$$face = \left\{ \begin{array}{l} n := n_0 \;:\; s := 1 \;: \\ \text{while } n > 0 \text{ do } \; s ! = s \times n \;:\; n := n-1 \end{array} \right\}$$

$$A = \{ n \geq 0 \land s = {}_{n_0}C_n \}$$

$$\dfrac{\dfrac{\dfrac{\dfrac{\dfrac{\{A[n-1/n][s \times n/s]\} \begin{array}{l} s ! = s \times n \\ n := n-1 \end{array} \{A\}}{\{A \land n > 0\} \begin{array}{l} s ! = s \times n \\ n := n-1 \end{array} \{A\}}}{\{A\} \text{ while } n > 0 \text{ do } \begin{array}{l} s ! = s \times n \\ n := n-1 \end{array} \{A \land n_0 \leq 0\}}}{\{s = 1\} \text{ while } n > 0 \text{ do } \begin{array}{l} s ! = s \times n \\ n := n-1 \end{array} \{s = n_0 !\}}}{\{s = n_0 ! \land n = n_0\} \; s := 1 \;: \text{ while } n > 0 \text{ do } \begin{array}{l} s ! = s \times n \\ n := n-1 \end{array} \{s = n_0 !\}}}{\{n_0 \geq 0\} \; fact \; \{s = n_0 !\}}$$

$\models A \land n > 0 \Rightarrow A[n-1/n][s \times n/s]$ が成立つか調べる.

Aと $n > 0$ を仮定する.

$$A[n-1/n][s \times n/s] = \{ n-1 \geq 0 \land s \times n = {}_{n_0}C_{n-1} \}$$

$n > 0$より, $n \geq 1$. すなわち $n-1 \geq 0$

$$s \times n = {}_{n_0}C_{n-1}$$

$$s = \frac{n_0 !}{n-1 !} \times \frac{1}{n}$$

$$\Leftrightarrow \frac{n_0 !}{n !}$$

$$\Leftrightarrow {}_{n_0}C_n$$

$$\Leftrightarrow A$$

ループ不変条件が変わらないことを示すことができた.