

WEAK FORCE IVBs, NEUTRINOS, AND INFORMATION

(IVBs = "Intermediate Vector Bosons": the strange, massive field vectors (force carriers) of the weak force)

John A. Gowan

January 2016

In the domain of the weak force, we find two types of elementary particles: 1) the (relatively) massive electrically charged leptons (electron, muon, tau); 2) their associated "identity charges", the (relatively) massless and electrically neutral neutrinos. Neutrinos are the "bare" identity charges of their massive leptonic namesakes, one for each type of massive lepton (the electron, muon, or tau neutrino). Although the three types of neutrinos resonate from one identity to another while in flight (apparently because their only distinguishing characteristic is a slight difference in mass), they will only interact with their own specific massive and charged namesakes, during transformations or the creation/destruction of [single leptonic elementary particles](#). Neutrino "identity charges" (the characteristic charge of the weak force) provide the foundation for the information content of the cosmos - just as the [weak force asymmetry](#) provides the matter surplus of the cosmos.

[We have already noted](#) the strange fact that the "W" IVB, which weighs the equivalent of about 80 proton masses, is required to regulate the creation, transformation, or destruction of *single* charged leptons, even though an electron is lighter than a proton by a factor of nearly 2,000. [We have explained](#) this enormous "overkill" of available energy as due to the necessity to return to the original environment in which electrons were created, in order to ensure that every electron ever made - past, present, or future - is absolutely identical (for reasons of energy and symmetry conservation - for example, they must always be able to annihilate with an exact antimatter counterpart).

With respect to the neutrinos, whose mass is still unknown but may be as little as one-millionth that of an electron, we find an even more extreme mismatch between the "Z" neutral IVB and the particles whose transformations it regulates: the "Z" neutral IVB weighs about 90 proton masses. As in the case of the "W" IVB, we explain the huge mass of the "Z" as necessary to recreate the original energy environment in which neutrinos were created, and for the same reason: within type, every neutrino ever created - past, present, and future - must be exactly alike. If this hypothesis is correct, it suggests that the neutrinos were created before the massive leptons, in an earlier, smaller, and hotter universe, closer in time to the actual origin of everything.

But of course this only makes sense: the identity charge must be ready before the arrival of the massive lepton it will delimit and characterize. The mold must pre-exist the substance poured into it. The massive leptons would not "know" what form to take without the neutrinos to guide them. The presence of the neutrino precludes potential chaos during the initial "packaging" of energy into discreet, massive leptons during the Big Bang. Think for a minute, and you will realize that "Identity" is, and must be, matter's most primitive and basic charge (otherwise matter could not recognize and annihilate with antimatter - energy, symmetry, and charge conservation would be lost). How our matter-only universe manages to achieve conservation despite this glaring asymmetry is the major subject of this website. ([The charges of matter are the symmetry debts of light](#)).

[In the spirit of General Systems](#) in which this webpage is founded, I wish to note the following

concordance: neutrinos are evidently the first elements of information to appear in our cosmos, and as we have suggested above, necessarily pre-exist the massive elementary leptonic particles for which they provide "[identity charges](#)" (implicit in the massive leptons, explicit in the neutrinos). To use an analogy, it is almost as if the neutrinos are the "souls" of the massive particles they code for - presenting us with a natural example of Platonic dualism. While the rational mind has only recently discovered massive leptons, neutrinos, identity charges, and the scientific concept of information, the intuitive mind long ago recognized the fundamental ontogeny of the cosmos in a single, simple statement: "In the beginning was the word".

Further in the same vein: when Moses asks God what his name (identity) is, God replies: "I am that I am". This is nothing less than a statement of absolute identity, sufficient unto itself, undervived from any prior, higher, or more universal source. God simply IS, and cannot be encompassed, captured, or otherwise diminished by a name or category. When we refer to God, we refer to that which *cannot* be named. God is simply the "Almighty", the "First Cause" or "Prime Mover", the "One", the "Creator". We are all subdivisions of the eternal "I AM", the everlasting, living, "Creative Principle".

And what are we to make of the notion that humanity is created in the "image and likeness" of God? To me, this suggests the idea of God as the central, single, all-encompassing "Identity" of the cosmos, from which the souls (identities) of His creations are derived - much as the "Big Bang" is the central single source of the neutrinos bearing identity charges of the elementary particles they will create. We are created in the image and likeness of our universe. This is something [Chardin understood](#).