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Double coverings of hyperelliptic real algebraic curves.

We consider double and (possibly) branched coverings $\pi : X \rightarrow X'$ between real algebraic curves where X is hyperelliptic. We analyze the topological features and ramification data of such coverings. For each isomorphism class of these coverings we also describe a representative, with defining polynomial equations for X and for X' , a formula for the involution that generates the covering transformation group, and a rational formula for the covering projection $\pi : X \rightarrow X'$. (Received February 26, 2007)