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Since $H^n(M,\mathbb{C}) = \bigoplus_{p+q=n} H^{p,q}(M)$,

$$H^n(M,\mathbb{C}) + \overline{H^n(M,\mathbb{C})} = 2H^n(M,R)$$

$$\Rightarrow \bigoplus_{p+q=n} H^{p,q}(M) + \overline{\bigoplus_{p+q=n} H^{p,q}(M)} = \bigoplus_{p+q=n} H^{p,q}(M) + \bigoplus_{p+q=n} H^{q,p}(M)$$

$$= \bigoplus_{p+q=n} \left(H^{p,q}(M) + H^{q,p}(M)\right) = 2H^n(M,R)$$

$$= 2\left\{ \bigoplus_{\substack{p+q=n \\ p<q}} \left(H^{p,q}(M) \oplus H^{q,p}(M)\right) \oplus \bigoplus_{p=p=\frac{n}{2}} H^{p,p}(M) \right\}$$

$$\Rightarrow \bigoplus_{\substack{p+q=n \\ p<q}} \left(H^{p,q}(M) \oplus H^{q,p}(M)\right) \oplus H^{p,p}(M) = H^n(M,R)$$

This is nonsense!

$$H^n(M,\mathbb{C}) = \bigoplus_{p+q=n} H^{p,q}(M).$$

$$H^n(M,\mathbb{C}) \cap H^n(M,R) = \left(\bigoplus_{p+q=n} H^{p,q}(M)\right) \cap H^n(M,R)$$

$$= \left(\bigoplus_{\substack{p+q=n \\ p<q}} \left(H^{p,q}(M) \oplus H^{q,p}(M)\right) \oplus H^{p,p} \right) \cap H^n(M,R).$$

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