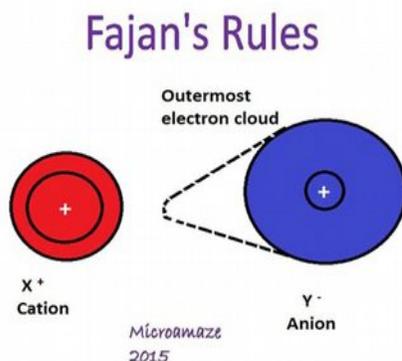


[return to updates](#)

FAJANS' RULES ARE FALSE



by Miles Mathis

First published November 10, 2020

Fajans' rules were invented in 1923 to explain why halides tended to be more ionic or covalent in character. Since [I have proven that elements do not bond](#) by electron sharing or swapping, we know without further analysis these rules must be fictional. That should have been clear before I came along, since the rules make no sense. There are three basic rules, but we can prove this by only destroying the first two.

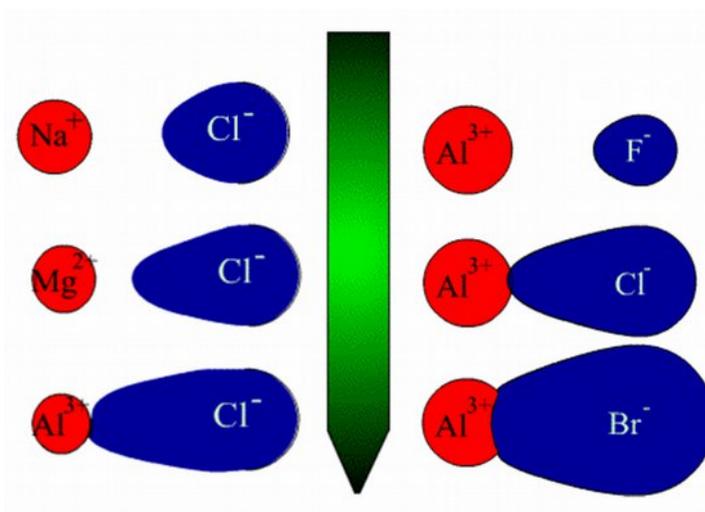
The first says that a bond will be more covalent (balanced between cation and anion), if the cation is relatively smaller or the anion is relatively larger. The reason given is that if the cation is smaller, it will have a higher charge density, and therefore more ability to polarize the anion. If the anion is relatively larger, its electron cloud is less tightly held in place by the nuclear charge, again making it more polarizable. We are told this creates a covalent character because outer electrons are drawn more from anion to cation, and when that happens “the negative charge of the anion's electron cloud cancels out the positive charge of the cation.” That charge cancellation leads to a greater charge balance.

The second says that high charge on the cation also adds to the covalent effect for the same reason. Just as small size adds charge strength, so does high charge, as in a high +number. As, for instance, when Al gains a +3 charge in AlI_3 . As before, that high charge on the cation pulls outer electrons from the anion nearer, cancelling more charge and creating more covalence.

I can't believe no one has called foul on that before this, since it is so pathetic and contradictory. It is contradictory because they are trying to explain less charge by more charge. AlI_3 is less charged because Al is more charged? You have to be kidding me. I remind you that Aluminum is said to be highly charged in that molecule due to its proximity to the Iodines. It wouldn't be charged otherwise, according to the theory. So the proximity of the Iodines is causing the high charge. But now we are told the proximity of the Iodines is *also* causing the low charge. The Iodines cause the high charge on the Aluminum, but then immediately cancel it, to suit these master theorists like Fajans.

So the theory is circular. The Iodines should be capable of only a given charge power in any given situation. The same can be said from the point of view of the cation Al. It has only one charge field and so it can be affected by the anions in only one direction. It can be given more charge or less charge, but not both at the same time.

But even if we accept that an anion can both charge a cation and cancel its charge, it would have to do each in proportion to its power. The anion has one and only one charge itself, so it must cancel in proportion to its power to ionize the cation in the first place. Which means that if we switch to a different anion like Fluorine, Fluorine—like Iodine—must also cancel in proportion to its ability to ionize the cation. And if that is true, then all molecules would be equally covalent. The more the cation pulls, the more the anion cancels that pull, and we have a wash.



A second reason this is all garbage is that once again they explain polarizability as a physical distortion of an electron cloud, which [I have shown before is absurdly naive](#). They draw the cloud as a bubble, then pull the near side of the bubble over toward the cation, implying outer electrons of the anion are actually travelling nearer the cation's nucleus. See diagram under title and the diagram above from stackexchange. Whenever a critic draws anything like that, mainstream chemists and physicists scream bloody murder, yelling that the electrons aren't point particles in orbits, they are probability blurs or something. But when these mainstream theorists need to push theory, they allow themselves to do this any time they like. [They just draw an outer electron as an orbit, and move the orbit over toward the cation](#). But of course they can't do that, because it destroys all the original charge balances. Once the electron moved over like that, in an elongated orbit, it couldn't ever get back. If these charge fields are any sort of real fields that obey real laws, the potentials would be destroyed by such "polarization". Illustrating polarization by these ovals or eggs is a mechanical disaster, but everyone just pretends not to notice that. If they lost these polarization eggs, they would have nothing, and they think that even a terrible diagram is better than nothing.

In fact, this theory is completely illogical in a third basic way: it leads you to believe that larger ions have less charge. When of course the reverse is true. Larger ions have more charge, because they have more powerful nuclei channeling the charge field. Yes, smaller ions sometimes have a more *focused* charge, as in the case of Fluorine, but that is due to the nuclear structure, not due to nuclear size alone.

And it is illogical in a fourth way: it contradicts electronegativity. By Fajans' rule, smaller, more charged cations create more covalent bonding, and they do so by pulling on the electrons of anions more. So, to maintain consistency, smaller cations should be more electronegative. Unfortunately, that doesn't work when we compare Na and Ca. Na is smaller but Ca is more electronegative.

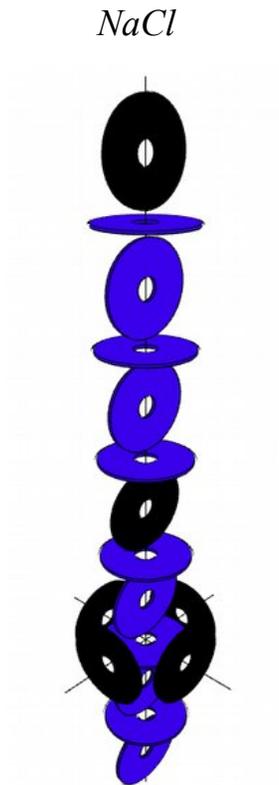
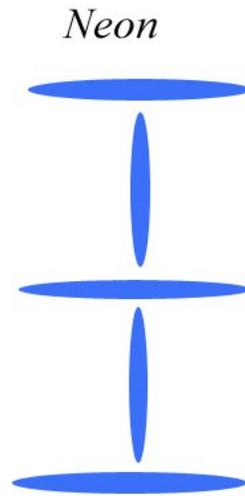
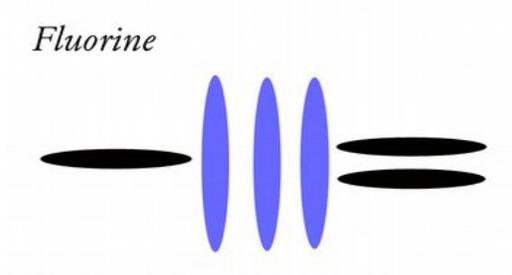
In the same way, it is strange to see alkalis pulling on electrons in such situations regardless, since they are actually the *least* electronegative of all the elements. They are the most electropositive, getting more electropositive as you go to larger alkalis like Cesium. The most electronegative elements are those such as Fluorine. But although F is supposed to be attracting electrons and Na is supposed to be donating them, the reverse is happening in these Fajans explanations. Na is attracting electrons and F is letting them migrate. You really have to laugh.

You will say that F only attracts its own electrons, not those of Na, but that is not the theory we are taught. Electronegativity is defined relative to a molecular structure, not in isolation. So F should actually be pulling on Na's electrons, but that is ignored and reversed in the Fajans explanation: Na is pulling on F's electrons, and is therefore the one acting electronegative. F, the most electronegative element, is letting its electrons drift to Na, where those electrons get close enough to cancel Na's positive charge, just like his own electrons. So, in effect, Na has donated an electron to F to create the ionic bond, but then F donates one back to Na to create Fajans' covalent character. It is really beyond belief these contradictions have been papered over for a century, and no one even notices.

You will say NaF has very little covalent character, but that isn't the point. We can switch to NaCl, which does, and the same applies. In Fajans' explanation, Na is "polarizing" Cl's clouds, which means Na is pulling an electron over, according to the diagrams posted by the mainstream. So BOTH Cl and Na are acting electronegative, but Cl is electronegative before the first electron passes over, and Na is electronegative after it passes over. By the field definitions, we can see why Na would be attracting the electron: he wants his back, to re-establish parity. But it is never explained why F wanted Na's to start with. F already had its own full slate of electrons, so why would it want one? According to the mainstream rules, *it wouldn't*. According to the stated definition of electronegativity, a Fluorine in isolation cannot have a value. It cannot have any electronegativity on its own. So why do the two elements ever attract one another, and why does Na release the first electron? No answer has *ever* been forthcoming to that basic question.

But you can't really understand how bad the current answer is until you compare it to the correct answer.

Let us ask the question again, but use my nuclear diagrams to explain it. Since Na and F are only two steps from one another on the Periodic table, one up and one down from Neon, you would think those two would prefer to bond, rather than Na and Cl. But that isn't the case. There is more than three times as much F in the crust as Cl, but fortunately the seas aren't filled with rat poison. So Na and Cl like to bond. They have an affinity for it. Why? Well, it has nothing to do with Fajans' Rules. It is because of their nuclear structures. Both have a nucleus built on Neon, so their nuclear cores are identical. That is the basic answer. Their charge fields are pre-matched by channeling through the same core of 20 nucleons in the same structure. But F is a pre-Neon element, so it isn't built on a Noble core. It is far more linear, which is why its charge field is more focused.



*all diagrams of this sort
by Arlo Emerson*

Blue disks represent an alpha, or—if at the pole—two protons. Black disks represent single protons. Fluorine is diagrammed on its side there, in that old figure, so it would be channeling right to left. Neon is channeling bottom to top. Chlorine is built by adding four protons around Neon's central disk, to create the carousel level, [as I have shown you many times before](#), and as we see in that diagram of NaCl. The carousel level is on the nuclear equator, and spins like a carousel, ejecting charge out in a

circle, like a lawn sprinkler. With Chlorine, we then have three protons left over, which go in the poles just like Fluorine, two in the bottom and one in the top here. The carousel level of Chlorine explains why its charge is less focused than that of Fluorine. The more nucleons you have in the carousel level, the more charge that is released at the nuclear equator. If it is released at the equator, it isn't channeled pole to pole, and therefore isn't part of EM. The electrical vector is along the nuclear pole. So, in short, Chlorine's charge channeling profile is split, with some charge moving pole to pole and some moving pole to equator. Fluorine's charge profile is more linear, since more charge moves pole to pole. The protons plugged in the pole help channel in that direction, like fans. Fluorine's pole to equator channel is weak, because there are no protons leading charge out there. Yes, the central blue alphas pull a bit of charge out equatorially, as they spin in that direction, but the pull is weak since it isn't augmented by a carousel level. All that is pretty obvious once you have a simple diagram to study.

So why is NaF more “ionic”. Well, it isn't, technically, since “ionic” and “covalent” are disproved, and mean nothing. But NaF does have a more focused charge field, focused along the nuclear pole, which is what the mainstream is calling ionic. To combine Na and F, we align their poles, and plug the F right into the Na north pole. Na only has one proton in the outer level, and that proton is plugged in the south pole. NaF loses some of the focus of F, since some of the charge is pulled equatorially by Na's weak carousel level. But the focus is still strong, creating both a strong electrical vector and what the mainstream is calling an ionic character. In other words, NaF still acts charged even after it combines.

So does NaCl, as we know, but less so. This is why table salt acts as an electrolyte. It is still channeling charge and is not neutral. But it is more neutral than NaF because both Na and Cl have carousel levels that channel charge equatorially, or out to the side. If it is channeled equatorially, it cannot also be channeled pole to pole. And this is also why NaF is an even better electrolyte.

We can explain why CaCl_2 is a better electrolyte than NaCl in the same way. If we ask this question of the mainstream, [we are told](#) that CaCl_2 is a better electrolyte because it is more dissociated in solution, but that isn't right. It is because Calcium has two protons on the pole while Na has only one. The extra proton helps pull charge in and through, adding to the strength of the polar charge stream. And since Calcium is built on Argon while Sodium is built on Neon, Calcium has a much larger charge channeling potential. In normal circumstances, that channeling power isn't too great, because only two of twenty protons are on the pole. Calcium has a weak carousel level, since no protons are plugged into the carousel pulling charge out. So its “draw” is weak. But in combination with a halogen, its charge channeling potential is greatly increased, since more protons then plug into the poles. So CaCl_2 is more electrolytic simply because it is channeling more charge, in solution or not in solution.

We can also explain why NaF has a higher melting point than NaCl by this method. If we ask that question of the mainstream [we are told](#)

F- is smaller than Cl- (as it has fewer shells of electrons) so the F- ions can get closer to the Na+ ions, leading to a greater electrostatic attraction and hence stronger bonds. It is this that gives rise to the higher melting point for NaF.

But that isn't the reason, as we just saw. It has nothing to do with electron shells, which do not exist. The reason is because F has no carousel level, and is therefore channeling very weakly on the nuclear equator. This focuses more charge down the pole, giving us a tighter bond into Na. Nuclei bond pole to pole in most circumstances, so more polar charge and less equatorial charge always creates a tighter and stronger bond. A second reason is that F has a lot of protons on the pole, relative to its total number of protons. As you see above, it has three on the poles, out of a total of nine. These pole

protons drive charge in and through, which is why F is so powerful in compound and creates such strong bonds. No other element has such a high percentage of protons on the nuclear poles, and therefore no other element has such a focused polar charge.

So why are salts poor conductors when not in solution? Does it have anything to do with dissociation? Not really. It has to do with the fact that dry salt is a crystal structure with little electrical alignment, but in solution it is free to turn and create the necessary alignment. The polarity of the solution helps it to do so. Salt crystals are made under pressure, of course, and that pressure overcomes the forces between molecules, forcing them into patterns that are more efficient as a matter of spacing, but less efficient as a matter of charge channeling. In other words, the straight lines from pole to pole between molecules is bent, and that breaks the electrical channels.

But let us return to the original question: why do alkalis and halogens come together in the first place. I have shown you that the mainstream has no answer to that fundamental question. So how do I answer it? I answer it with real charge streams, as usual. All nuclei are recycling a real charge stream of real photons in defined channels, but those channels extend far beyond the nucleus proper. A nucleus creates a charge vortex around it that extends many nuclear radii. In fact, the electron orbital radii are a measurement of that extended influence, although there are no electron orbits. What the mainstream thinks are electron orbits are actually only distances of electron *capture*. This is the charge sphere of influence, if you will. But the nucleus doesn't just have the ability to capture electrons. It can capture anything, including free neutrons and other elements. Since these entities are moving much slower than electrons, they are even easier to capture. In short, everything is attracting everything else at the elemental level, due to these charge vortices. The only question then is whether they fit or not. Do their male and female parts fit, and are the charge streams compatible at this temperature and structure? If so, we get a molecule of some sort; if not we get a collision and an ejection of some sort.

Also remember that they skip over WHY Al is smaller than Mg is smaller than Na, although that must play into these fake Fajans rules. If we ask the mainstream that question, [we find this](#):

Magnesium atom is smaller than sodium atom because the nuclear charge of Magnesium (+12) is higher than that of Sodium (+11). Magnesium nucleus will attract the electrons more toward it and therefore, shrinking the size of the atom.

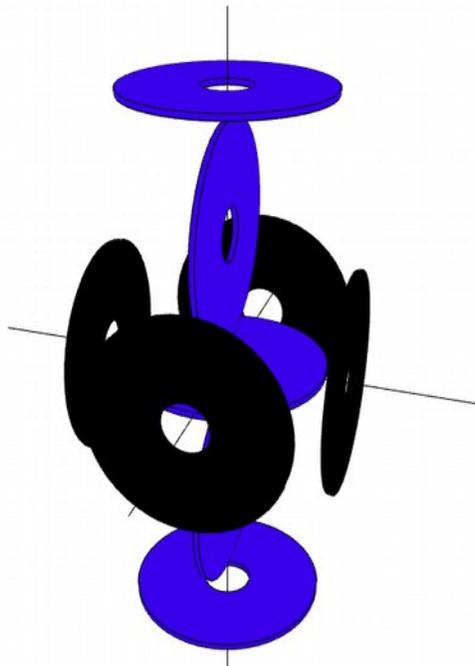
But again, that is completely wrong, besides being illogical and contradictory. Charge is defined as being between individual protons and electrons, which are the charged particles in question here. So we should have to match up electrons and protons. Each electron cancels the charge of one proton. Magnesium should have the same amount of cancellation as Sodium, the cancellations being one to one. So there is no leftover charge to pull more on the electrons of Magnesium. For this to work, the mainstream would have to explain why the electrons of Magnesium don't settle into orbits that match the available pull from the protons, instead settling far lower than we would expect. But they can't address that question sensibly, because it leads to the even greater theory-ending question: *why don't these electrons attracted to the nucleus move on down into it?* If the electrons of Mg are attracted more, and actually move lower due to that attraction, what stops the motion down? The only thing that could do so is greater orbital speed, but a greater orbital speed would require a cause. What is the cause of this greater orbital speed? No answer. And there CAN be no answer, because the idea of orbits was idiotic from the very beginning. We have always had mountains of data contradicting it, but the meaning of that data is simply ignored.

I will be told electrons aren't orbiting, they are simply in more or less energetic shells, but that doesn't

dodge the question. To keep from falling into the nucleus, the electron would have to develop tangential energy somehow, whether you want to call that orbital velocity or not. Given current theory, there is no way to explain a change in that energy.

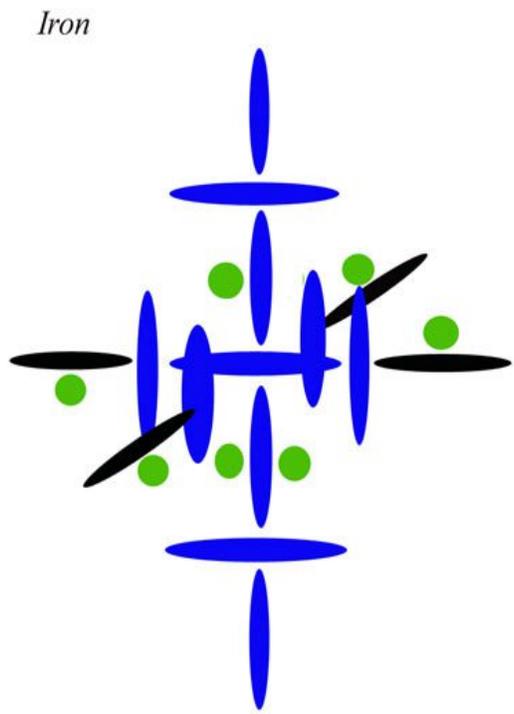
But again, maybe you can't comprehend the true absurdity of the current answer until you compare it to the right answer. The right answer is that Mg is smaller than Na because Mg has protons plugged into *both* poles, instead of just one. Yes, we can solve this without electrons at all, and do it much more cleanly and quickly. Na has a proton in the south pole of the nucleus, as above. Mg has a proton in each pole. These polar protons act to pull charge into the nucleus, in a large vortex. So while Na is pulling charge from south to north, in only one direction, Mg is pulling in both directions. Mg has polar streams running both ways. Now, if we apply basic mechanics to that situation, you might think that would cause interference and expansion. If we treat the polar streams as streams of water, they would collide, creating back-flushing and a force out. This would make Mg larger than Na. But the photons streams don't work like water streams, since they are composed of real spinning photons. Beyond that, due to recycling by the sphere, the field is what I call **bi-polar**: it has the north and south poles, but it also has photons and antiphotons moving through. So it is polar *twice*. Photons go in the south pole and antiphotons go in the north pole. I have explained this many many times, in dozens of papers. If photons and antiphotons are moving side by side in the same direction, they are spinning opposite: hence the name. But if they are moving in opposite directions, they are spinning *the same*. So you can't do a simple vector analysis here, like we just did with water streams. We have to do a spin or cog analysis. In short, the opposite photon streams along the pole of Mg don't oppose, they "catch", spinning one another up (hence magnetism), and also creating an attraction or compression. The polar distance of Mg contracts. This is also why Mg and Al are more magnetic than both Na and Si. Mg is almost twice as magnetic as Na, and this is why. Al is another 64% more magnetic than Mg.

Silicon



Al has more protons in the poles, so it shrinks even more. But then we come to Si, which is a big mystery to the mainstream. Normally, the atomic radius is far larger than the covalent radius, but with Si it is the same. This just tells us the mainstream hasn't successfully measured the atomic radius of elemental Si, except as a matter of the van der Waals radius, which is nearly twice as large as the covalent radius, and far larger than that of Aluminum. Why? Because in the covalent form, Si has all four outer protons in the poles, causing a further increase in contraction, compared to Na. But when they are measuring the van der Waals radius, they are measuring a different Si. This is the Si that acts like a strong semi-conductor. But in that form, the protons aren't on the poles. They are on the carousel, as in the diagram above. Remember, we are now four up in Period 3, so we have enough to fill the carousel level evenly. It is our first chance in Period 3 to do that. With the protons on the carousel, the equatorial channel is augmented and the polar channel is decreased, which is why elemental Si isn't either a great conductor or a highly magnetic element. Only in its covalent form does it exhibit magnetic characteristics, because then it starts to look like Iron along the pole.

You will tell me Silicon sand doesn't exhibit magnetic properties, but that is again because of the way the rock was formed. The lines of charge are bent, breaking the electric vector, and with it the magnetic. But as you are seeing, if we could create liquid or nano Silicon molecules, where each molecule was free to turn and align, Silicon would actually be *very* magnetic. As you see on a search, [mainstream science is just coming to realize this](#). At that link, they see this happening, but don't know why it is happening. Their theories are not good. I just told you why it is happening: in covalent Silicon, or Silicon in molecular structure, the Si nucleus has two protons plugged into each pole. This creates a linear structure. Given that we have the same number on each pole, we get a configuration like iron, which I explain [here](#). Si creates magnetism the same way Fe does. But Fe has a strong carousel level, which acts to keep it square in larger structures, while Si doesn't:



Like covalent Silicon, Iron has two protons top and bottom. Iron has strong charge streams moving on

all three axes, x, y, and z, which means that the larger structure of Iron compounds is more likely to stay square under pressure. But Silicon compounds have strong charge streams only on the y axis, N/S, which means under pressure they will collapse. So in rock formations, Silicon compounds tend to have lost most magnetism. The only way to get it back would be to liquify them or put them in solution, but since they don't dissolve and have very high melting points, the magnetism of Silicon compounds is rarely seen.

On the way out, let's return to the question of electrons spiralling down to the nucleus. I have asked the mainstream that question and they have no answer. So let us have them return the question: according to my theory, why don't electrons spiral down to the nucleus? THEY DO. I have shown that there are no orbitals, the distances that have always been measured by the mainstream only being the distances of electron *capture*. But the electrons *do* spiral down the nucleus, where they match up with protons there. The electrons follow the charge photons like boats on a stream, and go everywhere they do, or try to. But the photons are small enough to recycle right through each baryon, and the electrons are not. What happens is the electron tries to recycle through the proton, but can't do it. So it just circles the proton's north pole, caught in that vortex like a pingpong ball that wants to follow the water down the drain, but can't get through the hole.

A smart reader might say, "you mean the proton's *south* pole? The main charge streams are south to north, right?" Well yes, but we are tracking electrons here, and [electrons go in the north pole](#). Positrons go in the south pole. In bonding, electrons are released from the nuclear NORTH pole, since that is where they reside. Positrons reside at the south pole, and are released much less often. Why? Because, as with the Earth, the nuclear south pole is twice as strong. This is due to the ambient field here, and so it is not a constant. It is just a fact of life at this position in the Galaxy and Solar System. So the leptons at the nuclear north pole are bound at half the strength, and naturally are easier to ionize. Most bonding is done on the north pole for that reason.