解

$$《\phi_1》y=y+x《\phi_0》$$

$$《y=(x_0-x)(x_0+x+1)/2\land x>0》y=y+x《\phi_0》 \qquad 《\phi_0》x=x-1《y=(x_0-x)(x_0+x+1)/2》$$

$$《y=(x_0-x)(x_0+x+1)/2\land x>0》y=y+x;\ x=x-1《y=(x_0-x)(x_0+x+1)/2》$$

$$《y=(x_0-x)(x_0+x+1)/2》\text{while } (x>0)\ \{y=y+x;\ x=x-1\}《y=(x_0-x)(x_0+x+1)/2\land\lnot(x>0)》$$

$$《y=0\land x=x_0》\text{while } (x>0)\ \{y=y+x;\ x=x-1\}《y=x_0(x_0+1)/2》$$

ただし $\qquad \phi_0: y=(x_0-(x-1))(x_0+(x-1)+1)/2$

$\qquad\qquad\qquad \phi_1: y+x=(x_0-(x-1))(x_0+(x-1)+1)/2$

ループ不変表明：$y=(x_0-x)(x_0+x+1)/2$

検証条件: $\qquad y=(x_0-x)(x_0+x+1)/2\land x>0 \supset \phi_1$

$\qquad\qquad\qquad y=0\land x=x_0 \supset y=(x_0-x)(x_0+x+1)/2$

$\qquad\qquad\qquad y=(x_0-x)(x_0+x+1)/2\land\lnot(x>0) \supset y=x_0(x_0+1)/2$

$\qquad\qquad\qquad$（xは自然数なので$\lnot(x>0)\equiv x=0$）