Algorithm 2 ProperLoop(L, P, S)

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1: G_P^S := the S induced subgraph of G_P;
2: SCC := the set of SCCs of G_P^S;
3: for each C ∈ SCC:
4:     if C ⊂ L and R⁻(C) ⊆ R⁻(L) then return C
5:     else if R⁻(C) ≠ ∅ and R⁻(C) ⊂ R⁻(L) then return C
6:     else if R⁻(C) = ∅ or R⁻(C) = R⁻(L) then
7:         for each atom a ∈ C:
8:             G* := the C \ {a} induced subgraph of G_P^S;
9:             SCC* := the set of SCCs of G*;
10:            append new elements from SCC* to SCC;
11:    else
12:        G_C := the C\head(R⁻(C)\R⁻(L)) induced subgraph
       of G_P^S;
13:        SCC_C := the set of SCCs of G_C;
14:        append new elements from SCC_C to SCC;
15: return L
```