Prym varieties of étale covers of hyperelliptic curves

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Abstract. It is well known that the Prym variety of an étale cyclic covering of a hyperelliptic curve is isogenous to the product of two Jacobians. Moreover, if the degree n of the covering is odd or congruent to 2 mod 4, then the canonical isogeny is an isomorphism. It is a natural question whether this is true for arbitrary degrees. We show that this is not the case by computing the degree of the isogeny for n a power of 2. Furthermore, we compute the degree of a closely related isogeny for arbitrary n.