The four principal regular tetraon ***directions*** behave in the same way $P_{u_\mu}\Psi^{pqg\text{-}1}_{\text{auto},\wedge} = q_\mu u_\mu$.
To prevent unnecessary association with an external active spin½ ***direction*** $u_3 \leftarrow \sigma_3$ we instead choose to project on the real scalar dimension '***direction***'[375] $u_0 \to \mathbf{1} \Rightarrow\ s_0 u_0 = ½ \sim\ |\lambda_{\text{auto},0}|$,
then in this ***direction*** $(P_{u_0} s_0)u_0 = \frac{1}{2}$, because $u_0^{-1}u_0 = 1$, and the other ***directions*** have the impact

(6.471) $\quad (P_{u_0} s_1)u_0 = (P_{u_0} s_2)u_0 = (P_{u_0} s_3)u_0 = \frac{1}{6}$, $\quad$ as an alternative to (6.469).

In this chosen 1-vector ***direction*** u_0 as well as the other four we have the projection impact

(6.472) $\quad P_{u_0}\Psi^{pqg\text{-}1}_{\text{auto},\wedge} = q_0 u_0$, and the scalar result $(P_{u_0}\Psi^{pqg\text{-}1}_{\text{auto},\wedge})u_0 = q_0$ for any arbitrary external ***direction***

giving the sixteen combinations resulting in eight different cases of ***quantitative*** values:

(6.473)

Projection ***direction*** u_0

$(\pm s_0 \pm s_1 \pm s_2 \pm s_3) \to$		$s_0 = \frac{1}{2}u_0$,	$s_0 u_0 = \frac{1}{2}$,	?
$\Psi^{pqg\text{-}1}_{\text{auto},\wedge} \downarrow$	|	$P_{u_0}\Psi^{pqg\text{-}1}_{\text{auto},\wedge}$,	$(P_{u_0}\Psi^{pqg\text{-}1}_{\text{auto},\wedge})u_0$	$\downarrow$
$\{s_0, s_1, s_2, s_3\}$	$\to$	$q_0 u_0^{-1}$,	q_0	
$(+,+,+,+) \to$	$\to$	$+0$	0,	n
$(+,-,+,+)$				
$(+,+,-,+)$	$\to$	$+\frac{1}{3}u_0^{-1}$	$\frac{1}{3}$,	$\overline{\text{d}}$
$(+,+,+,-)$				
$(+,-,-,+)$				
$(+,-,+,-)$	$\to$	$+\frac{2}{3}u_0^{-1}$	$\frac{2}{3}$,	u
$(+,+,-,-)$				
$(+,-,-,-) \to$	$\to$	$+u_0^{-1}$	1,	p
$(-,+,+,+) \to$	$\to$	$-u_0^{-1}$	-1,	e
$(-,+,+,-)$				
$(-,+,-,+)$	$\to$	$-\frac{2}{3}u_0^{-1}$	$-\frac{2}{3}$,	$\overline{\text{u}}$
$(-,-,+,+)$				
$(-,-,-,+)$				
$(-,-,+,-)$	$\to$	$-\frac{1}{3}u_0^{-1}$	$-\frac{1}{3}$,	d
$(-,+,-,-)$				
$(-,-,-,-) \to$	$\to$	-0	0,	n

Projection ***direction*** u_3

$(\pm s_0 \pm s_1 \pm s_2 \pm s_3)$	$s_3 = \frac{1}{2}u_3$
$\Psi^{pqg\text{-}1}_{\text{auto},\wedge} \downarrow$	$P_{u_3}\Psi^{pqg\text{-}1}_{\text{auto},\wedge}$
$\{s_0, s_1, s_2, s_3\} \to$	$q_3 u_3^{-1}$
$(+,+,+,+) \to$	$0u_3^{-1}$
$(-,+,+,+)$	
$(+,-,+,+)$	$\frac{1}{3}u_3^{-1}$
$(+,+,-,+)$	
$(-,-,+,+)$	
$(-,+,-,+)$	$\frac{2}{3}u_3^{-1}$
$(+,-,-,+)$	
$(-,-,-,+) \to$	$1u_3^{-1}$
$(+,+,+,-) \to$	$-1u_3^{-1}$
$(+,+,-,-)$	
$(+,-,+,-)$	$-\frac{2}{3}u_3^{-1}$
$(-,+,+,-)$	
$(-,-,+,-)$	
$(-,+,-,-)$	$-\frac{1}{3}u_3^{-1}$
$(+,-,-,-)$	
$(-,-,-,-) \to$	$-0u_3^{-1}$

It is up to the reader to interpret the full consequence of this combination table for ***entity*** $\Psi_{½}$ and compare it with the spin½ fermions classified in the first generation of the Standard Model.
What we have found is, that a fundamental indivisible spin½ ***entity*** $\Psi_{½}$ in physical 3-space by its own free S^3 symmetry caries a ***quantitative*** *cargo* (charge) expressed as scalars of the ratio

(6.474) $\quad q = \quad 1,\ \frac{2}{3},\ \frac{1}{3},\ 0,\ -\frac{1}{3}, -\frac{2}{3},\ -1.$

In the right table in (6.473) we show the projection ***direction*** u_3 and use $P_{u_3}\Psi^{pqg\text{-}1}_{\text{auto},\wedge} = q_3 u_3$.
The foundation of this full free internal symmetry is a projection into just one arbitrary ***direction*** expressed by the internal unit 1-vector u, where $u^{-1}u = 1$, chosen normed $u^2 = 1$.

[375] Just as the complex numbers of the real scalar part and the imaginary part represent different ***directions*** in space. This is better expressed as the plane rotor $U_\theta = u_\theta u_0 = \cos\theta + i\sin\theta$, a scalar and a bivector. This we right multiplying by u_0 and achieve $u_\theta = (\cos\theta)u_0 + (\sin\theta)u_{\perp 0}$, with the real scalar part $\cos\theta$ representing the wanted 1-vector ***direction*** u_0, in plane $i = u_{\perp 0}\wedge u_0$.

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The transversal plane to this we express by the unit bivector $i = \boldsymbol{i}u$, normed as $i^2 = -1$.[376]
Projecting the regular tetraon four-angular-momenta bivectors $\Psi^{pqg\text{-}2}_{\text{auto},\wedge} = \Psi_{\text{auto},\wedge}$ into this plane i ***direction***, we write by using the commuting chiral volume pseudoscalar $\boldsymbol{i}^2 = -1, \Rightarrow\ \boldsymbol{i}^{-1} = -\boldsymbol{i}$.

(6.475) $\quad P_u\Psi^{pqg\text{-}2}_{\text{auto},\wedge} = P_u(S_0+S_1+S_2+S_3) = P_u\boldsymbol{i}(s_0+s_1+s_2+s_3) = \boldsymbol{i}P_u(\pm s_0 \pm s_1 \pm s_2 \pm s_3) = q\boldsymbol{i}u = qi$

To make a scalar ***quantity*** impact of this bivector, we right multiply by the bivector $-i = -\boldsymbol{i}u$

(6.476) $\quad (P_u\Psi^{pqg\text{-}2}_{\text{auto},\wedge})(-i) = \ (P_u(S_0+S_1+S_2+S_3))(-\boldsymbol{i}u) = (\boldsymbol{i}P_u(\pm s_0 \pm s_1 \pm s_2 \pm s_3))(-\boldsymbol{i})u = q.$

Now the reader should ask, why is such ***direction*** projection for one ***entity*** $\Psi_{½}$ of interest?
The answer is rather simple. We need a signal of information from this ***entity*** location called A $\leftarrow \Psi_{½,A}$ to another external B location (to and from vice versa). The idea is that the information is carried by spin one subtons that possesses[377] one hole ***quantum*** of angular momentum ± 1 in a specific ***direction outwards*** $\overrightarrow{AB}$ from $\Psi_{½,A}$ (alternative inwards $\overrightarrow{BA}$ to location A).
This is the specific defining one 1-vector ***direction*** for the achievable transmitted information in the transversal angular plane of any ***quantity*** of this ***quality*** of the ***entity*** $\Psi_{½,A}$.
The projection ***direction*** of interest internal in $\Psi_{½,A}$ is then $u \parallel \overrightarrow{AB}$, positively orientated ***outwards***.
We will look into the different values of this covariant ***direction*** projection ***quantity*** of the idealised tetraon symmetry of one ***entity*** $\Psi_{½}$ in just one ***direction***.

6.5.10.5. The Regular Tetraon Symmetry *Quantity* Cargo of One Indivisible Spin½ *entity quality*

We will look further at the simplest case of (6.473) $|q| = 1$ where there is a full count ***quantity*** for just one ***entity*** $\Psi_{½,A}$. Because we have defined the electron charge negative, we start with $q = -1$ and set the internal projection ***direction*** parallel to the external information ***direction*** $u_0 = u \parallel \overrightarrow{AB}$. We recall the four spin½ oscillating angular momentum ***pqg***-1 ***directions*** $\{s_0 = \frac{1}{2}u_0,\ s_1 = \frac{1}{2}u_1,\ s_2 = \frac{1}{2}u_2,\ s_3 = \frac{1}{2}u_3\}$ for (6.466)$\to$ $\Psi^{pqg\text{-}1}_{\text{auto},\wedge} = (\pm s_0 \pm s_1 \pm s_2 \pm s_3)$.
We special choose the covariant projection ***direction*** as $s_0 = \frac{1}{2}u_0$ possessing transversal angular momentum oscillation with a retrograde negative orientation (***outwards*** sinistral)

(6.477) $\quad S_0^\dagger = -\frac{1}{2}\boldsymbol{i}u_0.$

The other three ***directions*** u_1, u_2, u_3 possess synchronous angular momenta oscillations with progressive positive orientations (***outwards*** dextral)

(6.478) $\quad S_1 = \frac{1}{2}\boldsymbol{i}u_1,\quad S_2 = \frac{1}{2}\boldsymbol{i}u_2,\quad S_3 = \frac{1}{2}\boldsymbol{i}u_3.$

Due to the spatial ***directions*** of the regular tetraon structure (6.460) these three plane cyclic angular oscillations add together and give just one angular momentum component[378]

(6.479) $\quad S_1 + S_2 + S_3 = -\boldsymbol{i}s_0 = -\frac{1}{2}\boldsymbol{i}u_0.$

The symmetry tells us that this is just the same as the sum of their projections on the ***direction*** u_0
Adding these two contributions (6.477) and (6.479) together we have in total the added orientations $(\pm)$ of angular momentum (6.467)

(6.480) $\quad \Psi^{pqg\text{-}2}_{\text{auto},\wedge} = \ \boldsymbol{i}\Psi^{pqg\text{-}1}_{\text{auto},\wedge} = \ \boldsymbol{i}(-s_0+s_1+s_2+s_3) = \ (S_0^\dagger+S_1+S_2+S_3) = \ -\boldsymbol{i}u_0.$

To achieve the ***quantity*** of this we multiply with the ***direction*** of the information interaction $-\boldsymbol{i}u$ for the measurement, i.e., dual $q = (-s_0+s_1+s_2+s_3)u_0 = -1$, for a ***quantitative*** cargo.

[376] Given that $i^{-1}i = 1 = -ii\ \Rightarrow i^{-1} = -i$. We recall that i does not commute with 1-vectors §6.2.5.3 $i\cdot x = -x\cdot i$ or that $u\cdot X = -X\cdot u$ in the projection operation $P_u X = u^{-1}(u\cdot X) = -u^{-1}(X\cdot u)$. Therefore, we will avoid the ambiguity in the intuitive interpretation of the definition by sticking to the 1-vector definition (6.469) and using the commuting pseudoscalar $\boldsymbol{i},\ \boldsymbol{i}^2 = -1$ to make the dual transformation $x = -\boldsymbol{i}X = -X\boldsymbol{i}\ \Leftrightarrow\ X = \boldsymbol{i}x = x\boldsymbol{i}$.
[377] The transmitted information may lay in the transversal angular plane.
[378] For intuition, the reader can make an abstract association with three-phase electrical power. The alternating current synchronous oscillation in the three cores possesses each angular momentum from the progressive rotation of the generator.
At the electrical motor, this three-phase angular momentum is added together to one resulting in angular momentum for the motor.