Prolog for Artificial Intelligence

One of the regulations of the International Rugby Board (IRB) states that for a player to be eligible to play for a given country, the player’s father or mother or grandfather or grandmother must have been born in that country. Assume that there is a complete genealogical database consisting of Prolog clauses of the form \texttt{person}(P, B, F, M), where \( P \) is a person’s name, \( B \) is the country of \( P \)’s birth, \( F \) is their father’s name and \( M \) is their mother’s name. For example, the clause

\begin{verbatim}
person(bruce, australia, rhodri, bronwyn).
\end{verbatim}

might appear in such a database. Further assume that names in the database are constructed so as to refer uniquely to individuals. Write Prolog clauses defining the predicate \texttt{eligible} such that goals of the form \texttt{eligible}(P,C) succeed if and only if person \( P \) is eligible to play for country \( C \) according to the above regulation.

[10 marks]

Given a list of players on a given country’s team, define a predicate \texttt{checkteam} that will check each member of the team for eligibility according to the \texttt{eligible} predicate, and furthermore check that each player appears on the list only once. The \texttt{checkteam} goal will fail if any player is ineligible or if any player is listed more than once.

[10 marks]