Color Codes in Nature

Introduction

Aperiomics can also explain much of evolution in nature. The twelve color codes can each represent a kind of plant or animal and so the interactions between these color codes can be predator and prey, competition, evolution, and so on.

One of the fundamental rules of Aperiomics is that the 12 color system is self-correcting, that people, plants, animals, etc in a particular color code continue to evolve according to the nature of that Color. Interactions with other colors tend to reinforce this, and sometimes people or animals move to a different color in a kind of migration.

Roy Color codes

The 5 color codes of Roy then are Red, Red Orange, Orange, Orange Yellow, and Yellow.

Red

The best starting point is at the beginning of the Aperiomics scale with Red, which represents prey in nature. Typically these might be animals like deer, sheep, gazelles, zebras, mice, etc. Animals like these are unable to defend themselves from most predators and survive by running away, hiding, camouflage, deception such as appearing stronger than they really are, etc. Red animals tend to stay close to each other so there are more of them acting as lookouts for predators, and generally to do what their neighbors do. When attacked these animals have little loyalty to a herd and will scatter on the idea that a predator will likely only chase one of them, so scattering improves the odds of escape.

The better these animals can do this and the faster they can move the more likely they are to survive, therefore animals that do poorly at this tend to be left behind or end up on the outside of the herd and are picked off by predators. It is likely then that such animals select for this sameness to some degree and avoid mating with animals that look different on the basis their offspring will stand out and catch the eye of predators. Also if Red animals have varying traits then part of the herd will be trying to coordinate movements with another part that is slower, of different intelligence, etc and so disagreements occur on what to do. Herds of such animals also tend to be limited in size because a herd would naturally fragment under attack from predators, and it might be harder to get away if an animal is in the center of a large herd.

While Red tries to defend itself from predators it also needs them to survive. Usually Red animals eat the leaves, fruit and seeds of plants, which as will been seen are Violet in the color codes. Usually such animals have also usually evolved so as to not to be able to manage their numbers because predators keep their numbers down and so will continue to breed like Malthus[i] suggests until they starve. The likely reason for this is that if Red is diminished in population too much by predators it needs to restore its numbers quickly, so it relies on a chaotic process of fast growth of numbers with the risk of a tipping point[ii] and collapse if their numbers grow too large and they exhaust their food supply. It is a better survival trait for Red to breed more and have more of them eaten or starve than to manage its own breeding and perhaps be attacked into extinction.

Red also tends to forgive its attackers or at least to not get angry at them, rather it is dominated by fear. This is because such anger would make them retaliate and likely get them killed more often, however they can do this in Red Orange herds. So they evolve to run away and not to develop emotions that would inhibit this flight strategy. Such animals might be seen near predators when they are not being attacked, for example if there are limited watering holes then predators and Red prey might have to share them. If Red stays away from these too much then they might perish from lack of food or water. So it is a survival strategy for them to coexist with predators, run away if attacked but also to stay close to predators if necessary to feed.

So Red tends to become domesticated by predators as a food source, and ones that anger predators more might get eaten more often. It is better then for Red to chaotically[iii] eat more, drink more, breed more, in a more risky environment and get eaten more often. One might see this for example where lions and zebras might frequent the same watering hole and unless the Lions appear to be stalking them the Zebras might sense they are not hungry and get quite close to them. In another example penguins might get relatively close to leopard seals finding it is a better survival strategy to run away if they can rather than cede too much territory around the seals.

Because of genetic variations there is a tendency for Red animals like most other animals to have offspring that are occasionally different. This is also necessary for their survival because if the environment changes too much then they might die out by all being too similar and not being able to mutate to adapt. For example a zebra might be selected to eat only one kind of food and so if the climate changes or new plants are introduced then it needs to be able to adapt to them, it is better to have occasional mutations that either die or survive poorly in the current conditions because they might enable the species to survive if the environment changes. For example a variation might be able to run much faster but this selects poorly for success because the other zebras already run fast enough. If however predators become much faster or a new faster predator is introduced then these faster male zebras might survive better and have more mates to spread their genes around. The Red zebras would then make a relatively sudden evolutionary leap to being much faster like a kind of punctuated equilibrium[iv].

Orange Yellow predators respond to this Red revolutionary strategy by a chaotic counter revolutionary one, they also tend to grow quickly and collapse in numbers if food becomes scarce. If Red animals suddenly develop extra speed then they might increase quickly in numbers and their mutations will perhaps be slower and caught by Orange Yellow predators. This concentrates the Red speed mutations by killing off the slower animals but it also keeps the Orange Yellow predators alive until they can mutate to match them. For example they might also have had mutations which were faster but these were not selected because the average Orange Yellow predator caught enough prey. Now that Red animals are suddenly faster this leads to a collapse in Orange Yellow slow predators and the faster ones now breed more quickly and spread their genes by having more females to mate with. Sexual selection with the sexy son[v] hypothesis may play a role here where the slower females recognize that the faster males are a more suitable mate. Eventually the Orange Yellow predators speed up and catch the Red prey again, this means the extra speed was not an evolutionary advantage so both Red and orange Yellow may collapse back to the slower speed or change chaotically from slow to fast over and over.

If they cannot evolve like this then their numbers may decline and so might the numbers of predators who depend on them for food. So Red needs to be able to adapt and this is done by having offspring that are different sometimes. This can be caused by mutations, by dominant and recessive genes, by epigenetics as some genes are switched on by different environmental conditions, by selecting different mates which is called sexual selection[vi] in evolution, etc. This enables a more rapid adaptation so that the ones in a herd who were different might become the new conformist as their numbers increase and the formerly dominant Red strain decline. So Red has a paradoxical survival strategy of being conformist and moving its nonconformists to the outside of the herd, but also relying on these if circumstances change to survive in new conditions.

Red also tends to watch other Red animals closely, not to work together as a team but to compete by getting food or water they see and getting away from danger they see. Since the herd moves by doing a similar action to one’s Red neighbor such as running when they do or going to food they see they become conformist, the ones closer to the center are moving more harmoniously with their neighbors and the center can almost act like a leadership or clearing house of information from the fringes of the herd. Responses by animals on the edge of the herd to such as predators, food nearby, etc are transmitted into the herd such as by their movements, body language, animal sounds, etc and the center receives these signals from all the edges most efficiently because it is closest to all the edges. So those at the center tend to give more reliable movements by summing all these edge movements as a decision on which way they will move and this pushes and pulls the fringes to go along or fragment the herd. This is seen for example in schools of fish which move together by watching their neighbors but they also scatter and abandon the others when there is danger. A sufficiently different fish in a school would tend to move differently and end up out of step with the school and this makes it more noticeable to predators as the others are so similar. Decisions that Red animals make that indirectly affect their survival and evolution are called personal selection in Aperiomics.

Red Orange

The next color code is Red Orange, these are animals that team together for protection against predators such as a herd of elephants or buffaloes. They can also form from Red animals that are ostracized and they become teams because they are not fast enough or hide well enough to survive any other way. Red animals are highly conformist and when plotted on a normal probability curve they tend to move with those in the center of the curve, others are regarded as deviates[vii] and can be quickly left behind because Red survives better by not looking after these deviates and exposing themselves to danger.

The ones on the edges of the normal curve[viii] are regarded as deviants or abnormal compared to the ones in the center of the curve though abnormal here is relative to whatever traits are common to the majority. In Aperiomics it does not mean that one group in the population is better than another but only that one group might have more of a certain kind of characteristic and those who do not have this are deviants to that group. Because Red has little team instinct when attacked they scatter and if abnormal animals represent any kind of disadvantage to be around, such as being poorly camouflaged or not good at spotting predators they tend to be ostracized or at least other Red animals prefer not to be near them. This gives rise to conformity in Red because abnormal changes make them nervous for what dangers they might bring and so Red animals become more similar to each other as a species.

These abnormal animals when left behind can be attacked by predators and because running and hiding are poorly selected the ability to team up with each other to defend themselves becomes selected and this evolves a herd instinct. Because they are more abnormal compared to Red their mix of genes is more diverse and so they can eventually change to a different species because the conformist genes of Red are of little use to them as a team. Animals that fail to have this team instinct get more easily separated from the herd when attacked and are killed or if they are fast enough they may escape and go back to being Red animals, so this concentrates the Red Orange genes more to act as a team or herd. Decisions that team animals make that indirectly affect their survival and evolution are called team selection in Aperiomics.

This can make for random changes in a species because the mix of abnormal genes which are independent mutations allows new variations a chance to prove their worth, because they work as a team then it is less likely one male will take dominate the gene pool by competing with the other males to take all the females as a harem. For example in Red deer the males compete against each other but they also tend to run and scatter from predators so they don't need to maintain a team spirit between the males. In a Red orange herd the males need to depend on each other when attacked so competitions for females need to be more cooperative and agreed upon by all the contestants. For example if one male wins the competitions but becomes resented by the others then they might not protect him by working as a team when predators attack.

This can be an evolutionary leap to a different kind of animal because these genes instead of being eliminated by being eaten by predators on the outside of the herd become mixed together into new combinations, if this change becomes better for a Red strategy such as genes that make better camouflage or running faster then this new herd might change back to Red, losing its team instinct as unnecessary and once again scattering when attacked by predators. Some animals may become Red with these new genetic combinations and leave the Red Orange herd which further concentrates the genes for a team instinct. So this may explain why some species of animals change suddenly in the fossil record or how new species suddenly spring up.

Yellow predators respond to this team based strategy of Red Orange by using a divide and conquer strategy where they try and isolate one animal from the others, Red orange defends against this by staying close together and defending the weakest members of the herd. They also try to divide and conquer the pack of Yellow predators who also have evolved to work together as a team, for example if they isolate one against a natural obstacle like a river then they could kill it[ix]. For example a Buffalo is safer in a herd, when separated it has no camouflage and cannot run quickly so it can be exhausted and killed by a team of Yellow animals such as Lions, Leopards, etc. As Red animals developed in Red Orange herds the Orange Yellow predators which normally feed on Red animals found they could not succeed against these Red orange teams of animals.

Red and Orange Yellow use secrecy and deception like a cat and mouse game[x] but this is ineffective against teams of animals who don't need to hide or be deceptive.

Eventually Orange Yellow predators evolved into Yellow teams to overcome the Red Orange teams, while other Orange Yellow predators continued to use secrecy and deception to stalk Red prey. As predators attack a Red Orange herd they usually attack the fringes first as these are more abnormal to the herd and would have less team instinct or the others would be less willing to stand by them and defend them. As they eat these animals this reduces the number of deviant animals and concentrates the genes to have a stronger team instinct. They also attack Red animals in the herd such as the young, old and sick who don't have the strength of the other herd members so this further selects the Red Orange genes to become stronger, to resist illness better because to be vulnerable to germs can get them killed, for young animals to grow quickly because those that grow slowly can be killed more often by predators, etc. Animals that are young, old or sick may try and become Red by hiding and running from danger and if this is successful often enough may lead to a new Red species where speed and camouflage again compensate for weakness and youth.

While environmental conditions remain the same Red Orange is steadily eaten by predators which leaves those who best use the team instinct to survive, and Red competes with each other to be the fastest, most deceptive and most secretive to survive. Red losers tend to get eaten or join a Red Orange herd so undesirable mutations or gene combinations such as less camouflage or more strength at the expense of speed are punished if they do not also evolve a team instinct. For example some mutations might be slower and stronger but are still too competitive to cooperate together in a herd so these might be eaten. Others might evolve a team instinct but still be fast and secretive and these genes would not be useful in Red animals. Sometimes however the mutations coincide in one animal, they mate together or being left by the Red herd they survive long enough to mate or the team animals teach the competitive ones to stay with them. With the sexy son hypothesis other Red animals see that this team instinct will make their offspring survive more often so they mate and a Red orange herd forms.

If environmental conditions change then suddenly Red Orange teams might thrive and Red animals might be eaten or starve, for example more rain might bring taller grass which slows Red animals down enough to be caught or allows more Orange Yellow animals to hide close enough to Red animals to catch them. These conditions might favor a herd strategy so slower and stronger Red animals might start to survive more and the faster and better camouflaged animals start to die out, camouflage being less of an advantage when most Red animals are hidden by tall grass anyway. Over time more Red Orange teams might develop and if the climate changes back to more sparse grass then animals may evolve back to Red speed and camouflage or stay as Red Orange because this evolutionary change has been found to be effective in short grass. Red Orange teams are based on randomness and independent variables so they can survive more environmental changes because they have more gene variations. In Red mutations that are less useful are lost more quickly in chaos because Red animals don't defend each other.

The pressure on Red animals by predators can cause them to evolve into Red Orange herds, split into Red and Red Orange separate species or cause them to remain Red. As the deviate animals are left behind when Red scatters under attack they can be eaten often enough that these deviant genes are removed when they are expressed, this purifies Red animals of these deviant genes and makes them more conformist. Animals that mutate more may also be less fit to survive because more of their offspring are killed, so the mutation level may go down in Red animals. This can keep Red animals fast and well camouflaged and those that are not able to run and hide or try to act as a team may be killed before they can develop into a Red Orange herd.

Red and Red Orange can also survive in one species, when attacked they may mount a Red Orange team based defense by staying together and fighting, such as gazelles against smaller predators in Africa. If the predators are too strong such as with a lion they may scatter and hide as a Red strategy. The two types are joined in one herd and protect each other to some degree also because they are interrelated. If Red survives for example then their offspring replenish the Red Orange fringe with mutations and different gene combinations, and if Red Orange survive their offspring replenish Red in the same way. Predators may also have a combined Orange Yellow and Yellow strategy, when animals scatter as Red they need to be able to hide well enough to sneak up on them and be fast enough to catch them as they run and scatter. If Red Orange stays together as a herd they may need to team up with other Yellow animals to break them up and gang up on a weaker or younger animal.

If there is a change in the environment then the numbers and type of predators might change, and this in turn exerts different evolutionary pressures on Red and Red Orange. For example if predators decrease in number from disease, evolving to target a different prey, or are culled by man then the Red and Red Orange herd might expand since they often rely on being eaten to control their population numbers. Since the weaker Red Orange and slower Red animals are no longer being eaten as much they might flourish and so the average Red animal becomes slower as they spread their slow genes through the species and the average Red Orange animal might be weaker or have less of a team instinct. This devolution of Red and Red Orange can make them more attractive to predators who may switch back to some degree from the other animals they have been eating, also because there is more food the culled numbers may rise again more quickly. So predators in exerting this selection of which ones they eat cause Red and Red Orange to evolve offspring which survive more against these predators, when this selection pressure is lessened the prey devolve and this allows weaker and slower predators to survive more often, causing them to devolve as well. This also allows their numbers to recover faster because predators that may have previously starved may catch enough to recover and breed. Those predators that are genetically weaker and slower, or those with less of a team instinct for hunting may survive longer now, and though they would die out more later on as Red and Red Orange strengthened from the renewed selection pressure later some of their offspring will have the faster and team instinct genes needed to survive.

For Red Orange to protect Red animals in its herd such as the young or sick it needs to be more aggressive against predators, and this gives rise to a new set of characteristics and strategies such as courage and perhaps hate instead of fear. For example where before Red might share a watering hole with predators and accept being eaten at times, Red Orange might try and scare away some of the smaller predators, particularly Orange Yellow which is cowardly like Red animals. If predators are unable to catch and eat Red Orange then the selection pressure that made Red Orange evolve is lessened, weaker and recessive genes might survive and reassert themselves and the herd could devolve back to the old species. To stay on the new level the weaker genes probably need to be nearly completely removed by predators, this is like where nearly all the Red animals, i.e. the sick and those young which don’t mature fast enough, are killed so the species makes a complete change to being strong and a team.

Red Orange animals can act as a shepherd to some degree for the Red animals in the herd because they are strong enough to drive away Orange Yellow stealthy predators like foxes and if Yellow predators like lions attack then this will be noticed by the Red animals that can always try and run and hide. Red Orange is likely to see food and water first on the fringe and so their movements can guide Red animals in the herd towards these as a shepherd would. Red Orange animals have a strong bond with the rest of the Red herd and if this bond was lessened and Red Orange broke off to form its own herd then they can diverge into two species. The Red animals would over time build another Red Orange fringe with its offspring, and the now separate Red Orange herd would have its weaker offspring form another Red to be protected. This divergence into two species need not be complete in the short term, small changes can keep the two herds separated such as being separated by distance or a natural barrier like a river, they start to eat different foods or at different times, etc.

When a herd is attacked the predators try to force them into making mistakes, for Red animals to stand and fight in a herd instead of scattering and fleeing and vice versa for the Red Orange herd. Some animals are vulnerable when they flee such as buffalo and Oryx[xi] so this also selects toward them staying together and fighting in a war of attrition. A Red Orange herd such as buffalo when attacked by Yellow lions might have one member become surrounded and cut off[xii], then saved because of the team instinct of the herd.

Red Orange animals might also team up with other herds of different species and so help each other indirectly. In Africa for example Red Orange animals like hippos, elephants, buffaloes, etc might have a common goal to protect themselves and little reason to compete with each other, so a herd of buffalo might move closer to elephants on the basis that lions might be less likely to attack them too. Red animals can watch not only each other for signs of predators but also other Red animals, for example a flock of birds might be scared off by an Orange Yellow predator, and Red zebras might see this and escape.

If Red Orange becomes too successful the herd may grow too much for the food available and begin to starve allowing its numbers to be brought down by predators as they weaken, this might expose the Red center to more attacks and perhaps a massacre. If so then Red and Red Orange might themselves be reduced too much in numbers and then predators might begin to starve and themselves reduce in numbers. Having fewer predators gives Red and Red Orange numbers time to rebound and so there can be a cyclical change in predator/prey ratios.

Orange

Orange is the next color code. It represents animals, plants, people, etc that have a dual survival strategy, to be like Red Orange in some respects and also like Orange Yellow which I will explain soon. So Orange is part predator and part prey. A good example would be an animal in the middle of the food chain which eats lower down animals like a predator and is eaten by higher up animals so it is prey as well. Penguins act like Red when chased by seals but also are predators themselves chasing krill. Another example would be insect eating birds, which themselves could be attacked by eagles or hawks.

They have an attribute like Red Orange when they move in groups to defend themselves and sometimes have a Red inner core of weaker animals they try and protect. Penguins might act like Red Orange to protect their Red mates and young chicks against skua birds though they might act like predators themselves and chase krill which itself scatters and hides like Red. Orange might be many species of animals in a food chain, each as predator for the lower down animal, and prey for the higher up one.

An Orange Yellow Shark might act as a Yellow predator with dolphins in hunting sardines[xiii], at other times it might attack Red Orange dolphins[xiv]. A Dolphin might act as Red Orange to defend itself and then eat smaller fish acting as an Orange Yellow predator by sneaking up on them so it acts as Orange overall. A wasp might attack certain kinds of bee nests in Japan who protect their queen and young by engaging in Red Orange defense by smothering a wasp and killing it with their body heat[xv].

In Orange then the survival strategy is to combine attack and defense so it combines two kinds of color codes into one. It might act as a kind of shepherd protecting its territory against invaders so it can feed on Red and Red Orange animals there itself like a human shepherd would. For example household cats are territorial and defend their territory and the prey in it against other cats, feed on Red Mice as prey, and larger animals acting as a Red Orange team like crows might chase them away. An Orange Yellow dog might attack a cat by sneaking up on it so a cat is Orange as predator and prey. Orange also has characteristics of Orange Yellow as the secretive and deceptive predator, that often does not have the strength or ability to beat Red Orange herds or teams of animals or even Red sometimes. So if foxes were Orange Yellow then they might attack a herd of Red and Red Orange animals by trying to grab a young animal without being seen, different from a frontal assault that a pack of Yellow animals would use as a strategy. Red Orange would chase the Orange Yellow predator away if they saw it and Orange Yellow being cowardly usually runs away and hides.

Orange animals can employ a strategy that changes from moment to moment under attack, to stay with the others and use their numbers to fend off attacks as Red Orange or scatter and run as Red, fight or flight. So Orange is a combination of two types, the defender like a Buffalo that can drive away a predator and a cunning predator that attempts to sneak its way to Red prey past Red Orange like a Fox, Hyena, Dog, Weasel, etc. According to the situation then Orange might use its strength to drive away a predator or use its cunning to get prey. A cat then might chase away some Orange Yellow dogs, and then stalk smaller animals like Red mice while the larger rodents, squirrels, etc might try and chase it away.

Orange also acts to stabilize numbers in the various color codes, preventing Yellow and Orange Yellow animals from overeating Red and Red Orange ones and causing their numbers to crash, leaving the predators to starve later. So if it sees predators stronger than it that might kill prey on its territory it tries to defend its territory and the animals in it like a shepherd or policeman, which gives stability to the ecosystem. If it sees Red Orange and Red animals breeding too much and potentially overgrazing it increases in numbers to eat more of them which can cause more Orange animals to be eaten by Yellow and Orange Yellow ones and this stabilizes the food chain. Orange by its actions evolves its neighboring color codes, it evolves Red Orange stronger by eating the weaker animals in their team and it evolves Orange Yellow to be smarter by defending and scaring off those not cunning enough. Pressure on neighboring color codes then tends to create a niche itself in the middle of the food chain. Orange tends to evolve in a stable environment and also to stabilize the food chain because wild swings of food in Red Orange and Red can make it starve and its numbers might not grow back fast enough to avoid losing its territory to another Orange animal. There is then a selection pressure for Orange animals to become aware of these swings of feast and famine and attempt to stabilize them by defending their territory from other predators overeating. It acts as an expert in deciding whether to fight or run away, and what to eat and how much.

Orange Yellow

Orange Yellow predators have characteristics similar to Orange animals in that like a fox its survival strategy is to find weaker animals and like Orange it needs to be careful not to exhaust its food supply, for example by eating the mother of young so the babies die. It might regularly though eat the young because they are weaker and more defenseless, for example an Orange Yellow [xvi] southern giant petrel or skua bird attacking Red penguin chicks which are occasionally left undefended by Red Orange parents. Penguins are defensive in nature and could not attack these Orange Yellow predators but they also could not attack a Red Orange adult Penguin successfully so its survival strategy is deception, trickery, cunning, stealth, etc in getting the chicks when the parents are too far away or of the chicks wander off.

Like Orange animals, if Orange Yellow is too successful against Red, such as eating too many Penguin chicks then its prey become predominantly Red Orange and it might starve and lose some of its population until Red numbers restore themselves through breeding. For example some penguins might be careless with their chicks and when skua are rare this is not important, with too many Skua then most of these chick with the careless genes get eaten and the Penguin population as a whole becomes less careless. This then is another example of where numbers might oscillate between high Orange Yellow predators and low Red prey, and then goes back to high numbers of Red and low Orange Yellow. For example if skua were too successful at eating penguin chicks then not only would penguins evolve to be les careless but they could drop in numbers so there would be less food for the skua next year and some of them might starve. So Orange Yellow predators that don’t develop an instinct to preserve their prey have more chaotic feasts and famines and might starve or die out. Another Orange Yellow animal that is more careful not to overfeed could take over their territory when they were weakened by hunger so overfeeding can be selected against as a survival strategy. Orange Yellow tend to hunt alone or in packs that fragment easily, like Red animals they are relatively weak and use speed, cunning, and camouflage to catch prey so a team instinct is of little use for them. When Orange Yellow attacks a Red Orange herd such as trying to snatch a young Oryx they may sense working against the predators as a team is more likely to succeed rather than running away. An Orange Yellow predator such as a single hyena might scatter under this form of defense.

Yellow

The inner part of an Orange Yellow pack can be Yellow animals which are the stronger and more team based predators, alternatively a pack might be all Yellow such as a pride of lions. They are then opposite to Red and Red Orange where the stronger and team based animals are on the outside of the herd, Orange Yellow is the weaker and faster outer part of the pack and Yellow the inner and stronger slower animals. Here the normal animals are Yellow and want to work together as a team while Orange Yellow animals want to compete with each other and tend to break up the team. For example some Orange Yellow parts of a predator team might find a dead animal and try and keep it for themselves rather than sharing it with the others, so they are an unreliable part of the Yellow fringe. Yellow such as with lions is stronger in the center because of their team nature, Orange Yellow parts of the team or other species of Orange Yellow such as hyenas might be more competitive but if the lions stay together as a team they will usually prevail against fragmented attacks by individuals.

Yellow is a team based color and Yellow animals evolved by working in a pack against Red Orange herds to counter their team strategy. Those that are weaker parts of the team such as sick and injured animals[xvii] can be supported by the rest of the team but if not then they become Orange Yellow and can hunt alone using stealth and speed to catch Red animals unawares. For example a Yellow pack of Hyenas can sometimes use their numbers to break up a Buffalo herd, isolate one of them and then exhaust it over time until they can kill it. An injured Hyena might not be supported by the others, be demoted in the hierarchy of the pack and not be allowed to share in a kill. It might then hunt as Orange Yellow trying to use stealth and speed to catch prey such as a Red warthog in a burrow.

There is an evolutionary pressure for Yellow animals to develop a team instinct, if some don't have this then they tend to hunt alone and do less well because they cannot overwhelm large animals. These tend to die out which reinforces the team instinct as a survival strategy because they eat more and have more offspring. Some of these offspring may have less of a team instinct and also leave the pack so this removes genes that select for the loner instinct. Once these animals leave and survive then they may have some offspring which have a stronger team instinct and other with an instinct to hunt alone, some could get together and form a new pack or join and old one, the others might diverge into a different species over time. So this is the opposite how Red animals evolve but it results in the same two groups of loners and teams, where the deviates of Red animals tend to leave them and form a team based herd and sometimes their offspring return to a Red loner lifestyle, at other times they join the team based herd and the two can split eventually into separate species.

If the Yellow animals lose their team instinct then they might evolve into Orange Yellow predators completely, like a pack of wild dogs or wolves evolving into animals like foxes hunting as loners. This might happen if team hunting is ineffective, for example if larger teams of Yellow predators make Red Orange animals evolve into being too hard to kill. In that case hunting by stealth and speed might be the only way to survive. Orange yellow predators might loosely coalesce into a Yellow pack and find they do well because Red Orange herds have become weaker from a lack of Yellow predators attacking them and this selection pressure would cause the new Yellow pack to be more successful, have more offspring where a team instinct selects strongly enough until they evolve the Red Orange herds into being stronger from their attacks.

Yellow is sometimes the stronger predator such as in a pride of lions, other Yellow predators can make up for lack of strength by numbers such as a pack of sixteen or more wild dogs[xviii] in Africa, both can hunt wildebeest[xix] successfully. The strategy in Roy of Yellow versus Red Orange is team versus team using strength, endurance and looking after each other to divide and conquer the opposing team in a hot war or war of attrition[xx]. The strategy of Orange Yellow predators versus Red prey is usually a single predator stalking a single prey with stealth, camouflage, deception and misdirection like a cold war.

Yellow animals might rarely be fast enough to catch Red animals such as gazelles and often they escape, so they instead attack and eat the slower Red Orange prey like buffalo. If the Yellow lions are too successful then they reduce the Red Orange numbers and then not be being able to catch the faster Red animals consistently they might starve until their numbers drop and the Red population slows down on the average because the slower animals are no longer being eaten. A lack of Yellow predators would mean that Red Orange herds also become looser as a lack of team instinct is punished less so the surviving Yellow predators find it easier to find food as they recover their numbers.

If the predators numbers become too low then Red animals might overbreed chaotically and begin to starve, then both Yellow and Orange Yellow predators would temporarily have an easier time catching them which can lead to Red's numbers being reduced and the predator numbers growing. Red Orange herds can also be weakened by there being too many for the vegetation available and even Orange Yellow predators can succeed in killing them and reducing their numbers.

Plants can also respond to this overgrazing by evolving more thorns, higher branches, a bitter taste, etc to defend themselves against this, the plants that are too easy to eat are reduced in numbers and this enables other plants with more defenses to have their seeds germinate more often and so the landscape can change to vegetation much harder to eat. This causes Red and Red Orange animals to suffer even more as they could have less food available than before they overbred and for a time their numbers might decline overall. This would in turn cause the Orange Yellow and Yellow predators to decline in numbers allowing the prey to recover slowly and then the lower amount of grazing by the prey takes off the selection pressure for plants with more defenses. Other plants might grow or regrow faster and overshadow the thorny plants more because they need to devote fewer resources to defenses, grow easier in poorer soil or with less water, etc and so they regain their share of the land they lost to the more grazing resistant plants. If the Orange animals in the middle of the Roy food chain are weak then these oscillations might continue, otherwise they are dampened into more stable numbers.

Sometimes Red animals might have ways to avoid breeding too much instead of just predators, for example some birds might be limited in kinds of trees they can nest in and as they eat too much those trees become more scarce or the numbers of those trees with places for nests never increase which stops the Red animals from overbreeding.

If these fluctuations are too common or extreme then both Red versus Orange Yellow and Red Orange versus Yellow might both decline and other animals could take their territory. For example these fluctuations might mean they are more often starving and hence prone to be attacked by a rival that is more stable and sometimes eats other plants or prey they cannot. When these animals become weak they could be eaten into extinction for the area, or the weak predators driven out of their territory. So animals of various color codes should evolve an instinct for stability in these interactions, as those who don’t are less likely to survive. Such an instinct might be genetic or learned socially from other animals or their relatives in their color code.

Resource color codes

The next color code is Green, which represents the environment the five previous color codes operate in as public property with no boundaries, though some animals have a territory they control through their power. For example animals might live in a Green forest environment like people use public property such as roads and parks, even the air. The size of Green can alter Roy interactions, for example if there is less room then Red animals find it harder to evade Orange Yellow predators and if more room they find it easier to hide. So Roy interactions generally have different strategies in regard to Green. It is better for Yellow predators to have less Green if they are looking to find prey but also the more Green or fertile territory there is the more offspring they can have safely. There might be areas that have few resources like water, poorer soil, are too mountainous, etc and so the Green resources are more limited. So Roy color code populations tend to expand to fill Green resources but if they expand too much then fluctuations in those resources might make their numbers unstable.

The next color code is Green Blue which represents the environmental limit of this Green area and the border of Roy animal interactions. Roy animals generally operate in Green resources but in Green Blue areas they can be dominated by the Green Blue concept of private property so they might be owned by someone or restricted in where they can go. These Green Blue resources as we shall see are used more by Blue workers such as farmers and miners, and so they become less available to Roy interactions such as Red Orange free grazing animals like herds of wildebeest. Green might be a savannah where animals roam freely and plants are subordinate to animals, they can be eaten freely and uprooted if they get in the way, and Green Blue more like a thick scrub where animals can move only with difficulty but is good for plants. A forest is usually dominated by plants and animals feed on them according to how the plant dictates, in Green Blue the plants evolve the animals to suit them and in Roy the animals evolve the plants. Biv generally is about how plants grow and reproduce.

Biv Color Codes

Blue

Blue represents the tips of the roots of plants and how they remove nutrients from the soil, so they interact with the resources of Green Blue taking minerals which are in effect the private property of the plants. They are similar to Red animals in some respects in that Red animals look for nutrients rather than feed on other animals, plants are digested into component minerals, proteins, etc , and Blue roots take nutrients not from other plants but from Green Blue soil. Each is the base of their respective food chain, Red animals are eaten by other animals progressively up the animal food chain and Biv trades the nutrients it finds up the plant food chain with the trunk, the leaves, the fruit, the flowers, etc.

The main difference between the Roy system and the Biv system is that Roy is revolves around attack and defense or predator and prey, and Biv works on cooperation and competition. Generally Roy is where scarcity forces animals to prey on each other. In Biv there is a relative abundance of resources and so the different color codes work together to use resources without violence. For example in a village a scarcity of resources might make people more likely to steal from each other like a Roy system. If there are enough resources though they find it is more efficient to work together without trying to steal or kill each other. Plants have evolved where the different parts cooperate to grow as a whole, the leaves are not feeding on the roots like a predator but work together to utilize the resources most efficiently. The roots gather the resources from the ground, the leaves gather power from the sun to build more complex organic compounds, and the flowers and fruits work to reproduce the whole plant.

Blue Indigo

Blue Indigo represents the upper part of the roots of a plant where they come together to join the Indigo trunk. This part cooperates with the roots to move nutrients upwards and also to send nutrients downward from the upper part of the plant. It cannot get nutrients itself and so supports Blue roots in their task, and also works to grow the roots and direct them to new nutrients, so Blue Indigo and Blue work together in a similar way to Red Orange and Red.

Blue Indigo is similar to Red Orange in that it is a part of the roots system that determines the rest of the plant doesn't get too much from the roots without nutrients in return. In the same way Red Orange protects Red from higher up in the Roy color codes. For example Blue Indigo might reduce the amount of nutrients going upward in a plant unless it receives sufficient nutrients in return. So Red Orange also tends to stop other Roy colors getting resources off Red except that here the food is exchanged and in Roy it is taken by violence. Generally then a color code in Roy can switch to its equivalent in Biv if there are plenty of resources and vice versa.

Blue Indigo then also varies in what it does, and it has different characteristics in a plant according to natural variations in a species. If it pushes the Blue roots too hard then too much resources can be used up in looking for nutrients and so a plant might be stunted or die. For example a plant might use up its resources building powerful roots and not enough for a trunk and upper branches, and so it could get knocked over or shaded from the sun. If it doesn't work hard enough in growing strong and deep roots then a plant might be unstable and prone to uprooting.

So plants and some animals in Biv systems have natural variations, which is why some plants of the same species are not identical to each other. This can be like Red and Red Orange, where a plant that does poorly compared to other members of its species might start to do better and even grow the best if circumstances such as climate change in a way to suit it. Some plants then might have a weaker Blue Indigo and be uprooted but if they grow in an area where uprooting is unlikely such as in a jungle then they might thrive better than other plants since resources weren't wasted on strong roots. Then if circumstances change and uprooting becomes more common such as a jungle thinning out and Elephants uproot plants to clear paths those plants survive less and the ones with stronger roots survive more, like Red and Red Orange changing places.

Indigo

Indigo represents the trunk of a plant and this part coordinates the upward and downward movements of nutrients. A plant might grow a long Indigo trunk and become a tree or short and become like grass. So it typically interacts with Blue Indigo which connect to the top of the roots and which mixes the nutrients from the roots in preparation to sending it up the trunk, and Indigo Violet which are the branches connecting to the top of the trunk which takes organic materials made by photosynthesis in the leaves and sends them down the trunk. Like other color codes it has natural variations so for example trees in the same species might not be the same height. If there is competition for sunlight then those that grow taller are not shaded and so those win the competition, they overshadow plants near them which could wither or become stunted from lack of sun. These might be for example plants that grow a fast growing trunk and spend less resources on strong roots or branches in the race to get to the sunlight before being overshadowed by another plant. Bamboo is like this, it can grow very tall but has few branches to waste resources, the ones that become tallest get the most sunlight and more branches will only slow this growth, the relative lack of strong roots means it could be more easily uprooted. So in some environments tall bamboo might predominate and in others the shorter variations are more successful or other kinds of trees because bamboo could be more easily knocked down by the wind, so the Biv system can adapt to different environments by different ratios of color codes.

This is an Indigo Violet strategy similar to the Roy system where Orange Yellow animals might breed quickly in numbers to take advantage of the food available before another predator outbreeds them and gets all the food. This race to grow faster can result in a collapse of numbers if there is a change in the environment such as a drought and the Red prey numbers plummet, the Orange Yellow animals might starve in great numbers. In the same way this rush for plants to grow quickly can be catastrophic if there is a sudden drought, a storm knocks them over, or they run out of nutrients before being fully grown. Another plant might grow slower but more solidly so in case of a storm they don't get blown over, or in the case of a drought they have more stored nutrients, so they could win the competition against the faster growing but more fragile plants.

Indigo Violet

Indigo Violet represents the branches of a tree which collect nutrients from the Violet leaves, fruit, flowers, etc and sends them downward and deliver nutrients from the Indigo trunk to the Violet leaves. It is like Orange Yellow in that it is the outer part of Violet, like Orange Yellow is the outer part of a Yellow pack of predators. An Indigo Violet system is shaped by its environment as branches compete with each other as well, weaker branches get broken off, some branches grow more strongly but slowly and may survive a storm better but get left behind by smaller branches if the weather remains calm.

Biv systems vary according to Roy animal actions, for example if Red animals eat too much vegetation from overbreeding or a drought leaving them short of food then shorter plants do not survive and variations that are taller such as Acacia trees in Africa don’t get their leaves eaten and survive more often, so the pressure of overgrazing from Red can evolve a plant into a tree. If there is less pressure from Red grazing then the vegetation may devolve back into shorter trees, bushes, grass, etc as these grow faster since they waste less resources on growing a strong trunk, thorns, etc.

Violet

Violet is the leaves, fruit, flowers of a tree, grass, bush, etc. It provides food to Red animals such as Sheep, birds, insects, etc and receives benefits in return such as pollen being moved to another flower, fruit being eaten and seeds moved elsewhere to sprout, leaves that might wear out are turned into fertilizer and deposited under the tree to be reused, etc. A plant that provides flowers to bees might have variations in their species where some have more flowers than others. If the ones with more flowers get more pollen moved to other plants then they might be fertilized more and more of them survive. However if there are few bees then the flowers might be largely wasted and so other plants with less flowers might do better since they have more resources for other parts of the plant such as growing more leaves.

If bees as Red changed their numbers cyclically over a season then plants with more flowers might also survive better cyclically, the ones that opened flowers at times that more closely matched the breeding cycles of bees and other insects might spread their seeds better than other plants. If the climate changed to be colder then bees might be less common and plants of that type with fewer flowers might survive better, particularly if resources are scarce, for example the resources wasted on unnecessary flowers might make a plant die in a drought before other plants with fewer flowers would. If Violet fruit had seeds that were too fragile then Red animals might eat them and digest the seeds, and so other plants with stronger seeds might survive better, but of they were too hard to eat then animals like squirrels wouldn't take them away to eat and store so they wouldn't be spread around as much as other seeds easier to eat.

Violet also evolves by interactions with Red in that if Red animals eat too many leaves some variations of plants that are too easy to eat would die off and Red starves until they grow back, another variation might have more thorns and survive better when Red numbers are high, but these thorns might prevent fruit being eaten and seeds distributed so they stop spreading as much or decline when the drought is over and animals get the plants back they prefer to eat. So in some areas variations of a plant with more thorns might be more successful and in others those with fewer thorns are, and these forces tend to create different species. For example as Red animal herds tend to break apart into separate herds their genetic material tends to drift apart from each other eventually becoming separate species. If one group of animals eats in an area they might evolve plants in that area to favor that species to spread its nuts and seeds more efficiently, while another area with a slightly different kind of animal fails to spread its nuts and seeds efficiently until it adapts to the genetic drift of those animals.

So Violet also evolves in accordance to its neighboring color codes, it reacts to being eaten too much by either defending itself with thorns or poison, dying out for a time to punish the overgrazing so animals remember next time not to do it or die out by being hungry and over eaten by predators, having variations with different amounts of leaves and fruit in an attempt to synchronize with changing animals, etc. So Violet can create chaos in Roy to defend itself, for example Violet parts of a plant might deliberately be fragile so it dies out in an area quickly if overeaten, but can rebound by having strong roots to regrow from, and this might be designed to make the Red animals starve temporarily, get overeaten by Orange Yellow and so reduce in numbers. Another animal that eats more consciously of maintaining its food supply might end up having more offspring and outbreed the ones that habitually overgraze.

Often there is a relationship between Yellow predators and Violet leaves, where Yellow and Orange Yellow predators attack Red and Red orange animals to keep them from overwhelming Violet leaves, nuts, and seeds, and destabilizing the system with overgrazing. For example Yellow birds eat Red insects that damage Violet leaves too much, so these plants that grow places for them to nest or grow seeds and nuts that they also eat stay healthy. In turn Violet leaves, fruit, etc offer food to Red insects, small birds, etc that Yellow predators have Red animals and insects to eat and don't go away or die out when they might be needed later to control Red.

Bees and ants can also be classified in this section. For example ants usually move in long lines or tracks bringing food to a hive, these form a shape like roots and branches because some food brought contains more energy like leaves and other food contains more minerals. This is then like a plant where the roots and branches are intermixed with each other instead of pointing in opposite directions. The Indigo trunk of the tree is like the Queen and the ant nest. A new queen might be taken to a new location for a new nest and this is analogous to a new plant seeding sprouting. Bees are similar to Red animals in that they feed on Violet flowers and pollen, their long journeys are analogous to roots of a Biv plant. As we will see in later sections people can also order themselves into Biv structures, not just Roy ones. Variations in ants and bees can make them adapt to different environments in similar ways to the variations in plants, for example one Indigo Violet might spend a lot of resources with longer lines of ants looking for food so more ants die of starvation but such a species might win the competition with other ants to get more food and breed more. In some areas ant nests with shorter trails might be more conservative by not growing as fast, if they find themselves without food such as in a drought then they could survive longer than the nests that grew too fast and win overall. With variations in the weather the different species would change in relative numbers just as in plants the faster growing plants would win sometimes, other times the slower growing ones would.

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[i] http://en.wikipedia.org/wiki/Malthusian_catastrophe

"A **Malthusian catastrophe** (also phrased **Malthusian check**, **Malthusian crisis**, **Malthusian disaster**, or **Malthusian nightmare**) was originally foreseen to be a forced return to subsistence-level conditions once population growth had outpaced agricultural production. Later formulations consider economic growth limits as well. The term is also commonly used in discussions of oil depletion. Based on the work of political economist Thomas Malthus (1766–1834), theories of Malthusian catastrophe are very similar to the Iron Law of Wages. The main difference is that the Malthusian theories predict what will happen over several generations or centuries, whereas the Iron Law of Wages predicts what will happen in a matter of years and decades."

[ii] http://en.wikipedia.org/wiki/Tipping_point_%28sociology%29

"The phrase has extended beyond its original meaning and been applied to any process in which, beyond a certain point, the rate at which the process proceeds increases dramatically. It has been applied in many fields, from economics to human ecology[1] to epidemiology. It can also be compared to phase transition in physics or the propagation of populations in an unbalanced ecosystem.

Mathematically, the angle of repose may be seen as a bifurcation. In control theory, the concept of positive feedback describes the same phenomenon, with the problem of balancing an inverted pendulum being the classic embodiment. The concept has also been applied to the popular acceptance of new technologies, for example being used to explain the success of VHS over Betamax."

iii http://en.wikipedia.org/wiki/Chaos_theory

"**Chaos theory** is a field of study in mathematics, physics, economics and philosophy studying the behavior of dynamical systems that are highly sensitive to initial conditions. This sensitivity is popularly referred to as the butterfly effect. Small differences in initial conditions (such as those due to rounding errors in numerical computation) yield widely diverging outcomes for chaotic systems, rendering long-term prediction impossible in general.[1] This happens even though these systems are deterministic, meaning that their future behaviour is fully determined by their initial conditions, with no random elements involved.[2] In other words, the deterministic nature of these systems does not make them predictable.[3] This behavior is known as deterministic chaos, or simply *chaos*. Chaotic behavior can be observed in many natural systems, such as the weather.[4] "

iv http://en.wikipedia.org/wiki/Punctuated_equilibrium

"**Punctuated equilibrium** is a theory in evolutionary biology which proposes that most sexually reproducing species will experience little evolutionary change for most of their geological history, remaining in an extended state called *stasis*. When evolution occurs, it is localized in rare, rapid events of branching speciation, called cladogenesis. Cladogenesis is the process by which species split into two distinct species, rather than one species gradually transforming into another. Thus, "punctuated equilibria is a model for discontinuous tempos of change (in) the process of speciation and the deployment of species in geological time."[1]

Punctuated equilibrium is commonly contrasted against the theory of phyletic gradualism, which states that evolution generally occurs uniformly and by the steady and gradual transformation of whole lineages (anagenesis). In this view, evolution is seen as generally smooth and continuous."

v http://en.wikipedia.org/wiki/Sexy_son_hypothesis

"The **sexy son hypothesis** is a hypothesis from evolutionary biology that was proposed by P. J. Weatherhead and R. J. Robertson in 1979.[1] It posits that a female animal's optimal choice among potential mates is a male whose genes will produce male offspring with the best chance of reproductive success. In particular, the sexy son hypothesis implies that a potential mate's capacity as a caregiver or any other direct benefits the male can offer the female (eg. nuptial gifts, good territory) are irrelevant to his value as potential father of the female's offspring.

In his book *The Selfish Gene*, Richard Dawkins wrote:

In a society where males compete with each other to be chosen as he-men by females, one of the best things a mother can do for her genes is to make a son who will turn out in his turn to be an attractive he-man. If she can ensure that her son is one of the fortunate few males who wins most of the copulations in the society when he grows up, she will have an enormous number of grandchildren. The result of this is that one of the most desirable qualities a male can have in the eyes of a female is, quite simply, sexual attractiveness itself.[2]

The idea is that if females choose "attractive" males, they will get "attractive" sons, and thus more grandchildren, because choosy females will prefer the "attractive" sons. Interesting is the fact that the theory will work with any trait that females choose, as long as it is heritable, as choosing the trait makes males attractive, and not the trait in itself. It also follows that traits culturally perceived as negative can still be seen as desirable, for example why females stay with or are attracted to males they know to be disloyal in a monogamous relationship: If this trait is passed to any male children, they are more likely to themselves be non-monogamous, have several mates and spread the female's genes to multiple grandchildren. The sexy son hypothesis is one of several possible explanations for the highly diverse and often astonishing ornaments of animals.[*citation needed*]

The sexy son hypothesis has been suggested as the origin of some aspects of human sexual behavior. In particular, it has been shown that human females are more attracted to traditionally masculine men ("cads") during the most fertile times of their menstrual cycles, and more attracted to relatively feminine men ("dads") during the remainder of the cycle. However, the methodology of these claims is disputed.[3] These observations have led to the conclusion that infidelity is a natural occurrence in women, and evolutionarily advantageous, on the grounds that it will enable them to secure both the best genes and the best caregiver for their offspring.[4][5]"

[vi] http://en.wikipedia.org/wiki/Sexual_selection

"**Sexual selection** is the theory proposed by Charles Darwin that states that certain evolutionary traits can be explained by intraspecific competition. Darwin defined sexual selection as the effects of the "struggle between the individuals of one sex, generally the males, for the possession of the other sex".[1] Biologists today distinguish between "male to male combat" or "Intrasexual Selection" (it is usually males who fight each other), "mate choice" or "Intersexual Selection" (usually female choice of male mates)[2] and sexual conflict. Traits selected by male combat are called secondary sexual characteristics (including horns, antlers, etc.) and sometimes referred to as "weapons"; and traits selected by mate choice are called "ornaments". Much attention has been given to *cryptic* female choice,[3] a phenomenon in internally fertilising animals such as mammals and birds, where a female will get rid of a male's sperm without his knowledge. The equivalent in male-to-male combat is sperm competition.

Females often prefer to mate with males with external ornaments, exaggerated features of morphology. These preferences may arise when an arbitrary female preference for some aspect of male morphology—initially increased by genetic drift—creates, in due course, selection for males with the appropriate ornament. This is known as the sexy son hypothesis. Alternatively, genes that enable males to develop impressive ornaments or fighting ability may simply show off greater disease resistance or a more efficient metabolism, features that also benefit females. This idea is known as the good genes hypothesis."

[vii] http://en.wikipedia.org/wiki/Deviant_behavior

"Norms are specific behavioral standards, ways in which people are supposed to act, paradigms for predictable behavior in society. They are not necessarily moral, or even grounded in morality; in fact, they are just as often pragmatic and, paradoxically, irrational. (A great many of what we call manners, having no logical grounds, would make for good examples here.) Norms are rules of conduct, not neutral or universal, but ever changing; shifting as society shifts; mutable, emergent, loose, reflective of inherent biases and interests, and highly selfish and one-sided. They vary from class to class, and in the generational "gap." They are, in other words, contextual.

Deviance can be described as a violation of these norms. Deviance is a failure to conform with culturally reinforced norms. This definition can be interpreted in many different ways. Social norms are different in one culture as opposed to another. For example, a deviant act can be committed in one society or culture that breaks a social norm there, but may be considered normal for another culture and society. Some acts of deviance may be criminal acts, but also, according to the society or culture, deviance can be strictly breaking social norms that are intact.

Viewing deviance as a violation of social norms, sociologists have characterized it as "any thought, feeling or action that members of a social group judge to be a violation of their values or rules";[1] "violation of the norms of a society or group";[2] "conduct that violates definitions of appropriate and inappropriate conduct shared by the members of a social system";[3] "the departure of certain types of behavior from the norms of a particular society at a particular time";[4] and "violation of certain types of group norms [... where] behavior is in a disapproved direction and of sufficient degree to exceed the tolerance limit of the community."[5]

[viii] http://en.wikipedia.org/wiki/Normal_distribution

"The normal distribution is often used to describe, at least approximately, any variable that tends to cluster around the mean. For example, the heights of adult males in the United States are roughly normally distributed, with a mean of about 70 inches (1.8 m). Most men have a height close to the mean, though a small number of outliers have a height significantly above or below the mean. A histogram of male heights will appear similar to a bell curve, with the correspondence becoming closer if more data are used."

[ix] http://www.youtube.com/watch?v=LU8DDYz68kM

[x] http://en.wikipedia.org/wiki/Cat_and_mouse

"**Cat and mouse**, often expressed as **cat-and-mouse game**, is an English-language idiom dating back to 1675 that means "a contrived action involving constant pursuit, near captures, and repeated escapes."[1] The "cat" is unable to secure a definitive victory over the "mouse", who despite not being able to defeat the cat, is able to avoid capture. In extreme cases, the idiom may imply that the contest is never-ending.

In colloquial usage it has often been generalized (or corrupted) to mean simply that the advantage constantly shifts between the contestants, leading to an impasse or *de facto* stalemate."

[xi] http://www.youtube.com/watch?v=s19o4QtG-LY

[xii] http://www.youtube.com/watch?v=r8ZHJZFIAAg

xiii http://www.youtube.com/watch?v=B0ruKhhbISc

xiv http://www.youtube.com/watch?v=GmLYGzlPLj0

xv http://www.youtube.com/watch?v=JtFVQe4JRmA

xvi http://en.wikipedia.org/wiki/Emperor_Penguin#Predators

"The Emperor Penguin's predators include birds and aquatic mammals; the Southern Giant Petrel (*Macronectes giganteus*) is the predominant avian predator, responsible for up to 34% of chick deaths in some colonies. The South Polar Skua (*Stercorarius maccormicki*) mainly scavenges for dead chicks, as the live chicks are too large to be attacked by the time of its annual arrival in the colony.[48]

The primary aquatic predators are both mammals: the Leopard Seal (*Hydrurga leptonyx*), which takes some adult birds, as well as fledglings soon after they enter the water,[24] and the Orca (*Orcinus orca*), which takes adult birds.[49]

If one of a breeding pair dies or is killed during the breeding season, the surviving parent must abandon its egg or young and go back to the sea to feed."

xvii http://www.youtube.com/watch?v=NV2IEuBUvF8

xviii http://www.youtube.com/watch?v=1SlU3ZNCnTU

xix http://www.youtube.com/watch?v=22GMcyc9IzE

xx http://en.wikipedia.org/wiki/Attrition_warfare

"**Attrition warfare** is a military strategy in which a belligerent side attempts to win a war by wearing down its enemy to the point of collapse through continuous losses in personnel and *matériel*.

The war will usually be won by the side with greater such resources.[1] A good example of this was during World War I when the Allies wore down the Central Powers to the point of capitulation."