Erratum: Functions of multivectors in 3D Euclidean geometric algebra via spectral decomposition (for physicists and engineers)

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There is an incorrect formula in the chapter 2. Functions of multivectors

$$f\left(u_{\pm}\right)=f\left(\pm 1\right)u_{\pm}.$$

From $M=M_{+}u_{+}+M_{-}u_{-}$ and $f\left(M\right)=f\left(M_{+}\right)u_{+}+f\left(M_{-}\right)u_{-}$ we have

$$f\left(u_{\pm}\right)=f\left(1\right)u_{\pm}+f\left(0\right)u_{\mp}.$$

We see now that the logarithm of idempotents is not defined, since $\log\left(0\right)$ is not defined. There is another form of the logarithm formula

$$\log M=\log\left|M\right|+\varphi\hat{F},$$

however, we have $\left|u_{+}\right|=\sqrt{u_{+}u_{-}}=0$, which leads to the same conclusion.

There is an incorrect calculation on the **page 7** (the **example 1.**), the correct calculation is

$$X=\exp\left(-j\pi u_{-}\right)=\exp\left(0\right)u_{+}+\exp\left(-j\pi\right)u_{-}=u_{+}-u_{-}=e_{1}.$$

(The sentence after the calculation is also incorrect.)

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