Virtual-pair bonding may explain particle components and decay modes

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Abstract

It is accepted that quantum space is a filled with "virtual pairs" (VP) and they interact in certain ways with regular particles. The author considered the possibility that they also can bond together and to electrons, thereby adding mass. (Is the Higgs boson a VP?) By using a simple bookkeeping spreadsheet system to analyze decay modes, the author discovered the "Pair Decay Rule" which says that during all the decay modes of all particles (with the single exception of n→p decay), missing components always can be accounted for as e^+e^- pairs or $\nu\,\nu$ pairs. The author suggests the e^+e^- pairs return to the surrounding space as virtual pairs while pairs of neutrinos with opposite angular momentum annihilate. The analysis produced a component list for particles showing that all particles appear to be aggregations of only electrons, positrons and neutrino bonds. Neutrino types within a particle appear to represent different bonding types, possibly expaining Weak and Strong bonding. The particle component patterns seemed very analogous to molecular bonding, so the author uses similar formula styles.

Definite patterns appeared, including: (a) $W = \nu_e e$ seems analogous to an valence electron adding charge to neutral particles, with the ν_e acting as a bond. (b) The muon seems to be a single $VP\nu_\mu$ bonded to a W unit, μ^+=($VP\ \nu_\mu$)($\nu_e e^+$). As the simplest combination, muons are a prime candidate for researching Virtual Pairs, the W, and neutrino bonds. (c) Neutral pions are another special form: π^o= $(VP\nu_\mu)_4$ and seem to be the building blocks of all larger particles. The Strong Interaction may come from $\pi^o \approx \pi^o$ bonding, with the four ν bonds of the π^o analogous to carbon covalent bonding. (d) The proton appears to be $p^+ = \pi^o{}_6\, e^+$ and may gain stability by being analogous to a benzene ring. (e) Quarks appear to be references to structural components.
(f) Decay analysis says K particles have more than a single W (e.g. K^+= $\pi^o{}_3 W^+{}_2 W^-$) which may allow structural variations as a source of the "strange" properties. (g) Every object in the universe is a balance of particles and antiparticles internally.

Fig. 1 Summary chart.

Virtual Pair Components of Particles

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The only "fundamental particles" are e^+e^-. Decay analysis strongly suggests that all larger particles may be created from only the electron and positron, with neutrinos acting as angular momentum bonds. The quantum vacuum acts as a reservoir of e^+e^- Virtual Pairs. During decay, e^+e^- pairs may appear as visible decay products, or combine and fade into the *VP* background.

Pair Decay Rule. Bookkeeping of decay modes show that missing e^+e^- and $\nu\,\nu$ components in every decay mode disappear only as pairs (with n→p decay the only exception). The e^+e^- pairs ⇒ *VP*s, and $\nu\,\nu$ pairs cancel opposite angular momentum. The μ shows that ν_μ and ν_e can annihilate.

Cascading component lists. The author uses a spreadsheet to keep track of all components in a cascading style. Any changes in smaller particles change component lists of larger particles.

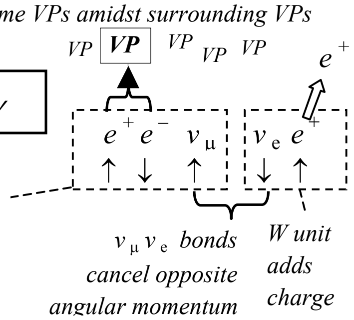
Pair "annihilation" during decay

e^+e^- pairs become VPs amidst surrounding VPs

Observed

$\Gamma 5 \quad \mu^+ \to e^+\gamma$

VP uses a ν_μ bond to add mass/bulk to other structures



Common structural patterns. Certain patterns emerged repeatedly in bookkeeping results: Neutrino types inside a particle seem to play various bonding roles. A W is an electron with a ν_e type of bond analogous to a valence electron. A muon is a single VP and ν_μ bonded to a W. Four ($VP\nu_\mu$) units make a π^o, which in turn is a building block for larger particles. The proton seems analogous to a benzene ring, made of six π^o. The following schematic diagrams are merely suggestive of structure. Molecular bonding may be the best guide to understanding internal particle bonding.

Decay involves pairs

$e^+e^- \Rightarrow VP$

$\nu\,\nu \quad \nu_e\,\nu_\mu \quad \nu\,\bar{\nu} \quad \Rightarrow E$

VP mass unit

$VP\ \nu_\mu$

Valence charge unit

$W^+ = \nu_e\ e^+$

Building block

$\pi^o = (VP\ \nu_\mu)_4$

$\mu^+ = VP\nu_\mu W^+$

$e^+e^-\ \nu_\mu\ \nu_e\ e^+$

↑ ↓ ↑ ↓ ↑

ν_e = Weak "valence" bonds

$\pi^+ = \pi^o\ W^+$

$\nu\ e^+e^-\ \nu$
$e^+e^-\quad e^+e^-\quad \nu\,e^+$
$\nu\ e^+e^-\ \nu$

$\pi^o = (VP\ \nu_\mu)_4$

$VP\ \nu$
$VP\ \nu \quad VP\ \nu$
$VP\ \nu$

$\nu\ e^+e^-\ \nu$
$e^+e^-\quad e^+e^-$
$\nu\ e^+e^-\ \nu$

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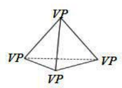

?

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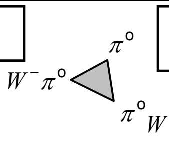
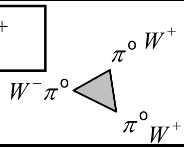
Strong bonds = $\pi^o \approx \pi^o$ = "covalent" type bond based on 4 ν_μ and 4 e^+e^- pairs in each π^o?

$K^o = \pi^o{}_3\,W_2$

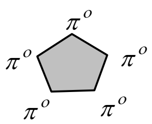
"Strangeness" of K due to more than one W?



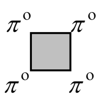
$K^+ = \pi^o{}_3\,W_3{}^+$



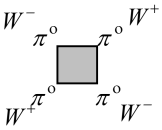
$\omega(782)^o = \pi^o{}_5$



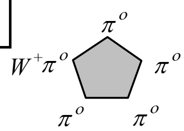
$\eta^o = \pi^o{}_4$



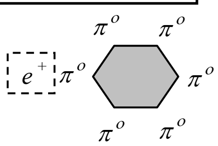
$\rho(770)^o = \pi^o{}_4\,W_4$



$\rho(770)^+ = \pi^o{}_5\,W^+$



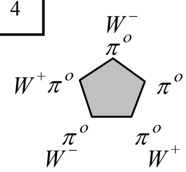
$\boldsymbol{p}^+ = \pi^o{}_6\ e^+$



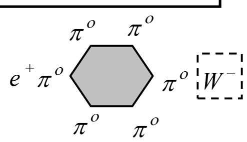
The proton can be shown to be likely to have 24*VP*, or 6 π^o. This is very suggestive of a stable benzene ring (a shown at left). It is also unique in apparently having no ν_e bond for the positron charge.

The neutron is a proton plus a W.

$K^*(892)^o = \pi^o{}_5\,W_4$



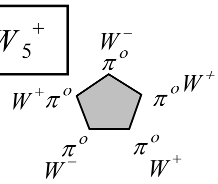
$\boldsymbol{n}^o = (\pi^o{}_6\ e^+)W^-$



Larger particles and resonances also use π^o as building blocks to add mass/bulk, and W units to add charge.

$\Lambda^o = n^o\pi^o$

$K^*(892)^+ = \pi^o{}_5\,W_5{}^+$



1. Introduction

Quantum mechanics implies that the whole of space is filled with pairs of 'virtual' particles and antiparticles that are constantly materializing in pairs, separating, and then coming together again and annihilating each other. These particles are called virtual because, unlike 'real' particles, they cannot be observed directly with a particle detector. Their indirect effects can nonetheless be measured, and their existence has been confirmed by a small shift (The 'Lamb Shift') they produce in the spectrum of light from excited hydrogen atoms.

Stephen Hawking 1977 [1]

The author is a retired science teacher, not a physicist, so the hypothesis is very speculative and simplified. The goal is to gain constructive feedback on the validity of the ideas, and inspire more research.

As Hawking says, it is been accepted for decades that quantum space is filled with virtual pairs (VP) and they interact in certain ways with regular particles. The author wondered if this interaction extended to bonding of VP to each other and to electrons but found nothing in the literature except references to Higgs Bosons, so developed a simple bookkeeping system based on a computer spreadsheet to analyze decay modes in the 2008 Particle Listings.[2]

The analysis simply determined which decay mode showed the maximum observed decay products, then that list was compared to other modes to find what was missing. Every decay mode of every particle (except n→p) matched what the author call the Pair Decay Rule: Missing components *always* equalled electron/positron pairs or neutrino pairs.

The analysis produced lists of components clearly suggesting that all particles could be assembled from only electrons and positrons, plus neutrinos which act like bonds (fig. 1 is a summary chart).

A key to success was a cascading spreadsheet, where the component list for smaller particles was input into the decay modes of larger particles. If a single ν is added to a muon or pion, every larger particle decay analysis would immediately change. Only one collection of component lists worked for all particles tested. The tables show results for particles up to the Λ and τ.

The muon is traditionally considered an odd particle, yet analysis suggests it to be a very important particle for deeper analysis because it represents the simplest case of a single VP bonded with a single neutrino to a W charge unit, and in particle research can play the role equivalent to the role of hydrogen atoms in understanding atomic structure.

The neutral pions π^o appear to be useful for "bulking" up particles and resonances, producing the mass effect, and consist of four VP with four neutrino bonds. The decay analysis suggests protons may have six π^o, perhaps analogous to a stable benzene ring made of six carbon atoms also with four bonds each. If particles are made of pairs, that means that each object in the universe is already a complete balance of particle/antiparticle pairs internally. The author also suggests how these pairs can produce bonding of protons in the nucleus.

2 Particle Decay Analysis

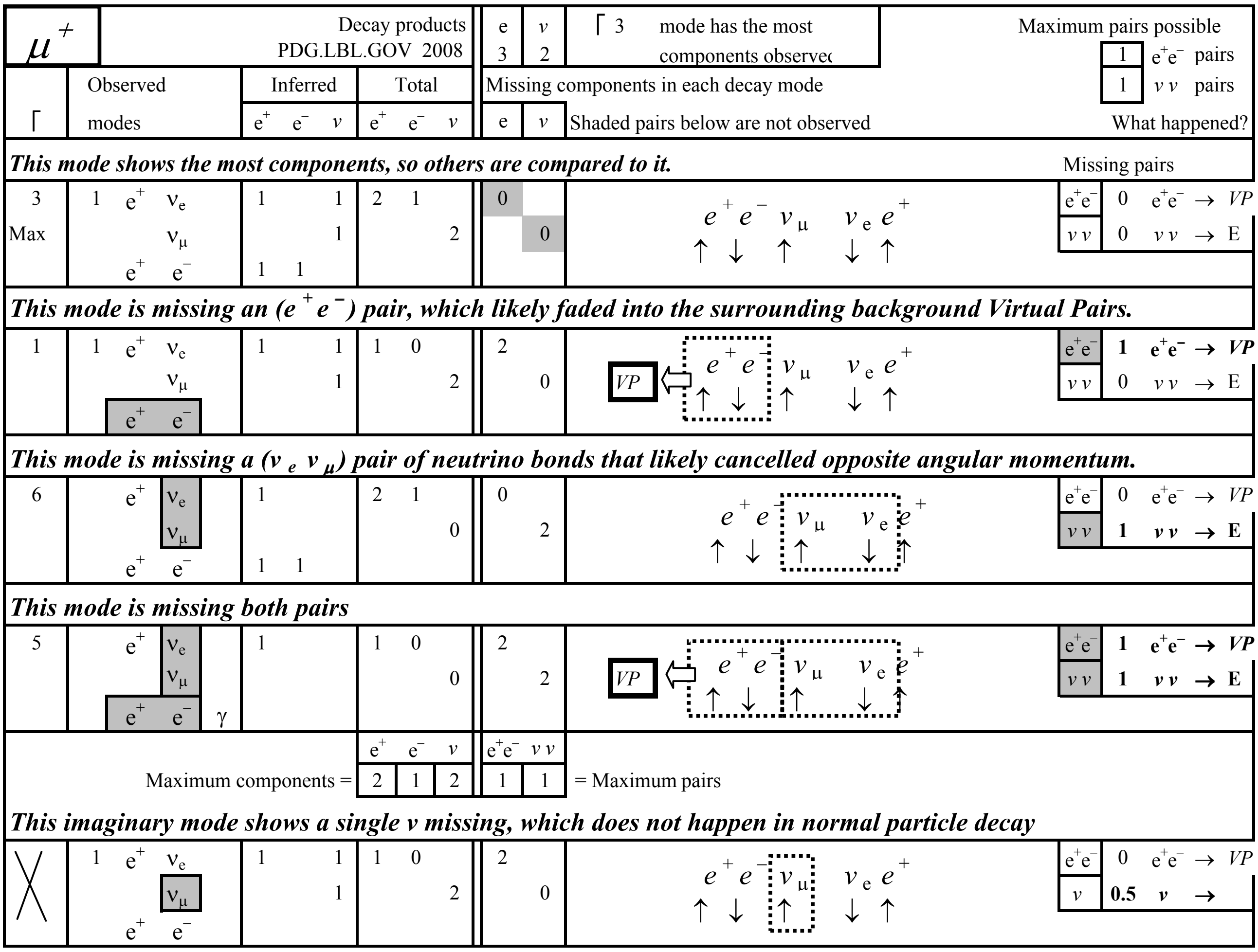
2.1 The muon demonstrates the Pair Decay Rule.

The author used a simple spreadsheet (Excel 2000) system to keep track of components during different decay modes based on the 2008 particle listings. Fig. 2 explains how the muon is analyzed, and Table I gives the full analysis. The bookkeeping of decay products assumes that every particle is at least composed of the minimum components needed to answer all of its decay modes. Missing components are calculated by subtracting observed particles from the total pool of available components.

What the author calls the "Pair Decay Rule" became quickly evident. Missing components always seem to be in pairs of $\nu\,\nu$ or $e^{+}e^{-}$. The only exception was relatively slow n→ p beta decay, which may be a different process than the usual decay of short-lived particles which quickly disassociate.

During the analysis of many particles, only specific published decay modes were used. For example, "$K\,\pi$" could be either $K^{o}\pi^{o}$ or $K^{+}\pi^{-}$, but the latter has two extra Ws and thus extra $\nu\,\nu$ and $e^{+}e^{-}$ pairs, which could throw out calculations of larger particles with these as decay products.

Figure 2. Explanation of how the author uses a spreadsheet to analyze decay modes to determine components of the muon. The Pair Decay Rule is clearly evident here.



2.2 The W unit as a valence electron with a ν bond.

This component analysis shows the $\nu_e e$ combination appearing very commonly in the tables, and seems analogous to a valence electron in an atom, the ν referring to some kind of bonding angular momentum. Therefore in this paper $W^+ = \nu_e e^+$ is labeled as the "W unit" or "W charge unit" instead of treating it as a particle. When there are multiple W units attached, only the net charge needs to be shown: $W_3^+ = W_2^+ W^-$.

The author suggests that counting the W as a "massive" particle just because it is difficult to observe independently is misleading when compared to inertial and gravitational mass. What is th energy needed by a colliding particle to not just separate a valence electron in an outer shell of an atom, but to do it so quickly that the electron momentarily carries its orbital angular momentum along with it after it leaves the atom? Should we take that collision energy as defining the "mass of a valence electron"?

2.3 The π^o as a building block

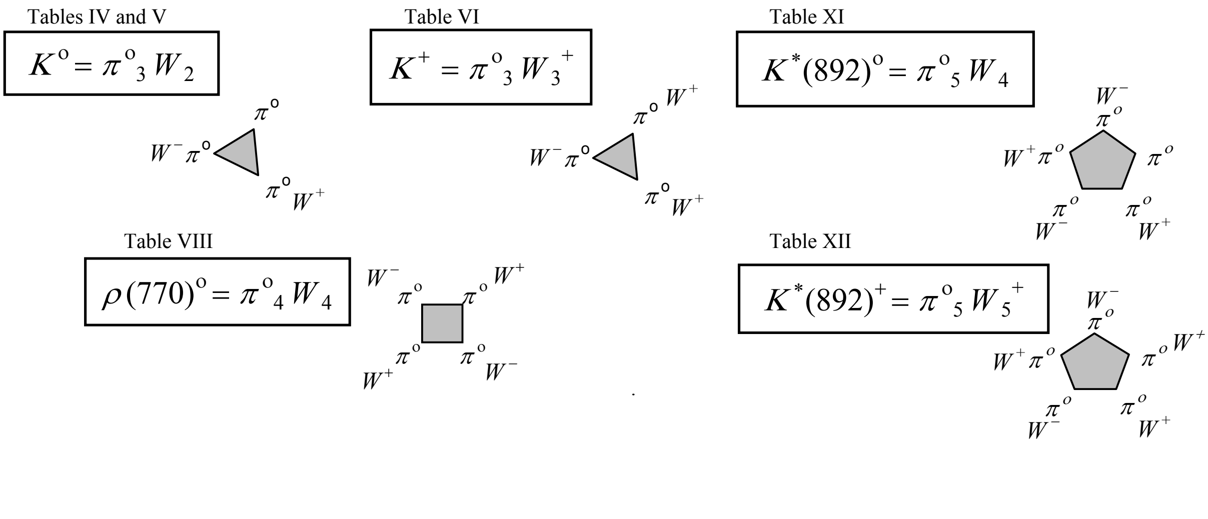
Decay analysis strongly supports the pion as having four VP with four ν bonds (Table II). The charged pion has an extra W attached like a valence electron. The pion appears to be a building block of higher particles as seen in the summary chart.

The $\pi^o W^+$ combination (Table III) could be written as π^+, so $K^+ = \pi^o{}_3 W_3^+$ could be written as $K^+ = \pi^+ \pi^+ \pi^-$. Future research should show which is more appropriate to describe particle components, but after doing this analysis, it seemed that the π^o was of more significance as a building block.

2.4 Strangeness and multiple Ws?

The decay analysis indicates K particles have several W attachments (fig. 3). Would these extra W units be related to "strangeness" because they could affect the structure and decay properties? The $\rho(770)$ also seems to have multiple W additions.

Figure 3. Analysis suggests some particles have multiple W units which may give them "strange" properties.



2.5 The ν_e as a valence bond to add charges, and the Weak Interaction

Neutrinos are usually considered as "particles," but in this analysis they seem more like types of bonds, representing how angular momentum can bond electrons and positrons in different patterns, analogous to orbital angular momentum in atoms. When orbital angular momentum is lost in at atom, it can appear as an independent photon. Similarly, when particles decay, excess bonding angular momentum may appear as independent neutrinos, but within a particle the "neutrino" might be better described as a "neutrino bond."

Neutrino types may refer to different bonding types. The ν_e is associated with the W and appears to be analogous to a simple valence electron bond, so the Weak Interaction may basically be analogous to the simple loss and gain of valence electrons.

2.6 The ν_μ bonds *VPs* to other particles

In this decay analysis, there seemed to be always an equal number of Virtual Pairs and ν bonds, separate from the ν_e used in W charge bonding. In the muon, these are called ν_μ and seems to refer to how the VPs bond with other VPs or with a W. An e^+e^- pair may be considered "Virtual" when charge and spin are balance, but when the pair has some kind of extra unit of angular momentum called the ν_μ it can form bonds with other particles, creating increased "mass" effect. Research into the muon should clarify this.

Also of importance, in modes 5-7 of the muon (Table I), the ν_e and ν_μ neutrinos annihilated, suggesting annihilation involves canceling opposite angular momentum bonding units irrespective of type of neutrino.

2.7 The Strong Interaction between pions

Because the Strong Interaction is associated with pions and larger particles, not the muon, I propose it involves the bonding of a group of four ($VP\nu_\mu$) of one π^o with those in another π^o, perhaps analogous to covalent bonding between four-bond carbon atoms. This might be symbolized as $\pi^o \approx \pi^o$ bonding (see fig. 4).

Do the $VP = e^+e^-$ pairs stay together as units in a larger particle, or do they disassociate into a complex bonding arrangement of independent electrons and positrons intermingling with the electrons and positrons from other VPs?

Fig. 4. Neutrino bonds. Types of neutrinos may refer to types of bonds, as in the various kinds of atomic and molecular bonds. The Strong Interaction could involve groups of four $VP\nu_\mu$, analgous to covalent bonding between carbons.

V_e = *weak "valence" bond*	V_μ = *single VP bond*
W	μ
$\sim \nu_e e$	$e^+e^-\nu_\mu \sim\sim \nu_e e$

Strong bond

$$\pi^o \qquad \pi^o \approx \pi^o \qquad \pi^o$$

$$\begin{array}{cccc} \sim\nu_\mu \; e^+e^- \; \nu_\mu\sim & & \sim\nu_\mu \; e^+e^- \; \nu_\mu\sim & \\ e^+e^- \quad e^+e^- & & e^+e^- \quad e^+e^- & \\ \sim\nu_\mu \; e^+e^- \; \nu_\mu\sim & & \sim\nu_\mu \; e^+e^- \; \nu_\mu\sim & \end{array}$$

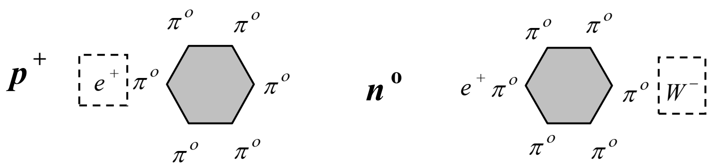
2.8 A proton ring?

The Pair Decay Rule analysis uses the maximum decay mode as the standard for each particle. However, the proton's maximum decay mode⌈21 $p^+ = (K^*(892)^o)\ e^+$ implies 22 VPv pairs plus two more v and the positron (Tables XIII and XIV). The result is an awkward group of five pions which I nickname for this paper $p^+[5\pi]$.

If there were instead an unnoticed two extra VP (= 2 e^+e^- pairs), the component list would produce a nice group of six π^o shown in Tables XV and XVI, which I nickname $p^+[6\pi]$. This immediately brings to mind a relatively stable benzene ring made of six carbon atoms, each also with four bonds like the π^o(fig. 5) The Pair Decay Rule works correctly with both forms.

The second unusual item with the proton is that decay analysis suggests it may be the only particle with a positron charge component but without a bonding v_e intermediary, which seems to imply a unique bonding arrangement. A positron moving around a ring structure would conveniently produce a magnetic field for the proton.

Figure 5. Protons may have six pions and be like a benzene ring



2.9 The Strong Force in the nucleus.

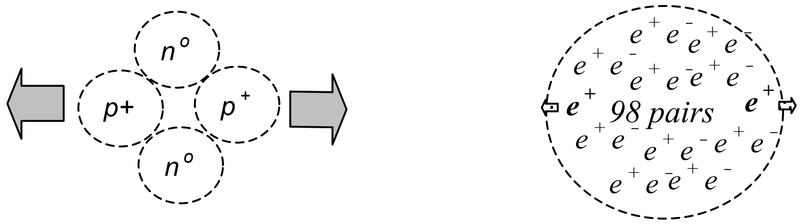
Interestingly, the Strong Force is traditionally treated as especially strong because of its ability to hold many positive protons together in a nucleous. However, this Virtual Pair model says the protons are really electron/positron pairs in some dynamic bonding arrangement, with a single extr positron to add charge. This drastically changes the situation, and can turn repelling forces into bonding interactions.

For example, we treat the helium nucleus as having two protons repelling each other, but bonded somehow with two neutrons. In this Virtual Pair model, there are 24 e^+e^- pairs each, or 96 electrons and 96 positrons. The two protons add just two extra positrons to the mix, making 96 e^- and 98 e^+. The two neutrons add two more pairs (e^+ and a W^-). adding up to 98 e^- and 100 e^+ as in fig. 6. And in the complex bonding process of mixing components, the two extrae^+ are probably partially shielded from each other.

Figure 6. How the Virtual Pair Model may help explain nuclear forces.

Traditional view of Strong Force to hold repelling protons together in He

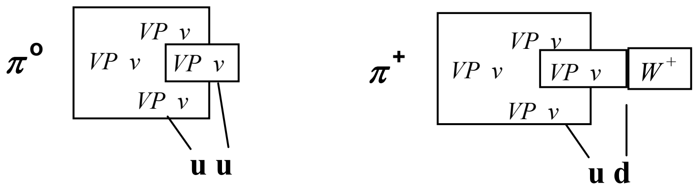
Virtual Pair Model has two positrons shielded from each other amidst the bonding activity



2.10 Hints at Quarks

Quarks may be references to structural components. I suggest one **u** could refer to the ability of a π^o within a structure to add a W charge unit, and **d** might mean that it did have an attached W (fig. 7.). With protons, the other **u** could refer to the main six π^o structure which may only accept a single W.

Figure 7. Quarks may refer to dynamic or structural units of particles, such as whether a W is attached.



2.11 Balanced matter and antimatter within particles

Historically, particles discovered first seem to be called "matter" and the opposite version "antimatter" so we have negative electrons and positive protons as matter. In this decay analysis, it appears as if the main ingredients of all particles in the universe are only electrons and positrons, plus pairs of opposite neutrino angular momentum. This is indicated with the universal success of the Pair Decay Rule, and as shown by the ability of particles to have decay modes where nothing is left but unpaired charges and neutrinos (fig. 8).

Note that the π^o minimum shows 2γ but when the π^+ decays, the π^o component disappears without a trace.

Figure 8. Decay modes show that all particles are made of matter and antimatter pairs (VP and $\nu\,\nu$), and can self-annihilate through the Pair Decay Rule, leaving only gamma rays, surplus net charge, and any single ν remaining.

⌈1 $\pi^o \rightarrow 2\gamma$

⌈3 $\rho(770)^+ \rightarrow \pi^+\gamma$ ----------------------------▶ ⌈1 $\pi^+ \rightarrow \nu_\mu e^+$

⌈7 $\eta^o \rightarrow$ "invisible"

⌈4 $K^*(892)^o \rightarrow K^o\gamma$ ---▶ ⌈7 $K^o{}_S \rightarrow 2\gamma$

⌈5 $K^*(892)^+ \rightarrow K^+\gamma$ ----------------------------▶ ⌈1 $K^+ \rightarrow \nu_\mu e^+$

⌈12 $\rho(770)^o \rightarrow e^+ e^-$

⌈9 $\omega(782)^o \rightarrow e^+ e^-$

⌈5 $\mu^+ \rightarrow e^+ \gamma$

⌈42 $p^+ \rightarrow e^+\gamma$

Therefore, this model indicates all particles are made of both matter and antimatter. In other words, we don't need to have an antimatter universe or galaxies, because this universe, this planet, and our bodies are already an equally balanced mix. This doesn't mean we can't have negative protons with positrons in orbitals, and make up anti-Earths or anti-people, but there is no need to have those to create a balance.

The holy grail of an energy source would be to find a trigger to make the proton decay into an avalanche of internal annihilations...in a controlled way: energy from any matter. The result woul be a flood of positrons which would annihilate with surrounding electrons, plus gamma rays.

Conclusion

Not being a physicist I cannot take this analysis any deeper. However, the Pair Decay Rule seems to fit the decay modes so well that I hope some physicists may find some useful ideas in it. I would appreciate constructive feedback.

Checks of decay modes should easily determine whether the Pair Decay Rule is valid. Research on the muon will likely be the most fruitful for determining if *VP* s are really bonding with electrons, and if so, defining the basic processes. Another prime target is the proton to determine if there might be six pions in some stable arrangement like a benzene ring.

Spreadsheet analysis is done in Excel 2000, and the spreadsheet is available from the author for anyone interested in using or improving it.

Also available is another highly speculative paper on extending these ideas logically into gravity, relativity, and other phenomena, but that depends completely on whether the Pair Decay analysis is valid.

References

1. S.W. Hawking, "The Quantum Mechanics of Black Holes," Sci. Amer., (January 1977), p. 37
2. Particle Listings: C. Amsler et al., Physics Letters B667, 1 (2008)

Self-published paper:

S.R. Holland, "Virtual Pair Components of Particles" (Softwaves Publishing) 2009

This PDF file and associated files are available at "physics.softwaves.net"

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Table I. Muon μ^+ components. Γ3 has the most decay products. The author suggests these can be interpreted to be a Virtual Pair e^+e^- with a ν_μ bond plus a W.

μ^+	Decay products PDG.LBL.GOV 2008	e	ν	Γ3 mode has the most components observed	Maximum pairs possible
		3	2		1 e^+e^- pairs; 1 $\nu\nu$ pairs

Γ	Observed modes	Inferred e^+	Inferred e^-	Inferred ν	Total e^+	Total e^-	Total ν	Missing e	Missing ν	Shaded pairs below are not observed	What happened to missing pairs?
1	1 e^+ ν_e	1		1	1	0		2			e^+e^- (shaded) 1 $e^+e^- \rightarrow VP$
	ν_μ			1			2		0		$\nu\nu$ 0 $\nu\nu \rightarrow$ E
	e^+ e^- (shaded)										
2	1 e^+ ν_e	1		1	1	0		2			e^+e^- (shaded) 1 $e^+e^- \rightarrow VP$
	ν_μ			1			2		0		$\nu\nu$ 0 $\nu\nu \rightarrow$ E
	e^+ e^- (shaded) γ										
3	1 e^+ ν_e	1		1	2	1		0		This mode shows no missing components, and is assumed to define the maximum component list.	e^+e^- 0 $e^+e^- \rightarrow VP$
Max	ν_μ			1			2		0		$\nu\nu$ 0 $\nu\nu \rightarrow$ E
	e^+ e^-	1	1								
	Lepton Family number (LF) violating modes										
4	1 e^+ ν_e	1		1	1	0		2			e^+e^- (shaded) 1 $e^+e^- \rightarrow VP$
	ν_μ			1			2		0		$\nu\nu$ 0 $\nu\nu \rightarrow$ E
	e^+ e^- (shaded)										
5	e^+ ν_e (shaded)	1			1	0		2			e^+e^- (shaded) 1 $e^+e^- \rightarrow VP$
	ν_μ (shaded)						0		2		$\nu\nu$ (shaded) 1 $\nu\nu \rightarrow$ E
	e^+ e^- (shaded) γ										
6	e^+ ν_e (shaded)	1			2	1		0			e^+e^- 0 $e^+e^- \rightarrow VP$
	ν_μ (shaded)						0		2		$\nu\nu$ (shaded) 1 $\nu\nu \rightarrow$ E
	e^+ e^-	1	1								
7	e^+ ν_e (shaded)	1			1	0		2			e^+e^- (shaded) 1 $e^+e^- \rightarrow VP$
	ν_μ (shaded) γ						0		2		$\nu\nu$ (shaded) 1 $\nu\nu \rightarrow$ E
	e^+ e^- (shaded) γ										

μ^+

	e^+	e^-	ν	e^+e^-	$\nu\nu$	
Maximum =	2	1	2	1	1	= Maximum pairs

Totals

Possible schematic diagram(s):

$$\mu^+ = VP\nu_\mu W^+$$

$e^+e^-\ \nu_\mu\ \nu_e\ e^+$

↑ ↓ ↑ ↓ ↑

	Proposed Components	e^+	e^-	ν	Totals e^+	Totals e^-	Totals ν
VP	1 e^+ e^-	1	1		2	1	2
bond	1 ν_μ			1			
W	1 e^+ ν_e	1		1			

Cut and paste the following into decay modes of larger particles

1 μ^+	2	1	2

Table II. π^o components. The π^o is apparently made of four *VP* and four ν bonding units, and appears to be the basic building block of all larger particles

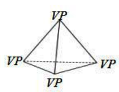
π^o	Decay products PDG.LBL.GOV 2008	e: 8	ν: 4	Γ 15 mode has the most components observed	Maximum pairs possible: 4 e^+e^- pairs; 2 $\nu\nu$ pairs

Γ	Observed modes	Inferred e^+	Inferred e^-	Inferred ν	Total e^+	Total e^-	Total ν	Missing e	Missing ν	Shaded pairs below are not observed	What happened to missing pairs?
1	2 γ				0	0		8		e^+e^- e^+e^- e^+e^- e^+e^-	4 $e^+e^- \to$ *VP*
							0		4	$\nu\nu$ $\nu\nu$	2 $\nu\nu \to$ E
2	e^+ e^-	1	1		1	1		6		e^+e^- e^+e^- e^+e^- e^+e^-	3 $e^+e^- \to$ *VP*
	γ						0		4	$\nu\nu$ $\nu\nu$	2 $\nu\nu \to$ E
3	*positronium* e^+e^-	1	1		1	1		6		e^+e^- e^+e^- e^+e^- e^+e^-	3 $e^+e^- \to$ *VP*
	γ						0		4	$\nu\nu$ $\nu\nu$	2 $\nu\nu \to$ E
4	2 e^+ e^-	2	2		2	2		4		e^+e^- e^+e^- e^+e^- e^+e^-	2 $e^+e^- \to$ *VP*
							0		4	$\nu\nu$ $\nu\nu$	2 $\nu\nu \to$ E
5	e^+ e^-	1	1		1	1		6		e^+e^- e^+e^- e^+e^- e^+e^-	3 $e^+e^- \to$ *VP*
							0		4	$\nu\nu$ $\nu\nu$	2 $\nu\nu \to$ E
6	4 γ				0	0		8		e^+e^- e^+e^- e^+e^- e^+e^-	4 $e^+e^- \to$ *VP*
							0		4	$\nu\nu$ $\nu\nu$	2 $\nu\nu \to$ E
7	ν ν			2	0	0		8		e^+e^- e^+e^- e^+e^- e^+e^-	4 $e^+e^- \to$ *VP*
							2		2	$\nu\nu$ $\nu\nu$	1 $\nu\nu \to$ E
8	ν_e ν_e			2	0	0		8		e^+e^- e^+e^- e^+e^- e^+e^-	4 $e^+e^- \to$ *VP*
							2		2	$\nu\nu$ $\nu\nu$	1 $\nu\nu \to$ E
9	ν_μ ν_μ			2	0	0		8		e^+e^- e^+e^- e^+e^- e^+e^-	4 $e^+e^- \to$ *VP*
							2		2	$\nu\nu$ $\nu\nu$	1 $\nu\nu \to$ E
10	ν_τ ν_τ			2	0	0		8		e^+e^- e^+e^- e^+e^- e^+e^-	4 $e^+e^- \to$ *VP*
							2		2	$\nu\nu$ $\nu\nu$	1 $\nu\nu \to$ E
11	ν ν			2	0	0		8		e^+e^- e^+e^- e^+e^- e^+e^-	4 $e^+e^- \to$ *VP*
	γ						2		2	$\nu\nu$ $\nu\nu$	1 $\nu\nu \to$ E
12	3 γ				0	0		8		e^+e^- e^+e^- e^+e^- e^+e^-	4 $e^+e^- \to$ *VP*
							0		4	$\nu\nu$ $\nu\nu$	2 $\nu\nu \to$ E
13	1 μ^+	2	1	2	2	2		4		e^+e^- e^+e^- e^+e^- e^+e^-	2 $e^+e^- \to$ *VP*
	e^-		1				2		2	$\nu\nu$ $\nu\nu$	1 $\nu\nu \to$ E
14	1 μ^-	1	2	2	2	2		4		e^+e^- e^+e^- e^+e^- e^+e^-	2 $e^+e^- \to$ *VP*
	1 e^+		1				2		2	$\nu\nu$ $\nu\nu$	1 $\nu\nu \to$ E
15	1 μ^+	2	1	2	4	4		0		e^+e^- e^+e^- e^+e^- e^+e^-	0 $e^+e^- \to$ *VP*
Max	1 μ^-	1	2	2			4		0	$\nu\nu$ $\nu\nu$	0 $\nu\nu \to$ E
	e^+ e^-	1	1								

π^o

	e^+	e^-	ν	e^+e^-	$\nu\nu$	
Maximum =	4	4	4	4	2	= Maximum pairs

Possible schematic diagram(s):



Proposed Components	e^+	e^-	ν	Totals e^+	Totals e^-	Totals ν
4 *VP*	4	4		4	4	4
4 ν			4			

Cut and paste the following into decay modes of larger particles

1 π^o	4	4	4

$$\pi^o = (VP\ \nu_\mu)_4$$

VP ν
VP ν *VP* ν
VP ν

ν e^+e^- ν
e^+e^- e^+e^-
ν e^+e^- ν

↓ ↑↓ ↑
↓↑ ↓↑
↑ ↓↑ ↓

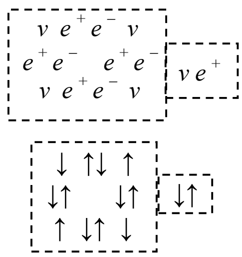
Table III. π^+ **components**. The charged pion is a π^o plus a W.

π^+	Decay products PDG.LBL.GOV 2008							e 9	ν 5	Γ 5 mode has the most components observed	Maximum pairs possible: 4 e^+e^- pairs, 2 $\nu\nu$ pairs
Γ	Observed modes	Inferred e^+	Inferred e^-	Inferred ν	= Total e^+	= Total e^-	= Total ν	Missing e	Missing ν	Missing components in each decay mode. Shaded pairs below are not observed	What happened to missing pairs?
1	1 μ^+	2	1	2	2	1		6		e^+e^- e^+e^- e^+e^- e^+e^-	3 $e^+e^- \rightarrow VP$
	ν_μ			1			3		2	$\nu\nu$ $\nu\nu$	1 $\nu\nu \rightarrow$ E
2	1 μ^+	2	1	2	2	1		6		e^+e^- e^+e^- e^+e^-	3 $e^+e^- \rightarrow VP$
	ν_μ			1			3		2	$\nu\nu$ $\nu\nu$	1 $\nu\nu \rightarrow$ E
	γ										
3	1 e^+ ν_e	1		1	1	0		8		e^+e^- e^+e^- e^+e^- e^+e^-	4 $e^+e^- \rightarrow VP$
							1		4	$\nu\nu$ $\nu\nu$	2 $\nu\nu \rightarrow$ E
4	1 e^+ ν_e	1		1	1	0		8		e^+e^- e^+e^- e^+e^- e^+e^-	4 $e^+e^- \rightarrow VP$
	γ						1		4	$\nu\nu$ $\nu\nu$	2 $\nu\nu \rightarrow$ E
5	1 π^o	4	4	4	5	4		0		e^+e^- e^+e^- e^+e^- e^+e^-	0 $e^+e^- \rightarrow VP$
Max	1 e^+ ν_e	1		1			5		0	$\nu\nu$ $\nu\nu$	0 $\nu\nu \rightarrow$ E
6	1 e^+ ν_e	1		1	2	1		6		e^+e^- e^+e^- e^+e^- e^+e^-	3 $e^+e^- \rightarrow VP$
	e^+ e^-	1	1				1		4	$\nu\nu$ $\nu\nu$	2 $\nu\nu \rightarrow$ E
7	1 e^+ ν_e	1		1	1	0		8		e^+e^- e^+e^- e^+e^- e^+e^-	4 $e^+e^- \rightarrow VP$
	2 ν			2			3		2	$\nu\nu$ $\nu\nu$	1 $\nu\nu \rightarrow$ E
	Lepton Family number (LF) or Lepton (L) violating modes										
8	1 μ^+	2	1	2	2	1		6		e^+e^- e^+e^- e^+e^- e^+e^-	3 $e^+e^- \rightarrow VP$
	ν_e			1			3		2	$\nu\nu$ $\nu\nu$	1 $\nu\nu \rightarrow$ E
9	1 μ^+	2	1	2	2	1		6		e^+e^- e^+e^- e^+e^- e^+e^-	3 $e^+e^- \rightarrow VP$
	ν_e			1			3		2	$\nu\nu$ $\nu\nu$	1 $\nu\nu \rightarrow$ E
10	1 μ^+	2	1	2	4	1		4		e^+e^- e^+e^- e^+e^- e^+e^-	2 $e^+e^- \rightarrow VP$
	e^+	1					3		2	$\nu\nu$ $\nu\nu$	1 $\nu\nu \rightarrow$ E
	1 e^+ ν	1		1							

π^+

	e^+	e^-	ν	e^+e^-	$\nu\nu$	
Maximum =	5	4	5	4	2	= Maximum pairs
	Totals					

Possible schematic diagram(s):



Proposed Components	e^+	e^-	ν	e^+	e^-	ν
1 π^o	4	4	4	5	4	5
1 e^+ ν	1		1			

$$\pi^+ = \pi^o \; W^+$$

Cut and paste the following into decay modes of larger particles

1 π^+	5	4	5

Table IV. $K^o{}_S$ components. The best component fit is 3 π^o plus two charges, a W^+ and W^-.

$K^o{}_S$ — Decay products PDG.LBL.GOV 2008. e: 26, ν: 14. Γ 3 mode has the most components observed. Maximum pairs possible: 13 e^+e^- pairs, 7 $\nu\nu$ pairs.

Γ	Observed modes	Inferred e^+	Inferred e^-	Inferred ν	= Total e^+	= Total e^-	= Total ν	Missing e	Missing ν	Pairs (shaded pairs are not observed)	What happened to missing pairs?
	Hadronic modes										
1	2 π^o	8	8	8	8	8	8	10	6	e^+e^- ×13 (5 shaded); $\nu\nu$ ×7 (3 shaded)	5 $e^+e^- \to VP$ 3 $\nu\nu \to$ E
2	1 π^+ 1 π^-	5 4	4 5	5 5	9	9	10	8	4	e^+e^- ×13 (4 shaded); $\nu\nu$ ×7 (2 shaded)	4 $e^+e^- \to VP$ 2 $\nu\nu \to$ E
3 Max	1 π^+ 1 π^- 1 π^o	5 4 4	4 5 4	5 5 4	13	13	14	0	0	e^+e^- ×13; $\nu\nu$ ×7	0 $e^+e^- \to VP$ 0 $\nu\nu \to$ E
$K^o{}_S$	*Modes with photons or ℓℓ pairs*										
4	1 π^+ 1 π^- γ	5 4	4 5	5 5	9	9	10	8	4	e^+e^- ×13 (4 shaded); $\nu\nu$ ×7 (2 shaded)	4 $e^+e^- \to VP$ 2 $\nu\nu \to$ E
5	1 π^+ 1 π^- e^+ e^-	5 4 1	4 5 1	5 5	10	10	10	6	4	e^+e^- ×13 (3 shaded); $\nu\nu$ ×7 (2 shaded)	3 $e^+e^- \to VP$ 2 $\nu\nu \to$ E
6	1 π^o 2 γ	4	4	4	4	4	4	18	10	e^+e^- ×13 (9 shaded); $\nu\nu$ ×7 (5 shaded)	9 $e^+e^- \to VP$ 5 $\nu\nu \to$ E
7	2 γ				0	0	0	26	14	e^+e^- ×13 (13 shaded); $\nu\nu$ ×7 (7 shaded)	13 $e^+e^- \to VP$ 7 $\nu\nu \to$ E
$K^o{}_S$	*Semileptonic modes*										
8	1 π^- 1 e^+ ν_e	4 1	5	5 1	5	5	6	16	8	e^+e^- ×13 (8 shaded); $\nu\nu$ ×7 (4 shaded)	8 $e^+e^- \to VP$ 4 $\nu\nu \to$ E
9	1 π^+ 1 μ^- ν_μ	5 1	4 2	5 2 1	6	6	8	14	6	e^+e^- ×13 (7 shaded); $\nu\nu$ ×7 (3 shaded)	7 $e^+e^- \to VP$ 3 $\nu\nu \to$ E
$K^o{}_S$	*CP violating (CP) and ΔS=1 weak neutral current (S1) modes*										
10	3 π^o	12	12	12	12	12	12	2	2	e^+e^- ×13 (1 shaded); $\nu\nu$ ×7 (1 shaded)	1 $e^+e^- \to VP$ 1 $\nu\nu \to$ E
11	1 μ^+ 1 μ^-	2 1	1 2	2 2	3	3	4	20	10	e^+e^- ×13 (10 shaded); $\nu\nu$ ×7 (5 shaded)	10 $e^+e^- \to VP$ 5 $\nu\nu \to$ E

(cont)

Table IV (cont)

12	e^+ e^-	1	1		1	1		24	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	12 $e^+e^- \rightarrow$ *VP*
																				e^+e^-	
							0	14						$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	7 $\nu\,\nu \rightarrow$ E
13	1 π^o	4	4	4	5	5		16	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	8 $e^+e^- \rightarrow$ *VP*
																				e^+e^-	
	e^+ e^-	1	1				4	10						$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	5 $\nu\,\nu \rightarrow$ E
14	1 π^o	4	4	4	7	7		12	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	6 $e^+e^- \rightarrow$ *VP*
	1 μ^+	2	1	2																e^+e^-	
	1 μ^-	1	2	2			8	6						$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	3 $\nu\,\nu \rightarrow$ E

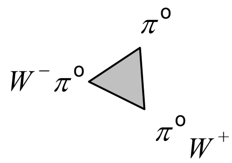
$K^o{}_S$

	e^+	e^-	ν	e^+e^-	$\nu\,\nu$	
Maximum =	13	13	14	13	7	= Maximum pairs
	Totals					

Possible schematic diagram(s):

Proposed Components	e^+	e^-	ν	e^+	e^-	ν
1 π^-	4	5	5	13	13	14
1 π^+	5	4	5			
1 π^o	4	4	4			
or 3 π^o	12	12	12	13	13	14
1 e^- ν		1	1			
1 e^+ ν	1		1			

$$K^o = \pi^o{}_3\, W_2$$



Cut and paste the following into decay modes of larger particles

1 $K^o{}_S$	13	13	14

Table V. K^o_L components. Both K^o have the same component list, but must differ in structure.

K^o_L — Decay products PDG.LBL.GOV 2008 — e 26, ν 14 — Γ 7 mode has the most components observed — Maximum pairs possible: 13 e^+e^- pairs, 7 $\nu\nu$ pairs

Missing components in each decay mode. Shaded pairs below are not observed. What happened to missing pairs?

Γ	Observed modes	Inferred e^+	Inferred e^-	Inferred ν	= Total e^+	= Total e^-	= Total ν	Missing e	Missing ν													Missing pairs
K^o_L	*Semileptonic modes*																					Missing pairs
1	1 π^-	4	5	5	5	5		16		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	8 $e^+e^- \to VP$
	1 e^+ ν_e	1		1																	e^+e^-	
							6		8						$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	4 $\nu\nu \to$ E
2	1 π^+	5	4	5	6	6		14		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	7 $e^+e^- \to VP$
	1 μ^-	1	2	2																	e^+e^-	
	ν_μ			1			8		6						$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	3 $\nu\nu \to$ E
3	1 π^+	5	4	5	6	6		14		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	7 $e^+e^- \to VP$
	1 μ^- (atom)	1	2	2																	e^+e^-	
	ν			1			8		6						$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	3 $\nu\nu \to$ E
4	1 π^o	4	4	4	9	9		8		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	4 $e^+e^- \to VP$
	1 π^-	4	5	5																	e^+e^-	
	1 e^+ ν	1		1			10		4						$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	2 $\nu\nu \to$ E
5	1 π^-	4	5	5	6	6		14		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	7 $e^+e^- \to VP$
	1 e^+ ν	1		1																	e^+e^-	
	e^+ e^-	1	1				6		8						$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	4 $\nu\nu \to$ E
K^o_L	*Hadronic modes, including Charge conjugation x Parity Violating (CPV) modes*																					
6	3 π^o	12	12	12	12	12		2		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	1 $e^+e^- \to VP$
																					e^+e^-	
							12		2						$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	1 $\nu\nu \to$ E
7	1 π^+	5	4	5	13	13		0		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	0 $e^+e^- \to VP$
Max	1 π^-	4	5	5																	e^+e^-	
	1 π^o	4	4	4			14		0						$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	0 $\nu\nu \to$ E
8	1 π^+	5	4	5	9	9		8		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	4 $e^+e^- \to VP$
	1 π^-	4	5	5																	e^+e^-	
							10		4						$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	2 $\nu\nu \to$ E
9	2 π^o	8	8	8	8	8		10		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	5 $e^+e^- \to VP$
																					e^+e^-	
							8		6						$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	3 $\nu\nu \to$ E
K^o_L	*Semileptonic modes with photons*																					
10	1 π^-	4	5	5	5	5		16		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	8 $e^+e^- \to VP$
	1 e^+ ν_e	1		1																	e^+e^-	
	γ						6		8						$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	4 $\nu\nu \to$ E
11	1 π^+	5	4	5	6	6		14		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	7 $e^+e^- \to VP$
	1 μ^-	1	2	2																	e^+e^-	
	ν_μ γ			1			8		6						$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	3 $\nu\nu \to$ E

(cont)

Table V (cont)

K^o_L	*Hadronic modes with photons or ℓℓ pairs*																				
12	2 π^o	8	8	8	8	8		10	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	5 e^+e^- → *VP*
	γ																			e^+e^-	
							8	6						ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	3 ν ν → E
13	1 π^+	5	4	5	9	9		8	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	4 e^+e^- → *VP*
	1 π^-	4	5	5																e^+e^-	
	γ						10	4						ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	2 ν ν → E
14	1 π^+	5	4	5	9	9		8	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	4 e^+e^- → *VP*
	1 π^-	4	5	5																e^+e^-	
	γ						10	4						ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	2 ν ν → E
15	1 π^o	4	4	4	4	4		18	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	9 e^+e^- → *VP*
	2 γ																			e^+e^-	
							4	10						ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	5 ν ν → E
16	1 π^o	4	4	4	5	5		16	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	8 e^+e^- → *VP*
	e^+ e^-	1	1																	e^+e^-	
	γ						4	10						ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	5 ν ν → E
K^o_L	*Other modes with photons or ℓℓ pairs*																				
17	2 γ				0	0		26	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	13 e^+e^- → *VP*
																				e^+e^-	
							0	14						ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	7 ν ν → E
18	3 γ				0	0		26	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	13 e^+e^- → *VP*
																				e^+e^-	
							0	14						ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	7 ν ν → E
19	e^+ e^-	1	1		1	1		24	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	12 e^+e^- → *VP*
	γ																			e^+e^-	
							0	14						ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	7 ν ν → E
20	1 μ^+	2	1	2	3	3		20	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	10 e^+e^- → *VP*
	1 μ^-	1	2	2																e^+e^-	
	γ						4	10						ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	5 ν ν → E
21	e^+ e^-	1	1		1	1		24	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	12 e^+e^- → *VP*
	2 γ																			e^+e^-	
							0	14						ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	7 ν ν → E
22	1 μ^+	2	1	2	3	3		20	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	10 e^+e^- → *VP*
	1 μ^-	1	2	2																e^+e^-	
	2 γ						4	10						ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	5 ν ν → E
K^o_L	*Charge conjugation x Parity (CP) or Lepton Family number (LF) violating modes, or ΔS=1 weak neutral current (S1) modes*																				
23	1 μ^+	2	1	2	3	3		20	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	10 e^+e^- → *VP*
																				e^+e^-	
	1 μ^-	1	2	2			4	10						ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	5 ν ν → E
24	e^+ e^-	1	1		1	1		24	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	12 e^+e^- → *VP*
																				e^+e^-	
							0	14						ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	7 ν ν → E
25	1 π^+	5	4	5	10	10		6	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	3 e^+e^- → *VP*
	1 π^-	4	5	5																e^+e^-	
	e^+ e^-	1	1				10	4						ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	2 ν ν → E

(cont)

Table V (cont) K^o_L

26	2 π^o	8	8	8	9	9		8		e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	4 $e^+e^- \rightarrow$ *VP*
										e^+e^-	
	e^+ e^-	1	1				8		6	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	3 $\nu\nu \rightarrow$ E
27	1 μ^+	2	1	2	4	4		18		e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	9 $e^+e^- \rightarrow$ *VP*
	1 μ^-	1	2	2						e^+e^-	
	e^+ e^-	1	1				4		10	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	5 $\nu\nu \rightarrow$ E
28	2 e^+ e^-	2	2		2	2		22		e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	11 $e^+e^- \rightarrow$ *VP*
										e^+e^-	
							0		14	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	7 $\nu\nu \rightarrow$ E
29	1 π^o	4	4	4	7	7		12		e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	6 $e^+e^- \rightarrow$ *VP*
	1 μ^-	1	2	2						e^+e^-	
	1 μ^+	2	1	2			8		6	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	3 $\nu\nu \rightarrow$ E
30	1 π^o	4	4	4	5	5		16		e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	8 $e^+e^- \rightarrow$ *VP*
	e^+ e^-	1	1							e^+e^-	
							4		10	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	5 $\nu\nu \rightarrow$ E
31	1 π^o	4	4	4	5	5		16		e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	8 $e^+e^- \rightarrow$ *VP*
	e^+ e^-	1	1							e^+e^-	
							4		10	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	5 $\nu\nu \rightarrow$ E
32	2 π^o	8	8	8	8	8		10		e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	5 $e^+e^- \rightarrow$ *VP*
										e^+e^-	
	2 ν			2			10		4	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	2 $\nu\nu \rightarrow$ E
33	1 μ^+	2	1	2	2	2		22		e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	11 $e^+e^- \rightarrow$ *VP*
	e^-		1							e^+e^-	
							2		12	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	6 $\nu\nu \rightarrow$ E
34	1 μ^-	1	2	2	4	4		18		e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	9 $e^+e^- \rightarrow$ *VP*
	1 μ^+	2	1	2						e^+e^-	
	e^+ e^-	1	1				4		10	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	5 $\nu\nu \rightarrow$ E
35	1 π^o	4	4	4	6	6		14		e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	7 $e^+e^- \rightarrow$ *VP*
	1 μ^+	2	1	2						e^+e^-	
	e^-		1				6		8	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	4 $\nu\nu \rightarrow$ E

K^o_L

	e^+	e^-	ν	e^+e^-	$\nu\nu$	
Maximum =	13	13	14	13	7	= Maximum pairs

Totals

Proposed Components	e^+	e^-	ν	e^+	e^-	ν
1 π^-	4	5	5	13	13	14
1 π^+	5	4	5			
1 π^o	4	4	4			
or 3 π^o	12	12	12	13	13	14
1 e^- ν		1	1			
1 e^+ ν	1		1			

Cut and paste the following into decay modes of larger particles

1 K^o_L	13	13	14

Possible schematic diagram(s):

Same components as K^o_S

$$K^o = \pi^o{}_3 W_2$$

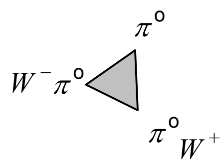


Table VI. K^+ components. The charged K is a K^o with a third W.

K^+ — Decay products PDG.LBL.GOV 2008. Missing totals: e 27, ν 15. Γ 11 mode has the most components observed. Maximum pairs possible: 13 e^+e^- pairs, 7 $\nu\nu$ pairs. Shaded pairs below are not observed.

Γ	Observed modes	Inferred e^+	Inferred e^-	Inferred ν	= Total e^+	= Total e^-	= Total ν	Missing e	Missing ν	What happened to missing pairs?
K^+	*Leptonic and semileptonic modes*									
1	1 e^+ ν_e	1		1	1	0	1	26	14	13 $e^+e^- \to VP$; 7 $\nu\nu \to$ E
2	1 μ^+	2	1	2	2	1	3	24	12	12 $e^+e^- \to VP$; 6 $\nu\nu \to$ E
	1 ν_μ			1						
3	1 π^o	4	4	4	5	4	5	18	10	9 $e^+e^- \to VP$; 5 $\nu\nu \to$ E
	1 e^+ ν_e	1		1						
4	1 π^o	4	4	4	6	5	7	16	8	8 $e^+e^- \to VP$; 4 $\nu\nu \to$ E
	1 μ^+	2	1	2						
	1 ν_μ			1						
5	2 π^o	8	8	8	9	8	9	10	6	5 $e^+e^- \to VP$; 3 $\nu\nu \to$ E
	1 e^+ ν_e	1		1						
6	1 π^+	5	4	5	10	9	11	8	4	4 $e^+e^- \to VP$; 2 $\nu\nu \to$ E
	1 π^-	4	5	5						
	1 e^+ ν_e	1		1						
7	1 π^+	5	4	5	11	10	13	6	2	3 $e^+e^- \to VP$; 1 $\nu\nu \to$ E
	1 π^-	4	5	5						
	1 μ^+	2	1	2						
	1 ν_μ			1						
8	3 π^o	12	12	12	13	12	13	2	2	1 $e^+e^- \to VP$; 1 $\nu\nu \to$ E
	1 e^+ ν_e	1		1						
K^+	*Hadronic modes*									
9	1 π^+	5	4	5	9	8	9	10	6	5 $e^+e^- \to VP$; 3 $\nu\nu \to$ E
	1 π^o	4	4	4						
10	1 π^+	5	4	5	13	12	13	2	2	1 $e^+e^- \to VP$; 1 $\nu\nu \to$ E
	2 π^o	8	8	8						
11 Max	2 π^+	10	8	10	14	13	15	0	0	0 $e^+e^- \to VP$; 0 $\nu\nu \to$ E
	1 π^-	4	5	5						

(cont)

Table VI (cont) K^+

K^+	*Leptonic and semileptonic modes with photons*																						
12	1	μ^+		2	1	2	2	1		24	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	12 $e^+e^- \to$ *VP*
	1		ν_μ			1																e^+e^-	
			γ						3	12						$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	6 $\nu\nu \to$ E
13	1	μ^+		2	1	2	2	1		24	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	12 $e^+e^- \to$ *VP*
	1		ν_μ			1																e^+e^-	
			γ						3	12						$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	6 $\nu\nu \to$ E
14	1	μ^+		2	1	2	2	1		24	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	12 $e^+e^- \to$ *VP*
	1		ν_μ			1																e^+e^-	
			γ						3	12						$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	6 $\nu\nu \to$ E
15	1	μ^+		2	1	2	2	1		24	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	12 $e^+e^- \to$ *VP*
	1		ν_μ			1																e^+e^-	
			γ						3	12						$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	6 $\nu\nu \to$ E
16	1	e^+	ν_e	1		1	1	0		26	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	13 $e^+e^- \to$ *VP*
			γ																			e^+e^-	
									1	14						$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	7 $\nu\nu \to$ E
17							1	0		26	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	13 $e^+e^- \to$ *VP*
	1	e^+	ν_e	1		1																e^+e^-	
			γ						1	14						$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	7 $\nu\nu \to$ E
18	1	π^o		4	4	4	5	4		18	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	9 $e^+e^- \to$ *VP*
	1	e^+	ν_e	1		1																e^+e^-	
			γ						5	10						$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	5 $\nu\nu \to$ E
19	1	π^o		4	4	4	5	4		18	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	9 $e^+e^- \to$ *VP*
	1	e^+	ν_e	1		1																e^+e^-	
			γ						5	10						$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	5 $\nu\nu \to$ E
20	1	π^o		4	4	4	6	5		16	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	8 $e^+e^- \to$ *VP*
	1	μ^+		2	1	2																e^+e^-	
			ν_μ γ			1			7	8						$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	4 $\nu\nu \to$ E
21	2	π^o		8	8	8	9	8		10	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	5 $e^+e^- \to$ *VP*
	1	e^+	ν_e	1		1																e^+e^-	
			γ						9	6						$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	3 $\nu\nu \to$ E
K^+	*Hadronic modes with photons or ℓℓ pairs*																						
22	1	π^+		5	4	5	9	8		10	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	5 $e^+e^- \to$ *VP*
	1	π^o		4	4	4																e^+e^-	
			γ						9	6						$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	3 $\nu\nu \to$ E
23	1	π^+		5	4	5	9	8		10	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	5 $e^+e^- \to$ *VP*
	1	π^o		4	4	4																e^+e^-	
			γ						9	6						$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	3 $\nu\nu \to$ E
24	1	π^+		5	4	5	13	12		2	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	1 $e^+e^- \to$ *VP*
	2	π^o		8	8	8																e^+e^-	
			γ						13	2						$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	1 $\nu\nu \to$ E
25	2	π^+		10	8	10	14	13		0	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	0 $e^+e^- \to$ *VP*
Max	1	π^-		4	5	5																e^+e^-	
			γ						15	0						$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	0 $\nu\nu \to$ E
26	1	π^+		5	4	5	5	4		18	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	9 $e^+e^- \to$ *VP*
	2		γ																			e^+e^-	
									5	10						$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	5 $\nu\nu \to$ E

(cont)

Table VI (cont) K^+

27	1 π^+	5 4 5	5 4	18	e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	9 $e^+e^- \to$ *VP*
	3 γ				e^+e^-	
			5	10	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	5 $\nu\nu \to$ E
28	1 π^+	5 4 5	6 5	16	e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	8 $e^+e^- \to$ *VP*
	e^+ e^-	1 1			e^+e^-	
	γ		5	10	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	5 $\nu\nu \to$ E
K^+		*Leptonic modes with $\ell\ell$ pairs*				
29	1 e^+ ν_e	1 1	1 0	26	e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	13 $e^+e^- \to$ *VP*
					e^+e^-	
	2 ν	2	3	12	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	6 $\nu\nu \to$ E
30	1 μ^+	2 1 2	2 1	24	e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	12 $e^+e^- \to$ *VP*
	ν_μ γ	1			e^+e^-	
	2 ν	2	5	10	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	5 $\nu\nu \to$ E
31	1 e^+ ν_e	1 1	2 1	24	e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	12 $e^+e^- \to$ *VP*
					e^+e^-	
	e^+ e^-	1 1	1	14	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	7 $\nu\nu \to$ E
32	1 μ^+	2 1 2	3 2	22	e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	11 $e^+e^- \to$ *VP*
	ν_μ	1			e^+e^-	
	e^+ e^-	1 1	3	12	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	6 $\nu\nu \to$ E
33	1 e^+ ν_e	1 1	4 3	20	e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	10 $e^+e^- \to$ *VP*
	1 μ^+	2 1 2			e^+e^-	
	1 μ^-	1 2 2	5	10	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	5 $\nu\nu \to$ E
34	2 μ^+	4 2 4	5 4	18	e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	9 $e^+e^- \to$ *VP*
	ν_μ	1			e^+e^-	
	1 μ^-	1 2 2	7	8	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	4 $\nu\nu \to$ E
K^+		*LF. L. SQ, violating modes, or S1 modes*				
35	2 π^+	10 8 10	10 9	8	e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	4 $e^+e^- \to$ *VP*
					e^+e^-	
	1 e^- ν_e	1 1	11	4	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	2 $\nu\nu \to$ E
36	2 π^+	10 8 10	11 10	6	e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	3 $e^+e^- \to$ *VP*
	1 μ^-	1 2 2			e^+e^-	
	ν_μ	1	13	2	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	1 $\nu\nu \to$ E
37	1 π^+	5 4 5	6 5	16	e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	8 $e^+e^- \to$ *VP*
					e^+e^-	
	e^+ e^-	1 1	5	10	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	5 $\nu\nu \to$ E
38	1 π^+	5 4 5	8 7	12	e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	6 $e^+e^- \to$ *VP*
	1 μ^+	2 1 2			e^+e^-	
	1 μ^-	1 2 2	9	6	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	3 $\nu\nu \to$ E
39	1 π^+	5 4 5	5 4	18	e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	9 $e^+e^- \to$ *VP*
					e^+e^-	
	2 ν	2	7	8	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	4 $\nu\nu \to$ E
40	1 π^+	5 4 5	9 8	10	e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	5 $e^+e^- \to$ *VP*
	1 π^o	4 4 4			e^+e^-	
	2 ν	2	11	4	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	2 $\nu\nu \to$ E

(cont)

Table VI (cont) K^+

No.	Components	e^+	e^-	ν						Pair diagram	
41	1 μ^-	1	2	2	3	2		22		e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e−	11 $e^+e^- \rightarrow$ *VP*
	ν			1						e+e−	
	2 e^+	2					3		12	νν νν νν νν νν νν νν	6 $\nu\nu \rightarrow$ E
42	1 μ^+	2	1	2	2	1		24		e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e−	12 $e^+e^- \rightarrow$ *VP*
	ν_e			1						e+e−	
							3		12	νν νν νν νν νν νν νν	6 $\nu\nu \rightarrow$ E
43	1 π^+	5	4	5	7	6		14		e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e−	7 $e^+e^- \rightarrow$ *VP*
	1 μ^+	2	1	2						e+e−	
	e^-		1				7		8	νν νν νν νν νν νν νν	4 $\nu\nu \rightarrow$ E
44	1 π^+	5	4	5	7	6		14		e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e−	7 $e^+e^- \rightarrow$ *VP*
	1 μ^-	1	2	2						e+e−	
	e^+	1					7		8	νν νν νν νν νν νν νν	4 $\nu\nu \rightarrow$ E
45	1 π^-	4	5	5	7	6		14		e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e−	7 $e^+e^- \rightarrow$ *VP*
	1 μ^+	2	1	2						e+e−	
	e^+	1					7		8	νν νν νν νν νν νν νν	4 $\nu\nu \rightarrow$ E
46	1 π^-	4	5	5	6	5		16		e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e−	8 $e^+e^- \rightarrow$ *VP*
										e+e−	
	2 e^+	2					5		10	νν νν νν νν νν νν νν	5 $\nu\nu \rightarrow$ E
47	1 π^-	4	5	5	8	7		12		e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e−	6 $e^+e^- \rightarrow$ *VP*
										e+e−	
	2 μ^+	4	2	4			9		6	νν νν νν νν νν νν νν	3 $\nu\nu \rightarrow$ E
48	1 μ^+	2	1	2	2	1		24		e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e−	12 $e^+e^- \rightarrow$ *VP*
										e+e−	
	ν_e			1			3		12	νν νν νν νν νν νν νν	6 $\nu\nu \rightarrow$ E
49	1 π^o	4	4	4	5	4		18		e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e−	9 $e^+e^- \rightarrow$ *VP*
										e+e−	
	1 e^+ ν_e	1		1			5		10	νν νν νν νν νν νν νν	5 $\nu\nu \rightarrow$ E
50	1 π^+	5	4	5	5	4		18		e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e− e+e−	9 $e^+e^- \rightarrow$ *VP*
										e+e−	
	γ						5		10	νν νν νν νν νν νν νν	5 $\nu\nu \rightarrow$ E

K^+

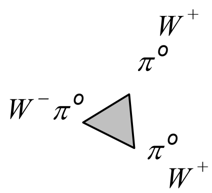
	e^+	e^-	ν	e^+e^-	$\nu\nu$	
Maximum =	14	13	15	13	7	= Maximum pairs

Totals

Possible schematic diagram(s):

Proposed Components	e^+	e^-	ν	e^+	e^-	ν
2 π^+	10	8	10	14	13	15
1 π^-	4	5	5			
or 3 π^o	12	12	12	14	13	15
1 e^- ν		1	1			
2 e^+ ν	2		2			

$$K^+ = \pi^o{}_3 W_3$$



Cut and paste the following into decay modes of larger particles

1 K^+	14	13	15

Table VII. η^o **components.** The components seem to be simply $4\pi^o$

η^o	Decay products PDG.LBL.GOV 2008	e 32	ν 16	Γ 26 mode has the most components observed	Maximum pairs possible: 16 e^+e^- pairs; 8 $\nu\,\nu$ pairs

Γ	Observed modes		Inferred e^+	e^-	ν	= Total e^+	e^-	ν	Missing e	ν	Shaded pairs below are not observed												What happened to missing pairs?
	Neutral modes																						
2	2	γ				0	0		32		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	16 $e^+e^- \to$ *VP*
																			e^+e^-	e^+e^-	e^+e^-	e^+e^-	
								0		16					$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	8 $\nu\,\nu \to$ E
3	3	π^o	12	12	12	12	12		8		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	4 $e^+e^- \to$ *VP*
																			e^+e^-	e^+e^-	e^+e^-	e^+e^-	
								12		4					$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	2 $\nu\,\nu \to$ E
4	1	π^o	4	4	4	4	4		24		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	12 $e^+e^- \to$ *VP*
																			e^+e^-	e^+e^-	e^+e^-	e^+e^-	
	2	γ						4		12					$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	6 $\nu\,\nu \to$ E
5	2	π^o	8	8	8	8	8		16		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	8 $e^+e^- \to$ *VP*
																			e^+e^-	e^+e^-	e^+e^-	e^+e^-	
	2	γ						8		8					$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	4 $\nu\,\nu \to$ E
6	4	γ				0	0		32		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	16 $e^+e^- \to$ *VP*
																			e^+e^-	e^+e^-	e^+e^-	e^+e^-	
								0		16					$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	8 $\nu\,\nu \to$ E
7	"invisible"					0	0		32		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	16 $e^+e^- \to$ *VP*
																			e^+e^-	e^+e^-	e^+e^-	e^+e^-	
								0		16					$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	8 $\nu\,\nu \to$ E
8	*Charged modes*																						
9	1	π^-	4	5	5	13	13		6		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	3 $e^+e^- \to$ *VP*
	1	π^+	5	4	5														e^+e^-	e^+e^-	e^+e^-	e^+e^-	
	1	π^o	4	4	4			14		2					$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	1 $\nu\,\nu \to$ E
10	1	π^-	4	5	5	9	9		14		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	7 $e^+e^- \to$ *VP*
	1	π^+	5	4	5														e^+e^-	e^+e^-	e^+e^-	e^+e^-	
		γ						10		6					$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	3 $\nu\,\nu \to$ E
11		e^+ e^-	1	1		1	1		30		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	15 $e^+e^- \to$ *VP*
																			e^+e^-	e^+e^-	e^+e^-	e^+e^-	
		γ						0		16					$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	8 $\nu\,\nu \to$ E
12	1	μ^-	1	2	2	3	3		26		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	13 $e^+e^- \to$ *VP*
	1	μ^+	2	1	2														e^+e^-	e^+e^-	e^+e^-	e^+e^-	
		γ						4		12					$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	6 $\nu\,\nu \to$ E
13		e^+ e^-	1	1		1	1		30		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	15 $e^+e^- \to$ *VP*
																			e^+e^-	e^+e^-	e^+e^-	e^+e^-	
								0		16					$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	8 $\nu\,\nu \to$ E
14	1	μ^-	1	2	2	3	3		26		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	13 $e^+e^- \to$ *VP*
	1	μ^+	2	1	2														e^+e^-	e^+e^-	e^+e^-	e^+e^-	
								4		12					$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	6 $\nu\,\nu \to$ E
15	2	e^+ e^-	2	2		2	2		28		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	14 $e^+e^- \to$ *VP*
																			e^+e^-	e^+e^-	e^+e^-	e^+e^-	
								0		16					$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	8 $\nu\,\nu \to$ E
16	1	π^+	5	4	5	10	10		12		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	6 $e^+e^- \to$ *VP*
	1	π^-	4	5	5														e^+e^-	e^+e^-	e^+e^-	e^+e^-	
		e^+ e^-	1	1				10		6					$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	$\nu\,\nu$	3 $\nu\,\nu \to$ E

(cont)

Table VII (cont) η

17	1	π^+	5	4	5	9	9		14		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	7 e^+e^- → *VP*
	1	π^-	4	5	5														e^+e^-	e^+e^-	e^+e^-	e^+e^-	
	2	γ						10		6					$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	3 $\nu\nu$ → E
18	1	π^+	5	4	5	13	13		6		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	3 e^+e^- → *VP*
	1	π^-	4	5	5														e^+e^-	e^+e^-	e^+e^-	e^+e^-	
	1	π^o γ	4	4	4			14		2					$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	1 $\nu\nu$ → E
19	1	μ^-	1	2	2	7	7		18		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	9 e^+e^- → *VP*
	1	μ^+	2	1	2														e^+e^-	e^+e^-	e^+e^-	e^+e^-	
	1	π^o γ	4	4	4			8		8					$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	4 $\nu\nu$ → E
			C, P, CP or LF violating modes																				
20	1	π^o	4	4	4	4	4		24		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	12 e^+e^- → *VP*
																			e^+e^-	e^+e^-	e^+e^-	e^+e^-	
		γ						4		12					$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	6 $\nu\nu$ → E
21	1	π^+	5	4	5	9	9		14		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	7 e^+e^- → *VP*
	1	π^-	4	5	5														e^+e^-	e^+e^-	e^+e^-	e^+e^-	
								10		6					$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	3 $\nu\nu$ → E
22	2	π^o	8	8	8	8	8		16		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	8 e^+e^- → *VP*
																			e^+e^-	e^+e^-	e^+e^-	e^+e^-	
								8		8					$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	4 $\nu\nu$ → E
23	2	π^o	8	8	8	8	8		16		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	8 e^+e^- → *VP*
																			e^+e^-	e^+e^-	e^+e^-	e^+e^-	
		γ						8		8					$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	4 $\nu\nu$ → E
24	3	π^o	12	12	12	12	12		8		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	4 e^+e^- → *VP*
																			e^+e^-	e^+e^-	e^+e^-	e^+e^-	
		γ						12		4					$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	2 $\nu\nu$ → E
25	3	γ				0	0		32		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	16 e^+e^- → *VP*
																			e^+e^-	e^+e^-	e^+e^-	e^+e^-	
								0		16					$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	8 $\nu\nu$ → E
26	4	π^o	16	16	16	16	16		0		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	0 e^+e^- → *VP*
Max																			e^+e^-	e^+e^-	e^+e^-	e^+e^-	
								16		0					$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	0 $\nu\nu$ → E
27	1	π^o	4	4	4	6	6		20		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	10 e^+e^- → *VP*
		e^+ e^-	2	2															e^+e^-	e^+e^-	e^+e^-	e^+e^-	
								4		12					$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	6 $\nu\nu$ → E
28	1	μ^-	1	2	2	7	7		18		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	9 e^+e^- → *VP*
	1	μ^+	2	1	2														e^+e^-	e^+e^-	e^+e^-	e^+e^-	
	1	π^o	4	4	4			8		8					$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	4 $\nu\nu$ → E
29	1	μ^-	1	2	2	5	5		22		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	11 e^+e^- → *VP*
	1	μ^+	2	1	2														e^+e^-	e^+e^-	e^+e^-	e^+e^-	
		e^+ e^-	2	2				4		12					$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	6 $\nu\nu$ → E

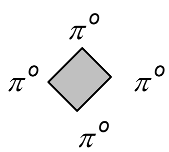
η^o

	e^+	e^-	ν	e^+e^-	$\nu\nu$	
Maximum =	16	16	16	16	8	= Maximum pairs
	Totals					

Possible schematic diagram(s):

Proposed Components	e^+	e^-	ν	e^+	e^-	ν
4 π^o	16	16	16	16	16	16

$$\eta^o = \pi^o{}_4$$



Cut and paste the following into decay modes of larger particles

1 η^o	16	16	16

Table VIII. $\rho(770)^o$ Decay modes. The components seem to be an eta with $4W$. Only specific modes are shown, not generalized ones.

$\rho(770)^o$	Decay products PDG.LBL.GOV 2008	e 36	ν 20	Γ 14 mode has the most components observed	Maximum pairs possible: 18 e^+e^- pairs; 10 $\nu\nu$ pairs

Γ	Observed modes	Inferred e^+	Inferred e^-	Inferred ν	= Total e^+	= Total e^-	= Total ν	Missing e	Missing ν	Shaded pairs below are not observed												What happened to missing pairs?
6	1 π^+	5	4	5	9	9		18		e^+e^-	e^+e^-	e^+e^-	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	9 $e^+e^- \to VP$
	1 π^-	4	5	5												e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
							10		10			$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	5 $\nu\nu \to$ E
7	1 π^+	5	4	5	9	9		18		e^+e^-	e^+e^-	e^+e^-	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	9 $e^+e^- \to VP$
	1 π^-	4	5	5												e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
	γ						10		10			$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	5 $\nu\nu \to$ E
8	1 π^o	4	4	4	4	4		28		**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	14 $e^+e^- \to VP$
	γ															e^+e^-	e^+e^-	e^+e^-	e^+e^-	**e^+e^-**	**e^+e^-**	
							4		16			$\nu\nu$	$\nu\nu$	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	8 $\nu\nu \to$ E
9	1 η^o	16	16	16	16	16		4		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	**e^+e^-**	**e^+e^-**	2 $e^+e^- \to VP$
	γ															e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
							16		4			$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	**$\nu\nu$**	**$\nu\nu$**	2 $\nu\nu \to$ E
10	2 π^o	8	8	8	8	8		20		e^+e^-	e^+e^-	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	10 $e^+e^- \to VP$
	γ															e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
							8		12			$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	6 $\nu\nu \to$ E
11	1 μ^-	1	2	2	3	3		30		**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	15 $e^+e^- \to VP$
	1 μ^+	2	1	2												e^+e^-	e^+e^-	e^+e^-	**e^+e^-**	**e^+e^-**	**e^+e^-**	
							4		16			$\nu\nu$	$\nu\nu$	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	8 $\nu\nu \to$ E
12	e^+ e^-	1	1		1	1		34		**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	17 $e^+e^- \to VP$
																e^+e^-	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	
							0		20			**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	10 $\nu\nu \to$ E
13	1 π^+	5	4	5	13	13		10		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	5 $e^+e^- \to VP$
	1 π^-	4	5	5												e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
	1 π^o	4	4	4			14		6			$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	3 $\nu\nu \to$ E
14	2 π^+	10	8	10	18	18		0		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	0 $e^+e^- \to VP$
Max	2 π^-	8	10	10												e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
							20		0			$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	0 $\nu\nu \to$ E
15	1 π^+	5	4	5	17	17		2		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	**e^+e^-**	1 $e^+e^- \to VP$
	1 π^-	4	5	5												e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
	2 π^o	8	8	8			18		2			$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	**$\nu\nu$**	1 $\nu\nu \to$ E
16	2 π^o	8	8	8	9	9		18		e^+e^-	e^+e^-	e^+e^-	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	**e^+e^-**	9 $e^+e^- \to VP$
	e^+ e^-	1	1													e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
							8		12			$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	**$\nu\nu$**	6 $\nu\nu \to$ E
17	1 η^o	16	16	16	17	17		2		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	**e^+e^-**	1 $e^+e^- \to VP$
	e^+ e^-	1	1													e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
							16		4			$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	**$\nu\nu$**	**$\nu\nu$**	2 $\nu\nu \to$ E

(cont)

Table VIII (cont)

$\rho(770)^o$

	e^+	e^-	ν	e^+e^-	$\nu\nu$	
Maximum =	18	18	20	18	10	= Maximum pairs

Totals

	Proposed Components	e^+	e^-	ν	e^+	e^-	ν
	2 π^+	10	8	10	18	18	20
	2 π^-	8	10	10			
or	1 η^o	16	16	16	18	18	20
	2 e^+ ν	2		2			
	2 e^- ν		2	2			

Cut and paste the following into decay modes of larger particles

1 $\rho(770)^o$	18	18	20

Possible schematic diagram(s):

$$\rho(770)^o = \pi^o{}_4 W_4$$

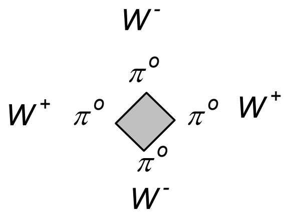


Table IX. $\omega(782)^o$ components. The components seem to be just $5\pi^o$.

$\omega(782)^o$	Decay products PDG.LBL.GOV 2008	e 40	ν 20	Γ 14,17 modes show most components observed	Maximum pairs possible: 20 e^+e^- pairs; 10 $\nu\nu$ pairs

Γ	Observed modes	Inferred e^+	Inferred e^-	Inferred ν	= Total e^+	= Total e^-	= Total ν	Missing e	Missing ν	Shaded pairs below are not observed	What happened to missing pairs?
1	1 π^+	5	4	5	13	13		14		e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	7 $e^+e^- \to VP$
	1 π^-	4	5	5						e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	
	1 π^o	4	4	4			14		6	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	3 $\nu\nu \to$ E
2	1 π^o	4	4	4	4	4		32		e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	16 $e^+e^- \to VP$
	γ									e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	
							4		16	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	8 $\nu\nu \to$ E
3	1 π^+	5	4	5	9	9		22		e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	11 $e^+e^- \to VP$
	1 π^-	4	5	5						e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	
							10		10	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	5 $\nu\nu \to$ E
4	neutrals (exluding π^o γ)										
5	1 η^o	16	16	16	16	16		8		e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	4 $e^+e^- \to VP$
	1 γ									e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	
							16		4	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	2 $\nu\nu \to$ E
6	1 π^o	4	4	4	5	5		30		e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	15 $e^+e^- \to VP$
	e^+ e^-	1	1							e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	
							4		16	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	8 $\nu\nu \to$ E
7	1 μ^-	1	2	2	7	7		26		e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	13 $e^+e^- \to VP$
	1 μ^+	2	1	2						e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	
	1 π^o	4	4	4			8		12	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	6 $\nu\nu \to$ E
8	1 η^o	16	16	16	17	17		6		e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	3 $e^+e^- \to VP$
	e^+ e^-	1	1							e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	
							16		4	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	2 $\nu\nu \to$ E
9	e^+ e^-	1	1		1	1		38		e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	19 $e^+e^- \to VP$
										e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	
							0		20	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	10 $\nu\nu \to$ E
10	1 π^+	5	4	5	17	17		6		e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	3 $e^+e^- \to VP$
	1 π^-	4	5	5						e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	
	2 π^o	8	8	8			18		2	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	1 $\nu\nu \to$ E
11	1 π^+	5	4	5	9	9		22		e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	11 $e^+e^- \to VP$
	1 π^- γ	4	5	5						e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	
							10		10	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	5 $\nu\nu \to$ E
12	2 π^+	10	8	10	18	18		4		e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	2 $e^+e^- \to VP$
	2 π^- γ	8	10	10						e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	
							20		0	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	0 $\nu\nu \to$ E
13	1 π^o	4	4	4	4	4		32		e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	16 $e^+e^- \to VP$
	1 γ									e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^- e^+e^-	
							4		16	$\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$ $\nu\nu$	8 $\nu\nu \to$ E

(cont)

Table IX (cont)

		e^+	e^-	ν	e^+	e^-	ν	pairs													
14	1 η^o	16	16	16	20	20		0	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	0 $e^+e^- \to$ *VP*
Max	1 π^o	4	4	4									e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
	γ						20	0			$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	0 $\nu\nu \to$ E
15	1 μ^-	1	2	2	3	3		34	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	17 $e^+e^- \to$ *VP*
	1 μ^+	2	1	2									e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
							4	16			$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	8 $\nu\nu \to$ E
16	3 γ				0	0		40	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	20 $e^+e^- \to$ *VP*
													e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
							0	20			$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	10 $\nu\nu \to$ E
ω(782)^o	*C violating modes*																				
17	1 η^o	16	16	16	20	20		0	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	0 $e^+e^- \to$ *VP*
Max	1 π^o	4	4	4									e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
							20	0			$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	0 $\nu\nu \to$ E
18	3 π^o	12	12	12	12	12		16	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	8 $e^+e^- \to$ *VP*
													e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
							12	8			$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	4 $\nu\nu \to$ E

$\omega(782)^o$

	e^+	e^-	ν	e^+e^-	$\nu\nu$	
Maximum =	20	20	20	20	10	= Maximum pairs

Totals

Proposed Components	e^+	e^-	ν	e^+	e^-	ν
1 η^o	16	16	16	20	20	20
1 π^o	4	4	4			
or 5 π^o	20	20	20	20	20	20

Cut and paste the following into decay modes of larger particles

1 *ω(782)^o*	20	20	20

Possible schematic diagram(s):

$$\omega(782)^o = \pi^o{}_5$$

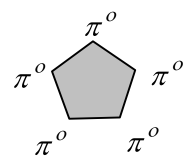


Table X. $\rho(770)^o$ components. The components seem to be $5\pi^o$ with a W. Only specific modes are shown, not generalized ones.

$\rho(770)^+$ — Decay products PDG.LBL.GOV 2008 — e: 41, ν: 21 — Γ 4 mode has the most components observed — Maximum pairs possible: 20 e^+e^- pairs, 10 $\nu\nu$ pairs

Γ	Observed modes	Inferred e^+	Inferred e^-	Inferred ν	= Total e^+	= Total e^-	= Total ν	Missing e	Missing ν	Shaded pairs below are not observed												What happened to missing pairs?
2	1 π^+	5	4	5	9	8		24		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	12 $e^+e^- \to VP$
	1 π^o	4	4	4										e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
							9		12			$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	6 $\nu\nu \to$ E
3	1 π^+	5	4	5	5	4		32		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	16 $e^+e^- \to VP$
	γ													e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
							5		16			$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	8 $\nu\nu \to$ E
4	1 π^+	5	4	5	21	20		0		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	0 $e^+e^- \to VP$
	1 η^o	16	16	16										e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
							21		0			$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	0 $\nu\nu \to$ E
5	2 π^+	10	8	10	18	17		6		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	3 $e^+e^- \to VP$
	1 π^-	4	5	5										e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
	1 π^o	4	4	4			19		2			$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	1 $\nu\nu \to$ E

$\rho(770)^+$

	e^+	e^-	ν	e^+e^-	$\nu\nu$	
Maximum =	21	20	21	20	10	= Maximum pairs

Proposed Components	e^+	e^-	ν	Totals e^+	Totals e^-	Totals ν
5 π^o	20	20	20	21	20	21
1 e^+ ν	1		1			
or 4 π^o	16	16	16	21	20	21
1 π^+	5	4	5			

Cut and paste the following into decay modes of larger particles

1 $\rho(770)^+$	21	20	21

Possible schematic diagram(s):

$$\rho(770)^+ = \pi^o{}_5 W$$

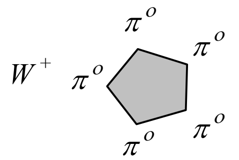


Table XI. $K^*(892)^o$ **components.** The components seem to be $5\pi^o$ with 4 W. Only specific modes are shown, not generalized ones.

$K^*(892)^o$ — Decay products PDG.LBL.GOV 2008 — e: 44, ν: 24 — Γ 6 mode has the most components observed — Maximum pairs possible: 22 e^+e^- pairs, 12 $\nu\nu$ pairs

Missing components in each decay mode. Shaded pairs below are not observed. What happened to missing pairs?

Neutral versions shown

Γ	Observed modes	Inferred e^+	Inferred e^-	Inferred ν	= Total e^+	Total e^-	Total ν	Missing e	Missing ν													What happened to missing pairs?
3a	$(K\pi)^o$				17	17		10		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	5 e^+e^- → VP
	1 K^o	13	13	14								e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
	1 π^o	4	4	4			18		6	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	3 $\nu\nu$ → E
3b	$(K\pi)^o$				18	18		8		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	4 e^+e^- → VP
	1 K^+	14	13	15								e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
	1 π^-	4	5	5			20		4	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	2 $\nu\nu$ → E
4	1 K^o	13	13	14	13	13		18		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	9 e^+e^- → VP
	γ											e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
							14		10	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	5 $\nu\nu$ → E
6	$(K\pi)^o$																					
Max	1 K^o	13	13	14	22	22		0		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	0 e^+e^- → VP
	1 π^+	5	4	5								e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
	1 π^-	4	5	5			24		0	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	0 $\nu\nu$ → E

$K^*(892)^o$

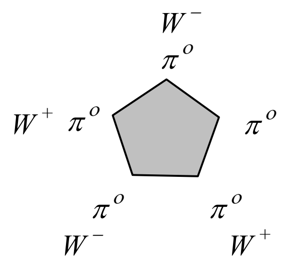
	e^+	e^-	ν	e^+e^-	$\nu\nu$	
Maximum =	22	22	24	22	12	= Maximum pairs

Totals

	Proposed Components	e^+	e^-	ν	e^+	e^-	ν
	2 π^-	8	10	10	22	22	24
	2 π^+	10	8	10			
	1 π^o	4	4	4			
or	2 e^- ν		2	2	22	22	24
	2 e^+ ν	2		2			
	5 π^o	20	20	20			

Possible schematic diagram(s):

$$K^*(892)^o = \pi^o{}_5 W_4$$



Cut and paste the following into decay modes of larger particles

1 $K^*(892)^o$	22	22	24

(Used in proton decay)

Table XII. $K^*(892)^+$ **components.** The components seem to be $5\pi^o$ with 5 W. Only specific modes are shown, not generalized ones.

$K^*(892)^+$	Decay products PDG.LBL.GOV 2008	e 45	ν 25	Γ 3 mode has the most components observed	Maximum pairs possible: 22 e^+e^- pairs; 12 $\nu\nu$ pairs

Γ	Observed modes	Inferred e^+	Inferred e^-	Inferred ν	= Total e^+	= Total e^-	= Total ν	Missing e	Missing ν	Missing components in each decay mode (Shaded pairs below are not observed)												What happened to missing pairs?
	Neutral versions shown																					
2	1 K^o	13	13	14	18	17		10		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	5 $e^+e^- \to VP$
	1 π^+	5	4	5								e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
							19		6	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	3 $\nu\nu \to$ E
5	1 K^+	14	13	15	14	13		18		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	9 $e^+e^- \to VP$
	γ											e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
							15		10	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	5 $\nu\nu \to$ E
6	1 K^+	14	13	15	23	22		0		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	0 $e^+e^- \to VP$
	1 π^+	5	4	5								e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
	1 π^-	4	5	5			25		0	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	0 $\nu\nu \to$ E

$K^*(892)^+$

	e^+	e^-	ν	e^+e^-	$\nu\nu$	
Maximum =	23	22	25	22	12	= Maximum pairs

Proposed Components	e^+	e^-	ν	Totals e^+	Totals e^-	Totals ν
5 π^o	20	20	20	23	22	25
3 e^+ ν	3		3			
2 e^- ν		2	2			
or 2 π^-	8	10	10	23	22	25
3 π^+	15	12	15			

Cut and paste the following into decay modes of larger particles

1 $K^*(892)^+$	23	22	25

Possible schematic diagram(s):

$$K^*(892)^+ = \pi^o{}_5\, W_5$$

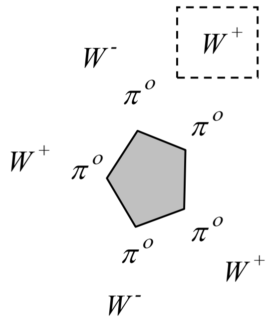


Table XIII. The 5π proton based on pubished decay products. This version of proton components, based only on bookkeeping of decay modes, assumes that no e^+e^- pairs annihilate unnoticed during the maximum decay mode involving $K^*(892)^o$

p^+ [5π]	Decay products PDG.LBL.GOV 2008	e 45	ν 24	Γ 21 mode has the most components observed	Maximum pairs possible: 22 e^+e^- pairs; 12 $\nu\nu$ pairs

Only specific proton decays are listed here, not generalized nucleon decays.

Missing components in each decay mode. Shaded pairs below are not observed.

Γ	Observed modes	Inferred e^+	Inferred e^-	Inferred ν	= Total e^+	= Total e^-	= Total ν	Missing e	Missing ν													What happened to missing pairs?
4	1 η^o	16	16	16	17	16		12		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	6 $e^+e^- \to VP$
	e^+	1										e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
							16		8	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	4 $\nu\nu \to E$
5	1 η^o	16	16	16	18	17		10		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	5 $e^+e^- \to VP$
	1 μ^+	2	1	2								e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
							18		6	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	3 $\nu\nu \to E$
10	1 ω	20	20	20	21	20		4		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	2 $e^+e^- \to VP$
	e^+	1										e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
							20		4	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	2 $\nu\nu \to E$
11	1 ω	20	20	20	22	21		2		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	1 $e^+e^- \to VP$
	1 μ^+	2	1	2								e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
							22		2	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	1 $\nu\nu \to E$
14	1 $K^o{}_S$	13	13	14	14	13		18		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	9 $e^+e^- \to VP$
	e^+	1										e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
							14		10	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	5 $\nu\nu \to E$
15	1 $K^o{}_L$	13	13	14	14	13		18		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	9 $e^+e^- \to VP$
	e^+	1										e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
							14		10	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	5 $\nu\nu \to E$
17	1 $K^o{}_S$	13	13	14	15	14		16		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	8 $e^+e^- \to VP$
	1 μ^+	2	1	2								e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
							16		8	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	4 $\nu\nu \to E$
18	1 $K^o{}_L$	13	13	14	15	14		16		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	8 $e^+e^- \to VP$
	1 μ^+	2	1	2								e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
							16		8	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	4 $\nu\nu \to E$
21	1 $K^*(892)^o$	22	22	24	23	22		0		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	0 $e^+e^- \to VP$
Max	e^+	1										e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
							24		0	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	0 $\nu\nu \to E$
23	1 π^+	5	4	5	10	9		26		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	13 $e^+e^- \to VP$
	1 π^-	4	5	5								e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
	e^+	1					10		14	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	7 $\nu\nu \to E$
24	2 π^o	8	8	8	9	8		28		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	14 $e^+e^- \to VP$
	e^+	1										e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
							8		16	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	8 $\nu\nu \to E$
26	1 π^+	5	4	5	10	9		26		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	13 $e^+e^- \to VP$
	1 π^-	4	5	5								e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
	e^+	1					10		14	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	7 $\nu\nu \to E$

(cont)

Table XIII (cont) ***p+*** [5π]

27	2	π^o	8	8	8	10	9		26	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	13 $e^+e^- \to VP$
	1	μ^+	2	1	2							e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
								10	14	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	7 $\nu\nu \to$ E
36	2	π^+	10	8	10	10	9		26	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	13 $e^+e^- \to VP$
		e^-		1								e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
								10	14	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	7 $\nu\nu \to$ E
38	2	π^+	10	8	10	11	10		24	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	12 $e^+e^- \to VP$
	1	μ^-	1	2	2							e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
								12	12	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	6 $\nu\nu \to$ E
40	1	K^+	14	13	15	19	18		8	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	4 $e^+e^- \to VP$
	1	π^+	5	4	5							e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
		e^-		1				20	4	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	2 $\nu\nu \to$ E
41	1	K^+	14	13	15	20	19		6	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	3 $e^+e^- \to VP$
	1	π^+	5	4	5							e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
	1	μ^-	1	2	2			22	2	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	1 $\nu\nu \to$ E
42		e^+	1			1	0		44	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	22 $e^+e^- \to VP$
		γ										e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
								0	24	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	12 $\nu\nu \to$ E
43	1	μ^+	2	1	2	2	1		42	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	21 $e^+e^- \to VP$
		γ										e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
								2	22	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	11 $\nu\nu \to$ E
44		e^+	1			1	0		44	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	22 $e^+e^- \to VP$
	2	γ										e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
								0	24	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	12 $\nu\nu \to$ E
47	2	e^+	2			2	1		42	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	21 $e^+e^- \to VP$
		e^-		1								e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
								0	24	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	12 $\nu\nu \to$ E
48	1	μ^+	2	1	2	4	3		38	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	19 $e^+e^- \to VP$
	1	μ^-	1	2	2							e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
		e^+	1					4	20	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	10 $\nu\nu \to$ E
49	1	e^+ ν	1		1	1	0		44	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	22 $e^+e^- \to VP$
		ν			1							e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
								2	22	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	11 $\nu\nu \to$ E
53	1	μ^+	2	1	2	3	2		40	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	20 $e^+e^- \to VP$
		e^+	1									e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
		e^-		1				2	22	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	11 $\nu\nu \to$ E
54	2	μ^+	4	2	4	5	4		36	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	18 $e^+e^- \to VP$
	1	μ^-	1	2	2							e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
								6	18	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	9 $\nu\nu \to$ E
55	1	μ^+	2	1	2	2	1		42	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	21 $e^+e^- \to VP$
	2	ν			2							e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
								4	20	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	10 $\nu\nu \to$ E
56	2	μ^+	4	2	4	4	3		38	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	19 $e^+e^- \to VP$
		e^-		1	0							e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
								4	20	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	$\nu\nu$	10 $\nu\nu \to$ E

(cont)

Table XIII (cont) ***p+*** $[5\pi]$

$p^{+}[5\pi]$

Maximum =

e^+	e^-	v	e^+e^-	$v\,v$
23	22	24	22	12

= Maximum pairs

	Proposed Components	e^+	e^-	v	Totals e^+	Totals e^-	Totals v
	1 $K^*(892)^o$	22	22	24	23	22	24
	1 e^+	1					
or	2 π^+	10	8	10	23	22	24
	2 π^-	8	10	10			
	1 π^o	4	4	4			
	1 e^+	1					

Cut and paste the following into decay modes of larger particles

1 $p+$ $[5\pi]$	23	22	24

$$p^{+}[5\pi] = \pi^{o}{}_{5}\, W_{4}\, e^{+}$$

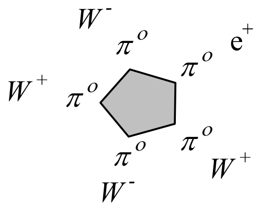


Table XIV. Neutron based on 5π proton.

n^{o} [5π]	Decay products PDG.LBL.GOV 2008	e	ν	Γ 3	mode has the most components observed	Maximum pairs possible
		46	26			23 e^+e^- pairs
						13 νν pairs

Γ	Observed modes			Inferred e^+	e^-	ν	= Total e^+	e^-	ν	Missing components in each decay mode: e	ν	Shaded pairs below are not observed	What happened to missing pairs?
1	1	$p+$	[5π]	23	22	24	23	23		0			0 e^+e^- → VP
	1	e^-	ν		1	1							
									25		1		0.5 νν → E
2	1	$p+$	[5π]	23	22	24	23	23		0			0 e^+e^- → VP
			ν		1								
	1		ν			1			25		1		0.5 νν → E
3	1	$p+$	[5π]	23	22	24	23	23		0			0 e^+e^- → VP
	1	e^-	ν		1	1							
			γ						25		1		0.5 νν → E
	Charge Conservation (Q) violating mode												
	1	$p+$	[5π]	23	22	24	23	22		1			0.5 e^+e^- → VP
	2		ν			2							
									26		0		0 νν → E

n^{o} [5π]

	e^+	e^-	ν	e^+e^-	νν	
Maximum =	23	23	26	23	13	= Maximum pairs
	Totals					

Proposed Components			e^+	e^-	ν	e^+	e^-	ν
1	**$p+$**	[5π]	**23**	**22**	**24**	23	23	25
1	e^-	ν		1	1			

Cut and paste the following into decay modes of larger particles

1	$\boldsymbol{n^{o}}$	[5π]	23	23	26

Possible schematic diagram(s):

$$n^{o}[5\pi] = \pi^{o}{}_{5}\, W_{5}\, e^{+}$$

Table XV. Proton based on $6\pi^o$

If there are *two extra VP* (e^+e^-) in the structure of the proton unnoticed in the maximum published decay mode, we would have six π^o, each of which has four bonds each, remarkably like the stable benzene ring made of six carbons with four bonds each. In the chart below, 2 e^+e^- pairs are added to the maximum mode #21.

$p^+[6\pi]$	Decay products PDG.LBL.GOV 2008	e	ν	Γ 3 mode has the most components observed	Maximum pairs possible
		49	24		24 e^+e^- pairs; 12 ν ν pairs

Γ	Observed modes	Inferred e^+	Inferred e^-	Inferred ν	= Total e^+	= Total e^-	= Total ν	Missing e	Missing ν	Shaded pairs below are not observed												What happened to missing pairs?
21	1 $K^*(892)^o$	22	22	24	25	24		0		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	0 $e^+e^- \to VP$
Max	e^+	1								e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
	2 e^+ e^-	2	2																			
							24		0	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	0 ν ν → E
42	e^+	1			1	0		48		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	24 $e^+e^- \to VP$
Min	γ									e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
							0		24	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	12 ν ν → E

$p^+[6\pi]$

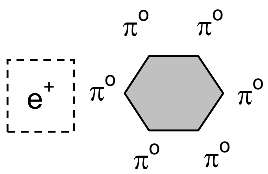
	e^+	e^-	ν	e^+e^-	ν ν	
Maximum =	25	24	24	24	12	= Maximum pairs

Totals

Proposed Components	e^+	e^-	ν	e^+	e^-	ν
6 π^o	24	24	24	25	24	24
1 e^+	1					

Possible schematic diagram(s):

$$p^+[6\pi] = \pi^o{}_6\, e^+$$



Cut and paste the following into decay modes of larger particles

1 $p+$ $[6\pi]$	25	24	24

Table XVI. Neutron based on 6π proton.

n^o [6π] — Decay products PDG.LBL.GOV 2008 — e: 50, ν: 26 — Γ 3 mode has the most components observed — Maximum pairs possible: 25 e^+e^- pairs; 13 ν ν pairs

Missing components in each decay mode. Shaded pairs below are not observed. What happened to missing pairs?

Γ	Observed modes	Inferred e^+	Inferred e^-	Inferred ν	= Total e^+	= Total e^-	= Total ν	Missing e	Missing ν													What happened to missing pairs?
1	1 $p+$ [6π]	25	24	24	25	25		0		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	0 e^+e^- → *VP*
	1 e^- ν		1	1							e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
																					ν ν	
							25		1	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	0.5 ν ν → E
2	1 $p+$ [6π]	25	24	24	25	25		0		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	0 e^+e^- → *VP*
	e^-		1								e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
																					ν ν	
	1 ν			1			25		1	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	0.5 ν ν → E
3	1 $p+$ [6π]	25	24	24	25	25		0		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	0 e^+e^- → *VP*
	1 e^- ν		1	1							e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
																					ν ν	
	γ						25		1	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	0.5 ν ν → E
	Charge Conservation (Q) violating mode																					
4	1 $p+$ [6π]	25	24	24	25	24		1		e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	0.5 e^+e^- → *VP*
	2 ν			2							e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	e^+e^-	
																					ν ν	
							26		0	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	ν ν	0 ν ν → E

n^o [6π]

	e^+	e^-	ν	e^+e^-	ν ν	
Maximum =	25	25	26	25	13	= Maximum pairs

Totals

Proposed Components	e^+	e^-	ν	e^+	e^-	ν
1 $p+$ [6π]	25	24	24	25	25	25
1 e^- ν		1	1			

Cut and paste the following into decay modes of larger particles

1 n^o [6π]	25	25	26

Possible schematic diagram(s):

$$n^o[6\pi] = \pi^o{}_6 e^+ W^-$$

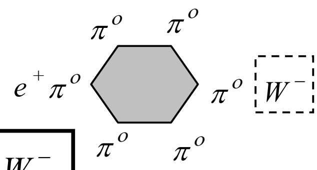


Table XVII. Λ^o components. The component list seems to be a neutron with a π^o, which appears to be a common pattern of adding mass to produce larger particles. As described earlier, during ~~n~~→p a single ν instead of a pair is involved, which shows up in Λ decay modes with protons as products.

Λ^o	Decay products PDG.LBL.GOV 2008	e	ν	Γ 3 mode has the most components observed	Maximum pairs possible
		58	30		29 e^+e^- pairs; 15 $\nu\,\nu$ pairs

Γ	Observed modes	Inferred e^+	Inferred e^-	Inferred ν	= Total e^+	= Total e^-	= Total ν	Missing e	Missing ν	Shaded pairs below are not observed / What happened to missing pairs?
1	. $p+$ $[6\pi]$	25	24	24	25	25		8		4 $e^+e^- \rightarrow VP$
	1 e^- ν		1	1						
							25		5	2.5 $\nu\,\nu \rightarrow$ E
2	1 n^o $[6\pi]$	25	25	26	29	29		0 (shaded)		0 $e^+e^- \rightarrow VP$
	1 π^o	4	4	4						
							30		0 (shaded)	0 $\nu\,\nu \rightarrow$ E
3	1 n^o $[6\pi]$	25	25	26	25	25		8		4 $e^+e^- \rightarrow VP$
							26		4	2 $\nu\,\nu \rightarrow$ E
4	1 $p+$ $[6\pi]$	25	24	24	29	29		0		0 $e^+e^- \rightarrow VP$
	1 π^-	4	5	5						
							29		1	0.5 $\nu\,\nu \rightarrow$ E
5	1 $p+$ $[6\pi]$	25	24	24	25	25		8		4 $e^+e^- \rightarrow VP$
	1 e^- ν		1	1						
							25		5	2.5 $\nu\,\nu \rightarrow$ E
6	1 $p+$ $[6\pi]$	25	24	24	26	26		6		3 $e^+e^- \rightarrow VP$
	1 μ^-	1	2	2						
	ν			1						
							27		3	1.5 $\nu\,\nu \rightarrow$ E

Λ^o

	e^+	e^-	ν	e^+e^-	$\nu\,\nu$	
Maximum =	29	29	30	29	15	= Maximum pairs

Totals

Proposed Components	e^+	e^-	ν	Total e^+	Total e^-	Total ν
1 n^o $[6\pi]$	25	25	26	29	29	30
1 π^o	4	4	4			

Cut and paste the following into decay modes of larger particles

1 Λ^o $[6\pi]$	29	29	30

$$\Lambda^o = n^o\pi^o$$

Table XVIII. τ components. While the τ decay modes follow the Pair Decay Rule, the list of components is extensive, and can be assembled in a variety of ways. Possibly the π^o are all bonded with Ws, and not available for Strong bonding so it becomes a lepton?

τ^+		Decay products PDG.LBL.GOV 2008							e 89	ν 50	Γ 98 mode has the most components observed; 89 e^+ or e^- ⇒ 44 e^+e^- pairs, 25 $\nu\nu$ pairs
Γ		Observed modes	Inferred e^+	e^-	ν	= Total e^+	e^-	ν	Missing components in each decay mode: e	ν	Shaded pairs below are not observed. What happened to missing pairs?
Modes with one charged particle											
3	1	μ^+	2	1	2	2	1		86		43 $e^+e^- \to VP$
	2	ν			2			4		46	23 $\nu\nu \to$ E
4	1	μ^+ γ	2	1	2	2	1		86		43 $e^+e^- \to VP$
	2	ν			2			4		46	23 $\nu\nu \to$ E
5	1	e^+	1			1	0		88		44 $e^+e^- \to VP$
	2	ν			2			2		48	24 $\nu\nu \to$ E
10	1	K^+	14	13	15	14	13		62		31 $e^+e^- \to VP$
	1	ν			1			16		34	17 $\nu\nu \to$ E
11	1	π^+	5	4	5	5	4		80		40 $e^+e^- \to VP$
	1	ν			1			6		44	22 $\nu\nu \to$ E
12	1	K^+	14	13	15	14	13		62		31 $e^+e^- \to VP$
	1	ν			1			16		34	17 $\nu\nu \to$ E
16	1	K^+	14	13	15	18	17		54		27 $e^+e^- \to VP$
	1	π^o	4	4	4						
	1	ν			1			20		30	15 $\nu\nu \to$ E
20	1	π^+	5	4	5	13	12		64		32 $e^+e^- \to VP$
	2	π^o	8	8	8						
	1	ν			1			14		36	18 $\nu\nu \to$ E
23	1	K^+	14	13	15	22	21		46		23 $e^+e^- \to VP$
	2	π^o	8	8	8						
	1	ν			1			24		26	13 $\nu\nu \to$ E
28	1	K^+	14	13	15	26	25		38		19 $e^+e^- \to VP$
	3	π^o	12	12	12						
	1	ν			1			28		22	11 $\nu\nu \to$ E
48	1	π^+	5	4	5	31	30		28		14 $e^+e^- \to VP$
	1	$K^o{}_S$	13	13	14						
	1	$K^o{}_L$	13	13	14						
	1	ν			1			34		16	8 $\nu\nu \to$ E
59	1	π^-	4	5	5	18	17		54		27 $e^+e^- \to VP$
	2	π^+	10	8	10						
	1	π^o	4	4	4						
	1	ν			1			20		30	15 $\nu\nu \to$ E
86	1	K^+	14	13	15	32	31		26		13 $e^+e^- \to VP$
	1	$\rho(770)^o$	18	18	20						
	1	ν			1			36		14	7 $\nu\nu \to$ E
98	2	K^+	28	26	30	45	44		0		0 $e^+e^- \to VP$
Max	1	K^-	13	14	15						
	1	π^o	4	4	4						
	1	ν			1			50		0	0 $\nu\nu \to$ E

(cont)

Table XIX (cont) τ^+

112	1 $K^*(892)^+$	23	22	25	23	22		44		22	$e^+e^- \rightarrow VP$
	1 ν			1			26		24	12	$\nu\nu \rightarrow E$
115	1 $K^*(892)^o$	22	22	24	36	35		18		9	$e^+e^- \rightarrow VP$
	1 K^+	14	13	15							
	1 ν			1			40		10	5	$\nu\nu \rightarrow E$
152	1 e^+	1			1	0		88		44	$e^+e^- \rightarrow VP$
	γ						0		50	25	$\nu\nu \rightarrow E$
196	2 η^o	32	32	32	33	32		24		12	$e^+e^- \rightarrow VP$
	1 e^+	1					32		18	9	$\nu\nu \rightarrow E$
204	1 $p+$ [6p]	25	24	24	45	44		0		0	$e^+e^- \rightarrow VP$
	1 π^o	4	4	4							
	1 η^o	16	16	16			44		6	3	$\nu\nu \rightarrow E$

τ^+

	e^+	e^-	ν	e^+e^-	$\nu\nu$	
Maximum =	45	44	50	44	25	= Maximum pairs

Totals

	Proposed Components	e^+	e^-	ν	e^+	e^-	ν
	2 K^+	28	26	30	45	44	50
	1 K^-	13	14	15			
	1 π^o	4	4	4			
	1 ν			1			
or	4 π^-	16	20	20	45	44	50
	5 π^+	25	20	25			
	1 π^o	4	4	4			
	1 ν			1			
or	10 π^o	40	40	40	45	44	50
	4 e^- ν_e		4	4			
	5 e^+ ν_e	5		5			
	1 ν			1			
	1 τ^+	13	13	14			