Prolog : TP9

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Questions

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/**
TP 9 Prolog

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% Question 1.1 %

combiner([],[]).

combiner([T|Q],List_of_binomes):-
      creer_binomes(T,Q,R1),
      combiner(Q,R2),
      append(R1,R2,List_of_binomes).

creer_binomes(_,[],[]).
creer_binomes(B1,[T|Q],[(B1,T)|Cbin]):-
      creer_binomes(B1,Q,Cbin).

% Question 1.2 %

check_acc(_,[]).

check_acc(P,[(Tb1,Tb2)|Q]):-
      \==(P,Tb1),
      \==(P,Tb2),
      check_acc(P,Q).

extraire_aux(Lbin,0,TP,Lbin,TP).

extraire_aux([(B1,B2)|Q], NbBinomes, TP, RemainingBinomes, Acc ):-
      \==(NbBinomes,0),
      check_acc(B1,Acc),
      check_acc(B2,Acc),
      NbBinomesRes is NbBinomes - 1,
      extraire_aux(Q, NbBinomesRes, TP, RemainingBinomes, [(B1,B2)|Acc]).

extraire_aux([(B1,B2)|Q], NbBinomes, TP, [(B1,B2)|RemainingBinomes], Acc ):-
      \==(NbBinomes,0),
      not(check_acc(B1,Acc)),
      extraire_aux(Q, NbBinomes, TP, RemainingBinomes, Acc).

extraire_aux([(B1,B2)|Q], NbBinomes, TP, [(B1,B2)|RemainingBinomes], Acc ):-
      \==(NbBinomes,0),
      not(check_acc(B2,Acc)),
      extraire_aux(Q, NbBinomes, TP, RemainingBinomes, Acc).

extraire(AllPossibleBinomes, NbBinomes, TP, RemainingBinomes ):-
      extraire_aux(AllPossibleBinomes, NbBinomes, TP, RemainingBinomes, [] ).
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% Question 1.3 %

les_tps(Copains, Tps) :-
      combiner(Copains, Binomes),
      longueur_liste(Copains,NbBinomes),
      NbBinomesRes is NbBinomes//2,
      extraire_all(Binomes,NbBinomesRes,Tps).

extraire_all([],_,[]).

extraire_all(Binomes,NbBinomes,[TP|Tps]):-
      extraire(Binomes,NbBinomes,TP,RemainingBinomes),
      extraire_all(RemainingBinomes,NbBinomes,Tps).

longueur_liste([],0).

longueur_liste([_|Q],Res):-
      longueur_liste(Q,R2),
      Res is R2+1.

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%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%%
%%%%% TEST %%%%%
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% Question 1.1 %


[eclipse 2]: combiner (["valou",
             "maud",
             "corentin",
             "jessica parker",
             "hoel",
             "flobear",
             "justin bieber"],
             L).

L = [("valou", "maud"),
      ("valou", "corentin"),
      ("valou", "jessica parker"),
      ("valou", "hoel"),
      ("valou", "flobear"),
      ("valou", "justin bieber"),
      ("maud", "corentin"),
      ("maud", "jessica parker"),
      ("maud", "hoel"),
      ("maud", "flobear"),
      ("maud", "justin bieber"),
      ("corentin", "jessica parker"),
      ("corentin", "hoel"),
      ("corentin", "flobear"),
      ("corentin", "justin bieber"),
      ("jessica parker", "hoel"),
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      ("jessica parker", "flobear"),
      ("jessica parker", "justin bieber"),
      (..., ...), ...]

[eclipse 4]: combiner (["valou","maud","corentin","flobear"],L).

L = [("valou", "maud"),
      ("valou", "corentin"),
      ("valou", "flobear"),
      ("maud", "corentin"),
      ("maud", "flobear"),
      ("corentin", "flobear")]



% Question 1.2 %

[eclipse 49]:  combiner(["valou","maud","coco","flobear","hoel","justin"],
                  Binomes),
                  extraire(Binomes,2,TP,R).

Binomes = [("valou", "maud"),
      ("valou", "coco"),
      ("valou", "flobear"),
      ("valou", "hoel"),
      ("valou", "justin"),
      ("maud", "coco"),
      ("maud", "flobear"),
      ("maud", "hoel"),
      ("maud", "justin"),
      ("coco", "flobear"),
      ("coco", "hoel"),
      ("coco", "justin"),
      ("flobear", "hoel"),
      ("flobear", "justin"),
      ("hoel", "justin")]

TP = [("coco", "flobear"),
      ("valou", "maud")]

R = [("valou", "coco"),
      ("valou", "flobear"),
      ("valou", "hoel"),
      ("valou", "justin"),
      ("maud", "coco"),
      ("maud", "flobear"),
      ("maud", "hoel"),
      ("maud", "justin"),
      ("coco", "hoel"),
      ("coco", "justin"),
      ("flobear", "hoel"),
      ("flobear", "justin"),
      ("hoel", "justin")]
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[eclipse 5]: les_tps(["coco","valou","maud","flobear"],Tps).

Tps = [[("maud", "flobear"),("coco", "valou")],
      [("valou", "flobear"),("coco", "maud")],
      [("valou", "maud"),("coco", "flobear")]]


*/
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Listing 1: tp9.pl