

[illegible][illegible]

The image shows a Prolog interpreter window with two panes. The left pane contains the source code for a list reversal algorithm, and the right pane shows the execution trace.

Source Code (Left Pane):

```

%list.pl
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lista.pl

append([ ], L, L).
append([H:T], H:[R]:-)
    append(T, L, R).
divide(L, [ ], L).
divide([H:T], P, H:[L1, L2]:-)
    P>1,
    P1 is P-1,
    divide(T, P1, L1, L2).
inserte(E, P, L, R):-
    divide(L, P, L1, L2),
    append(L1, [E], L1E),
    append(L1E, L2, R).
insertelista(E, P, L, R):-
    divide(L, P, L1, L2),
    append(L1, E, L1E),
    append(L1E, L2, R).

```

Execution Trace (Right Pane):

The trace shows the execution of the `divide` predicate for the query `divide([a,b,c,d,e], 5, _)`. It details the recursive calls to `divide` and `append`, the state of variables `L`, `P`, `L1`, and `L2` at each step, and the final result `L2 = [a,b,c,d,e]`.

Trace Details:

- Initial Call:** `divide([a,b,c,d,e], 5, _)`
- Step 1:** `P is 5-1`, `divide([b,c,d,e], 4, _)`
- Step 2:** `P is 4-1`, `divide([c,d,e], 3, _)`
- Step 3:** `P is 3-1`, `divide([d,e], 2, _)`
- Step 4:** `P is 2-1`, `divide([e], 1, _)`
- Step 5:** `P is 1-1`, `divide([], 0, _)`
- Step 6:** `L2 = [a,b,c,d,e]`
- Step 7:** `append([], L2, L2)`
- Step 8:** `append([a], L2, L2)`
- Step 9:** `append([a,b], L2, L2)`
- Step 10:** `append([a,b,c], L2, L2)`
- Step 11:** `append([a,b,c,d], L2, L2)`
- Step 12:** `append([a,b,c,d,e], L2, L2)`
- Final Result:** `L2 = [a,b,c,d,e]`

The image shows a Prolog IDE with two windows. The left window contains a Prolog program for list manipulation, and the right window shows the execution trace of a query.

Left Window (Prolog Code):

```
lista.pl

append([ ], L, L).
append([H:T], L, [H:R]) :-
    append(T, L, R).
divide([L, I, ], L).
divide([H:T], P, [H:L1, L2]) :-
    P1,
    P1 is P-1,
    divide(T, P1, L1, L2).
insere(E, P, L, R) :-
    divide(L, P, L1, L2),
    append(L1, [E], L1E),
    append(L1E, L2, R).
insereLista(E, P, L, R) :-
    divide(L, P, L1, L2),
    append(L1, E, L1E),
    append(L1E, L2, R).
```

Right Window (Execution Trace):

```
[trace] 7- insereLista([10, 20, 30], [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], L2).
Call: (8) insereLista([10, 20, 30], [0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], L2) ? creep
Exit: (8) 691 ? creep
Call: (9) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 6, _4080, _4082) ? creep
Exit: (9) 691 ? creep
Call: (10) 4088 is 6+-1 ? creep
Exit: (10) 5 is 6+-1 ? creep
Call: (11) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 5, _4064, _4094) ? creep
Exit: (11) 591 ? creep
Call: (12) 4100 is 5+-1 ? creep
Exit: (12) 491 ? creep
Call: (13) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 4, _4076, _4106) ? creep
Exit: (13) 491 ? creep
Call: (14) 4112 is 4+-1 ? creep
Exit: (14) 391 ? creep
Call: (15) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 3, _4088, _4118) ? creep
Exit: (15) 391 ? creep
Call: (16) 4124 is 3+-1 ? creep
Exit: (16) 291 ? creep
Call: (17) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 2, _4100, _4130) ? creep
Exit: (17) 291 ? creep
Call: (18) 4136 is 2+-1 ? creep
Exit: (18) 191 ? creep
Call: (19) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 1, _4112, _4142) ? creep
Exit: (19) 191 ? creep
Call: (20) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 0, _4100, _4142) ? creep
Exit: (20) 191 ? creep
Call: (21) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 0, _4100, _4142) ? creep
Exit: (21) 191 ? creep
Call: (22) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 0, _4100, _4142) ? creep
Exit: (22) 191 ? creep
Call: (23) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 0, _4100, _4142) ? creep
Exit: (23) 191 ? creep
Call: (24) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 0, _4100, _4142) ? creep
Exit: (24) 191 ? creep
Call: (25) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 0, _4100, _4142) ? creep
Exit: (25) 191 ? creep
Call: (26) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 0, _4100, _4142) ? creep
Exit: (26) 191 ? creep
Call: (27) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 0, _4100, _4142) ? creep
Exit: (27) 191 ? creep
Call: (28) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 0, _4100, _4142) ? creep
Exit: (28) 191 ? creep
Call: (29) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 0, _4100, _4142) ? creep
Exit: (29) 191 ? creep
Call: (30) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 0, _4100, _4142) ? creep
Exit: (30) 191 ? creep
Call: (31) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 0, _4100, _4142) ? creep
Exit: (31) 191 ? creep
Call: (32) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 0, _4100, _4142) ? creep
Exit: (32) 191 ? creep
Call: (33) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 0, _4100, _4142) ? creep
Exit: (33) 191 ? creep
Call: (34) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 0, _4100, _4142) ? creep
Exit: (34) 191 ? creep
Call: (35) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 0, _4100, _4142) ? creep
Exit: (35) 191 ? creep
Call: (36) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 0, _4100, _4142) ? creep
Exit: (36) 191 ? creep
Call: (37) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 0, _4100, _4142) ? creep
Exit: (37) 191 ? creep
Call: (38) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 0, _4100, _4142) ? creep
Exit: (38) 191 ? creep
Call: (39) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 0, _4100, _4142) ? creep
Exit: (39) 191 ? creep
Call: (40) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 0, _4100, _4142) ? creep
Exit: (40) 191 ? creep
Call: (41) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 0, _4100, _4142) ? creep
Exit: (41) 191 ? creep
Call: (42) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 0, _4100, _4142) ? creep
Exit: (42) 191 ? creep
Call: (43) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 0, _4100, _4142) ? creep
Exit: (43) 191 ? creep
Call: (44) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 0, _4100, _4142) ? creep
Exit: (44) 191 ? creep
Call: (45) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 0, _4100, _4142) ? creep
Exit: (45) 191 ? creep
Call: (46) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 0, _4100, _4142) ? creep
Exit: (46) 191 ? creep
Call: (47) divide([0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0, 0], 0, _4100, _4142) ? creep
Exit: (47) 191 ? creep
Call: (48) divide([0, 0, 0, 0, 0, 0, 0, 0, 0,
```


%append(+Lista1, +Lista2, -ListaConcatenada).

%appeend([1,2],[3,4],L).

%L = [1,2,3,4].

%insere(+Elemento, +Posicao, +Lista, -Listainserida).

%insere(4,2,[1,2,3,4,5],L).

%L = [1,4,2,3,4,5].

%inserelista(+Elemento ou Lista, +Posicao, +Lista, -ListaInserida).

%inserelista([1,2,3],3,[1,2,3,4,5],L).

%L = [1,2,1,2,3,3,4,5].

%deletar(+Lista, +Posicao, -ListaRemovida).

%deletar([1,20,13,4,52],2,L).

%L = [1,13,4,52].