```
{n > 0}
i := 1;
kw := 4;
while  {γ₁:  kw = (2 * i)² ∧ i² ≤ n ∧ ∃k ≥ 0.i = 2ᵏ}
     kw ≤ n
  do
  (i := 2*i;
    {α₁:  kw = i² ∧ i² ≤ n ∧ ∃k ≥ 0.i = 2ᵏ}
   kw := 4*kw
  )
{α₂:  kw = (2 * i)² ∧ i² ≤ n < kw ∧ ∃k ≥ 0.i = 2ᵏ}
r := i;
dri := kw div2;
ik := dri div2;
{kw = (2 * i)² ∧ i² ≤ n < kw ∧ ik = i² ∧ dri = 2 * r * i ∧ r = i ∧ ∃k ≥ 0.i = 2ᵏ}
while  {γ₂:  kw = (r + i)² ∧ r² ≤ n < kw ∧ ik = i² ∧ dri = 2 * r * i ∧ ∃k ≥ 0.i = 2ᵏ}
      i > 1
  do
  (i := i div2;
    {α₃:  kw = (r + 2 * i)² ∧ r² ≤ n < kw ∧ ik = (2 * i)² ∧ dri = 2 * r * (2 * i) ∧ ∃k ≥ 0.i = 2ᵏ}
   ik := (ik div2) div2;
    {kw = (r + 2 * i)² ∧ r² ≤ n < kw ∧ ik = i² ∧ dri = 2 * r * (2 * i) ∧ ∃k ≥ 0.i = 2ᵏ}
   dri := dri div2;
    {α₄:  kw = (r + 2 * i)² ∧ r² ≤ n < kw ∧ ik = i² ∧ dri = 2 * r * i ∧ ∃k ≥ 0.i = 2ᵏ}
   if (kw - dri - 3*ik)≤ n
   then
       {kw − dri − 3 * ik = (r + 2 * i)² − 2 * r * i − 3 * i² = (r + i)² ≤ n ∧
           kw = (r + 2 * i)² ∧ r² ≤ n < kw ∧ ik = i² ∧ dri = 2 * r * i ∧ ∃k ≥ 0.i = 2ᵏ}
     r := r + i;
       {α₅:  r² ≤ n ∧ kw = (r + i)² ∧ n < kw ∧ ik = i² ∧ dri = 2 * (r − i) * i ∧ ∃k ≥ 0.i = 2ᵏ}
     dri := dri + 2*ik
       {kw = (r + i)² ∧ r² ≤ n < kw ∧ ik = i² ∧ dri = 2 * r * i ∧ ∃k ≥ 0.i = 2ᵏ}
   else
       {kw − dri − 3 * ik = (r + 2 * i)² − 2 * r * i − 3 * i² = (r + i)² > n ∧
           kw = (r + 2 * i)² ∧ r² ≤ n < kw ∧ ik = i² ∧ dri = 2 * r * i ∧ ∃k ≥ 0.i = 2ᵏ}
     kw := kw - dri - 3*ik;
   {kw = (r + i)² ∧ r² ≤ n < kw ∧ ik = i² ∧ dri = 2 * r * i ∧ ∃k ≥ 0.i = 2ᵏ}
  )
{i ≤ 1 ∧ kw = (r + i)² ∧ r² ≤ n < kw ∧ ik = i² ∧ dri = 2 * r * i ∧ ∃k ≥ 0.i = 2ᵏ}
{r² ≤ n < (r + 1)²}
```