that the cohomology of finite groups commutes with direct products. (ii) follows from the Approximation Lemma ([3], ch. I § 3).

Proof of the Theorem: Let us consider the exact sequences of G-modules

$$0 \to L \xrightarrow{D} V_L \xrightarrow{\psi} V_L/D(L) \to 0,$$

$$0 \to B \xrightarrow{D} V_B \xrightarrow{\psi} V_B/D(B) \to 0.$$

If we look at the two induced long exact sequences of cohomology groups, and since $H^i(G,L) = 0 = H^i(G,V_L)$ for any $i \in \mathbb{Z}$, then $H^i(G, V_L/D(L)) = 0$. On the other hand

$$V_B/D(B) \cong V_B/V_B \cap D(L)$$

$$\cong V_B + D(L)/D(L) = V_L/D(L) \quad \text{(by Lemma 3 (ii))};$$

therefore

$$H^i(G, V_B/D(B)) = 0 \quad (\text{for } i \in \mathbb{Z}),$$

and so $H^i(G,B) = H^i(G,V_B)$. Lemma 3 (i) completes the proof.

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