

EXAMPLE TO ILLUSTRATE HOW PROLOG IS IMPLEMENTED
(by D. Warren 1974)

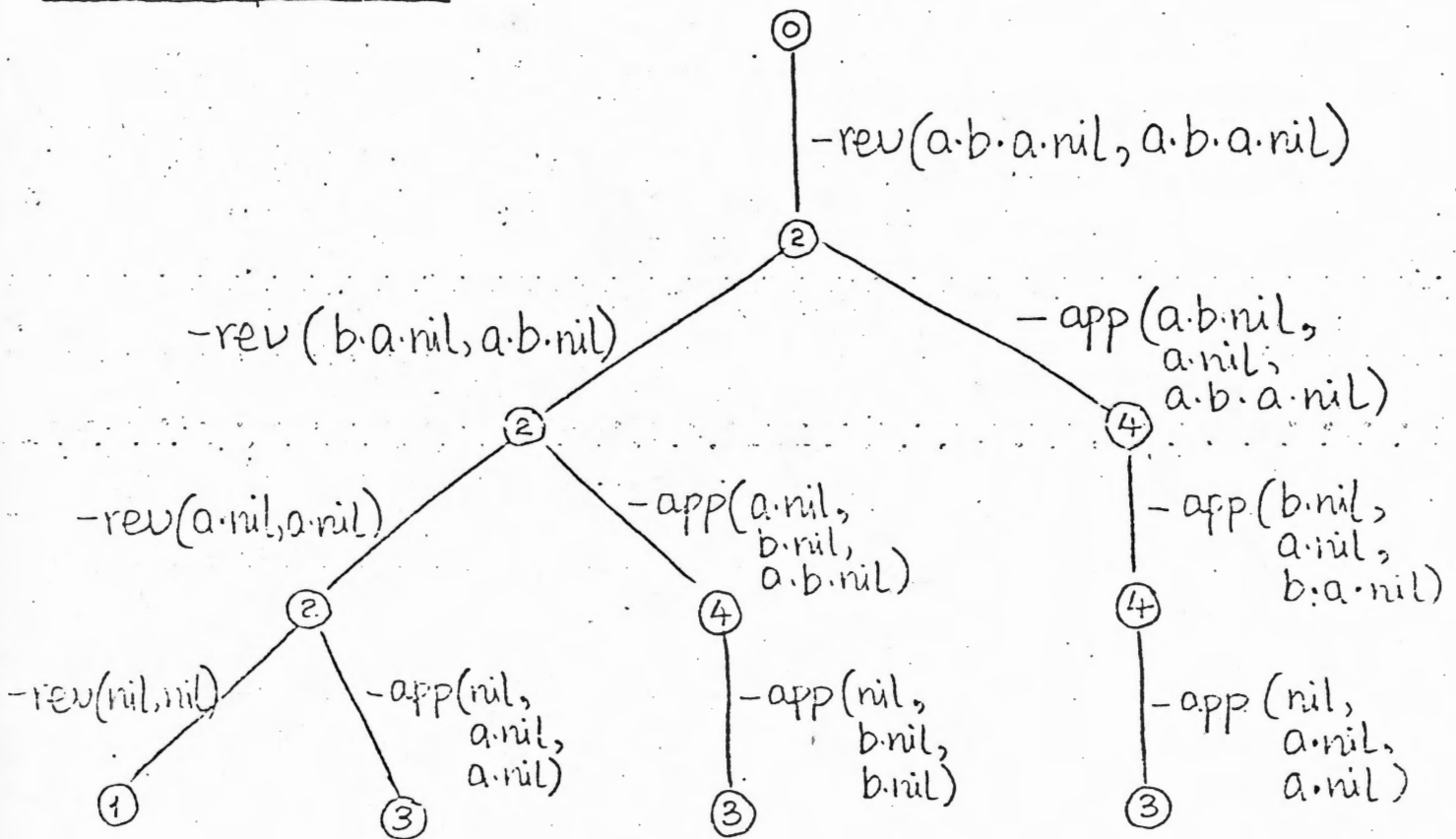
Program

- ① + rev(nil, nil).
- ② + rev(X.Y, Z) - rev(Y, W) - app(W, X.nil, Z).
- ③ + app(nil, X, X).
- ④ + app(X.Y, Z, X.W) - app(Y, Z, W).

Command

- ① - rev(a.b.X, a.b.X)

First Proof Found



Snapshot 1 (and 3)

No.	Ancestor	Clause	X	Y	Z	W	Assignment
1	o	-rev(a.b.X, a.b.X)					
2	o	+rev(X.Y.Z) - rev(Y,W) - app(W,X.nil,Z)	a	b.X ₁	a.b.X ₁		
3	o	+rev(X.Y.Z) - rev(Y,W) - app(W,X.nil,Z)	b	X ₁	W ₂		
4		Seeking match for $\lceil -rev(X_1, W_3) \rceil$: <u>two</u> choices.					

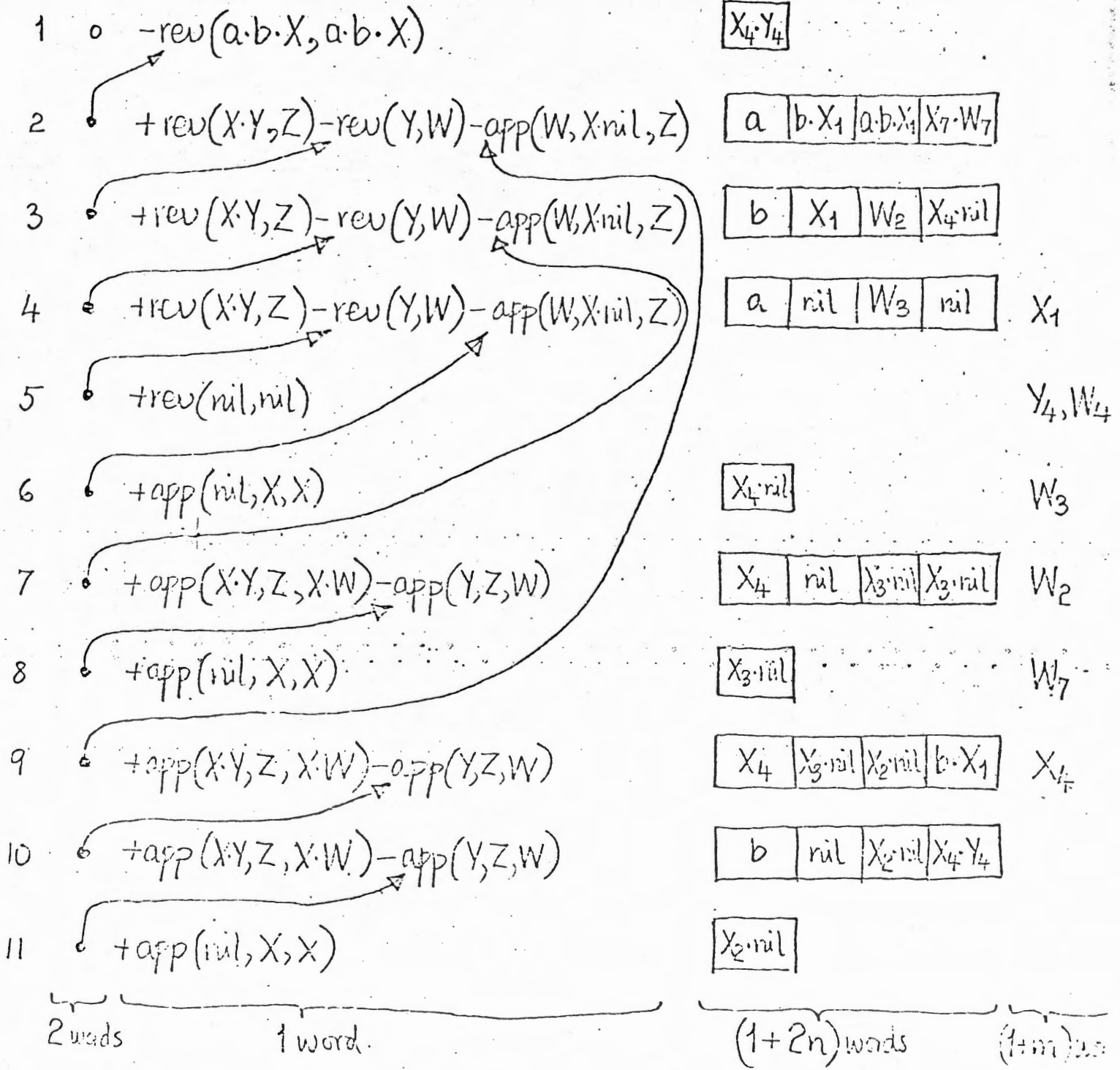
Snapshot 2

No.	Ancestor	Clause	X	Y	Z	W	Assignment
1	o	-rev(a.b.X, a.b.X)	nil				
2	o	+rev(X.Y.Z) - rev(Y,W) - app(W,X.nil,Z)	a	b.X ₁	a.b.X ₁	X ₃ .nil	
3	o	+rev(X.Y.Z) - rev(Y,W) - app(W,X.nil,Z)	b	X ₁	W ₂	nil	
4	o	+rev(nil, nil)					X ₁ , W ₃
5	o	+app(nil, X, X)	X ₃ .nil				W ₂
6		Seeking match for $\lceil -app(b.nil, a.nil, a.b.nil) \rceil$: fails.					

Snapshot 4

No. Ancestor Clause

X Y Z W Assignment



Total for this proof = $(5 \times 11) + (2 \times 28) + 7$
 = $55 + 56 + 7$
 = 118 words