

Untitled

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[trace] 2 ?- reverse(X,[a,b]).
Call: (7) reverse(_G441, [a, b]) ? creep
Call: (8) reverse(_G498, _L184) ? creep
Exit: (8) reverse([], []) ? creep
Call: (8) lists:append([], [_G497], [a, b]) ? creep
Fail: (8) lists:append([], [_G497], [a, b]) ? creep
Redo: (8) reverse(_G498, _L184) ? creep
Call: (9) reverse(_G501, _L204) ? creep
Exit: (9) reverse([], []) ? creep
Call: (9) lists:append([], [_G500], _L184) ? creep
Exit: (9) lists:append([], [_G500], [_G500]) ? creep
Exit: (8) reverse(_G501, [_G500]) ? creep
Call: (8) lists:append(_G500, [_G497], [a, b]) ? creep
Call: (9) lists:append([], [_G497], [b]) ? creep
Exit: (9) lists:append([], [b], [b]) ? creep
Exit: (8) lists:append([a], [b], [a, b]) ? creep
Exit: (7) reverse([b, a], [a, b]) ? creep
```

reverse([], []).

reverse([H|T], R) :- reverse(T, Rev), append(Rev, [H], R).

Query $\text{reverse}(x, [a, b])$
 $x = [b, a]$

$\text{reverse}(L3, L3)$
 FAIL

② $\text{reverse}([H|T], R) :- \text{reverse}(T, \text{Rev}), \text{append}(\text{Rev}, [H], R)$
 ③ $R = [a, b]$
 ⑤ $T = L3, \text{Rev} = L3$
 ⑦ $(L3, [H], [a, b])$ FAIL

④ $\text{reverse}([], L3)$
 ⑥ $T = \text{Rev}$
 ⑧ $\text{append}(\text{Rev}, [H], [a, b])$
 ⑩ $\text{Rev} = [a]$
 ⑪ $H = b$

unbound
 params

⑧ $\text{reverse}([H|T], R) :- \text{reverse}(T, \text{Rev}), \text{append}(\text{Rev}, [H], R)$
 $\hookrightarrow H, T, R$ unbound
 ⑩ $T = []$
 ⑪ $\text{Rev} = []$

⑬ $R = [H]$
 ⑭ $T = []$

⑮ The two input params must be equivalent!

⑨ $\text{reverse}(L3, L3)$

Query

reverse([a,b], x)

⑤ $x = [b,a]$

① reverse([], [])
FAIL

②

reverse([H|T], R) :- reverse(T, Rev), append(Rev, [H], R)

③ $H = a$
④ $T = [b]$

~~⑤~~ $[b]$

~~⑥~~ $Rev = [b]$

⑥ reverse([], []).
FAIL

⑦

reverse([H|T], R) :- reverse(T, Rev), append(Rev, [H], R)

⑧ $H = b$
⑨ $T = []$

⑩ []
⑪ $Rev = []$

⑫ $R = [b]$

⑪ reverse([], []).