Denial of the manipulation of quaternions in bivalent logic

We assume the method and apparatus of Meth8/VŁ4 with Tautology as the designated *proof* value, **F** as contradiction, N as truthity (non-contingency), and C as falsity (contingency). Results are a 16-valued truth table in row-major and horizontal, or repeating fragments of 128-tables for more variables.

LET p, q, r, s: Ĥ or 1-circumflex, Î, Ĵ, K̂;
~ Not; + Or; & And; = Equivalent;
z (z&z), zz.

From: De Haas, E.P.J. (2018). A biquaternion based generalization of the Dirac current into a Dirac current probability tensor with closed system condition. vixra.org/pdf/1810.0349v1.pdf
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For the Pauli spin level, quaternions can be represented by the basis (Ĥ, Î, Ĵ, K̂) with these properties:

ÎÎ=ĴĴ=K̂K̂=−Ĥ and ĤĤ=Ĥ; (2.1.1)
(q=(r=s))=~p ; FTTF TFFT TFFT FTTF (2.1.2)

ĤK̂=K̂Ĥ= K̂ for Î, Ĵ, K̂; (2.2.1)
(((p&s)=s)+((p&q)=q))+((p&r)=r) ; TTTT TTTT TTTT TTFT (2.2.2)

ÎĴ=−ĴÎ=K̂; (2.3.1)
((q&r)=~(r&q))=s ; TTTT TTTT FFFF FFFF (2.3.2)

ĴK̂=−K̂Ĵ=Î; (2.4.1)
((r&s)=~(s&r))=q ; TTFF TTFF TTFF TTFF (2.4.2)

K̂Î=−ÎK̂=Ĵ. (2.5.1)
((s&q)=~(q&s))=r ; TTTT FFFF TTTT FFFF (2.5.2)

Eqs. 2.1.2-2.5.2 as rendered are *not* tautologous. This means that quaternions cannot be represented in bivalent logic and hence cannot be manipulated in bivalent logic. Therefore to use bivalent logic on quaternions is a contradiction, and not a convenience as universally claimed.