Prolog for Artificial Intelligence

Consider the task of normalising sum expressions. For example, the sums \((a + b) + (c + d)\) and \((a + (b + (c + d)))\) may be normalised into a standard form that is left associative: \(a + b + c + d\) or equivalently \(((a + b) + c) + d\). Write a Prolog procedure to define predicate \texttt{normsum}\ such that the goal \texttt{normsum(X,Y)} succeeds when the sum expression \(X\) normalises to \(Y\). Procedures not using the technique of difference structures will not receive full marks. [20 marks]