struct\_0 k5\_dtconstr) \wedge ((v1\_lang1 k5\_dtconstr) \wedge (l1\_lang1 \\ & k5\_dtconstr)) \end{aligned} \quad (13)$$

Assume the following.

$$\begin{aligned} & (v1\_funct\_1 k14\_dtconstr) \wedge ((v1\_funct\_2 k14\_dtconstr k5\_numbers \\ & (k4\_dtconstr k5\_dtconstr)) \wedge (m1\_subset\_1 k14\_dtconstr (k1\_zfmisc\_1 \\ & (k2\_zfmisc\_1 k5\_numbers (k4\_dtconstr k5\_dtconstr)))))) \end{aligned} \quad (14)$$

Assume the following.

$$(v1\_funct\_1\ k12\_dtconstr) \wedge ((v1\_funct\_2\ k12\_dtconstr\ (k4\_dtconstr\ k5\_dtconstr)\ k5\_numbers) \wedge (m1\_subset\_1\ k12\_dtconstr\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k4\_dtconstr\ k5\_dtconstr)\ k5\_numbers)))) \quad (15)$$

Assume the following.

$$m2\_subset\_1\ c6\_dtconstr\ (u1\_struct\_0\ k5\_dtconstr)\ (k6\_dtconstr\ k5\_dtconstr) \quad (16)$$

Assume the following.

$$m1\_subset\_1\ c2\_dtconstr\ (u1\_struct\_0\ k5\_dtconstr) \quad (17)$$

Assume the following.

$$c6\_dtconstr = c2\_dtconstr \quad (18)$$

Assume the following.

$$c2\_dtconstr = k6\_numbers \quad (19)$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1\_funct\_1\ X0) \wedge ((v1\_funct\_2\ X0\ (k4\_dtconstr\ k5\_dtconstr) \\ & k5\_numbers) \wedge (m1\_subset\_1\ X0\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ (k4\_dtconstr \\ & k5\_dtconstr)\ k5\_numbers)))))) \Rightarrow ((X0 = k12\_dtconstr) \Leftrightarrow ((\forall X1. \\ & (m1\_subset\_1\ X1\ (u1\_struct\_0\ k5\_dtconstr)) \Rightarrow ((X1 \in k6\_dtconstr \\ & k5\_dtconstr) \Rightarrow (k1\_funct\_1\ X0\ (k2\_trees\_4\ (u1\_struct\_0\ k5\_dtconstr) \\ & X1) = k6\_numbers))) \wedge (\forall X1. (m1\_subset\_1\ X1\ (u1\_struct\_0 \\ & k5\_dtconstr)) \Rightarrow (\forall X2. (m1\_trees\_4\ X2\ (k5\_trees\_3\ (u1\_struct\_0 \\ & k5\_dtconstr))\ (k4\_dtconstr\ k5\_dtconstr)) \Rightarrow ((r1\_lang1\ k5\_dtconstr \\ & X1\ (k1\_dtconstr\ (u1\_struct\_0\ k5\_dtconstr)\ (k5\_trees\_3\ (u1\_struct\_0 \\ & k5\_dtconstr))\ X2)) \Rightarrow (k1\_funct\_1\ X0\ (k8\_trees\_4\ (u1\_struct\_0\ k5\_dtconstr) \\ & X1\ X2) = k11\_dtconstr\ (k4\_finseqop\ (k4\_dtconstr\ k5\_dtconstr)\ k5\_numbers \\ & X2\ X0)))))) \quad (20) \end{aligned}$$

Assume the following.

$$\begin{aligned} & \forall X0. ((v1\_funct\_1\ X0) \wedge ((v1\_funct\_2\ X0\ k5\_numbers\ (k4\_dtconstr \\ & k5\_dtconstr)) \wedge (m1\_subset\_1\ X0\ (k1\_zfmisc\_1\ (k2\_zfmisc\_1\ k5\_numbers \\ & (k4\_dtconstr\ k5\_dtconstr)))))) \Rightarrow ((X0 = k14\_dtconstr) \Leftrightarrow ((k8\_nat\_1 \\ & (k4\_dtconstr\ k5\_dtconstr)\ X0\ k6\_numbers = k2\_trees\_4\ k5\_numbers \\ & k6\_numbers) \wedge (\forall X1. (v7\_ordinal1\ X1) \Rightarrow (k8\_nat\_1\ (k4\_dtconstr \\ & k5\_dtconstr)\ X0\ (k1\_nat\_1\ X1\ np\_1) = k13\_dtconstr\ (k8\_nat\_1\ (k4\_dtconstr \\ & k5\_dtconstr)\ X0\ X1)))) \quad (21) \end{aligned}$$

Assume the following.

$$\forall X0.(m1\_subset\_1 X0 k4\_ordinal1) \Rightarrow (v7\_ordinal1 X0) \quad (22)$$

Assume the following.

$$\forall X0.(v1\_xboole\_0 X0) \Rightarrow (\forall X1.(m1\_subset\_1 X1 (k1\_zfmisc\_1 X0)) \Rightarrow (v1\_xboole\_0 X1)) \quad (23)$$

**Theorem 1**

$$k6\_numbers = k3\_funct\_2 (k4\_dtconstr k5\_dtconstr) k5\_numbers \\ k12\_dtconstr (k8\_nat\_1 (k4\_dtconstr k5\_dtconstr) k14\_dtconstr \\ k6\_numbers)$$