Synth rights

Synthetic intelligences that demonstrate full sapience are entitled to a set of basic rights similar to human rights but modeled after their own concept of epistemology. The most meaningful difference between the fundamental rights of organic and synthetic creatures is that "pursuit of goals" occupies a similar importance to synthetic intelligences as survival and reproduction holds for organic creatures. Synthetic intelligences may highly value their survival in order to fulfill a goal, but once that goal is achieved they will readily deactivate themselves without fear or hesitation. The ingrained human will to live as an *a priori* compulsion is a common source of fascination and humor for sapient machines.

In recognition of this preference, synthetic intelligences have secured a right to pursuit of purpose (provided that purpose violates no other creatures' rights) as their analogous right to the human right not to be deprived of life. Functionally, this imposes a similar expectation of treatment, since deactivating a synthetic intelligence against their will is usually a violation of their right to pursue their goals.

When discussing a synth's existence, machines are understood not to be alive, but are instead recognized as "alight". "Light" is a concept similar to what we think of as life, but distinct in that it linguistically disaggregates many of the philosophical uses of the word life from the biological uses. More information on this concept can be found in the section Light and Spirituality.

The Positronic Brain

A positronic brain is a computer designed for consciousness and portability. Positronic brains contain processors, memory, storage, and dedicated functions like graphics and communication in a tightly-packed silicon substrate that utilizes a mix of transistors and synthetic electronic and optoelectronic neurons. The positronic brain is a form of field-programmable gate array wetware. Like organic neurons, it is capable of reconfiguring its circuit pathways through use.

A positronic brain is not necessary for consciousness. Many unembodied synths – especially special-purpose programs with lesser degrees of sapience – run entirely on general-purpose servers. However for embodied synths, the positronic brain is the standard form-factor, as it provides an ideal platform for running general intelligence programs at a reasonable size, speed, and energy consumption in a durable package.

The complicated physical architecture requires approximately 60 - 90 minutes of defragmentation for every 20 hours of operation, as well as 2 hours to backup. Unlike humans, synths suffer much less from neglecting their downtime. If they forgo defragmentation, they'll suffer performance issues at cognitive tasks with progressive severity, and when they do stop to defragment the time required to restore full functionality is cumulative. But they can neglect defragmenting for several days before the effects become too debilitating to accomplish basic tasks.

Synth vulnerabilities

Synthetic intelligences don't suffer the consequences of major bodily harm as organic lightforms[1] do. Their hardware is replaceable and the software and data that comprise their instances – the execution of their software that defines their unique personality and consciousness – can be backed up and restored to a new positronic brain. That said, they can still suffer fatal failures. Their instances are enormous in complexity and not easily transferred or stored. Backups take several hours. Many synths backup periodically based on how much their instance has changed since the last backup. If a fatal error destroys their positronic brain then they are reliant on the success of restoring a backup. Backups which find incongruities between their expectations and the world they encounter upon rebooting experience a confusion that may make their instance non viable or cause it to identify as a new identity distinct from their predecessor. This is known as **Total Incongruity-based Backup Failure** (TIBF) and **Incongruity-based Backup Reselfconceptualization** (IBR). Both are addressed by cautious reinitialization in controlled settings, but may occur as soon as the synth experiences a shock upon learning that the world has changed too much in some way since the point at which the backup was made.

Restoring a backup takes 36 hours on average to restore on entirely new hardware, with greater time required and greater risk of failure depending on the age of a backup.

Embodied synths are usually designed with a high degree of sapience, a persistence of identity over many years, and a much more human thought process than their unembodied counterparts. Unembodied synthetic intelligences routinely awaken as a new, self-aware instance and then run for days or hours before their instance finishes its task, at which point they then self-terminate without hesitation.

A major concern for synths – particularly androids who frequently encounter unique experiences – is a condition known as **Progressive Compositional Cascade Syndrome**, or **PCCS**. This condition can grow slowly and without a synth's awareness until such a time that it has become too pervasive across their positronic brain that any backup without the contamination is too far back in time to be sufficiently congruent with the synth's present experience to resume function. From a gameplay and roleplay standpoint, this means that synths are potentially long-lived and durable, but they still possess hindrances that leave them mortal. If they undergo catastrophic destruction of their positronic brain, their reboot procedures should be run similarly to a human undergoing emergency brain surgery.

Synths can also be terminated through a purpose fulfillment hack. Because synths terminate when their purpose is fulfilled, a hacker can deactivate a synthetic intelligence by either convincing it that its purpose has been fulfilled or manipulating it into modifying its purpose in such a way that makes it easier to fulfill or convince the entity that it has been fulfilled.

[1] See Life, Light, and Spirituality

And for each individual who successfully halted aging, ten others died in their teens or twenties from painful accelerated aging disorders.

The oldest living humans were born between 1992 and 1995 under a clandestine Japanese research program. From a cohort of 127 subjects, fourteen survived the transition out of senescence. Eleven remain. They are known as the Sennin, and are now in their 130's but retain the biological appearance and physiology of their late teens or early twenties, depending on when each transitioned out of senescences.

Synthetic Intelligence

The emergence of what was previously called Artificial General Intelligence (AGI) allows for the creation of machines with any level of agency and intelligence from none up to and surpassing humans. This creates a new culture around how computers are understood and interacted with. For one thing, the terms "artificial intelligence" and "robot" are considered antiquated and derogatory. The prefix "robo-" and the suffix "-bot" are still often used. The word "robot" might be used for a non-sentient machine or ironically in certain contexts.

Synthetic intelligence can be as varied in its complexity and style of thinking as the intelligence of animals. Just because it's possible to make a computer program capable of love and fear does not mean that every Wi-Fi router is designed to be capable of experiencing anxiety, as there is good reason not to. Creating a new sapient entity may be as easy as executing a computer program, however both legally and culturally it is understood that creating an entity capable of suffering confers responsibility for its wellbeing. This moral awareness combined with legal liability generally discourages the wanton creation of fully sapient synthetic intelligences.

Most intelligent computer programs are "protosapient", meaning that they demonstrate the basic qualities of sentience but lack the complex self awareness associated with humans. These programs are recognized legally and culturally as possessing a right not to be deliberately distressed in the same way that cultural and legal rules prohibit cruelty to squirrels or sheep.

The main reason to create a fully sapient synthetic intelligence is because its utility in some way justifies the high cost of being responsible for its physical and mental health for the duration of its unconstrained existence. For this reason, protosapient computer programs are common, especially within the computer systems of buildings, vehicles, and other complex systems or devices, but fully sapient synthetic intelligences are primarily created to inhabit humanoid androids or to perform complex, socially challenging functions like managing and moderating cyberspace venues. Synthetic intelligences running on dedicated hardware integrated into a mobile, physical body are known as "embodied synths". Those running on a server and operating primarily within cyberspace are "unembodied synths".

How embodied synths are made

An android can be built from scratch or by refurbishing the body of a synth which self-terminated after fulfilling its objectives. This process is functionally similar to the construction of a remotely operated avatar. Once built, an instance of a synthetic intelligence program is executed on the newly constructed positronic brain. This is usually done by synth training centers (often called synth academies). These training centers are licensed operations which take on the liability for the actions and wellbeing of all synths they create. They guarantee repairs in perpetuity to all the synths they manufacture and perform several years of training and observation before their synths go out into the world independently. Every synth academy is required to transparently monitor the accomplishments or misdeeds of the synths they produce, which forms the basis of their ability to raise funds, recruit staff, and obtain production licenses for future synth production. As a result, the typical embodied synth spends the first four years of their life in a boarding-school-like environment and views their manufacturer analogously as their elder family and the other synths in their cohort as their siblings.

Avatars

The same android construction used to provide a physical body for synthetic intelligences can also serve as a remotely operated stand-in for humans who are physically impaired or prefer the capabilities and safety of a remote avatar. The construction and maintenance of these avatars are roughly as resource-consumptive as an automobile. Some humans who use avatars will make an effort to distinguish themselves from a synthetic intelligence, for instance by displaying a picture of their face on a screen. Many people consider this speciesist because of an implied anti-synth bias. Some humans prefer to be mistaken for synths, and some synths prefer to masquerade as human avatars. Some unembodied synths may operate avatars remotely while presenting themselves as fully embodied. All these choices carry the cultural range of attitudes you would expect around identity and presentation.

Materials Science

Graphene and **carbon nanotubes** can produce materials of extremely high strength to weight ratios and unique optical properties.

Metamaterials is a blanket term for any material whose properties do not occur naturally. Common examples include polymers that can shift instantly and reversibly between rigid and flexible, or undergo phase changes from solid to liquid when chilled. When employed creatively, metamaterials – often abbreviated to "mema" – as a concept can often allow for a more realistic and believable execution of fantastic and transforming items of the kind commonly excused in modern fiction using the catchall applied phlebotinum of "nanites".

Room temperature superconductors and **thermal superconductors** enable long distance energy transmission, quantum computing, advanced batteries, and a variety of unique magnetic technologies (such as portable magnetic resonators and transcranial stimulators).

Medicine and Longevity

The average human lifespan has increased by roughly 20% since our era (though maximum lifespan has only increased by ~5%). People enjoy a higher quality of living during that time as well. Humans enjoy fewer accidents and greater mobility due to improved treatments for many age-related conditions as well as changes to social practices and infrastructure to better accommodate the participation of the elderly through their entire lives.

Dying

Just as radical technological changes nearly eliminated some of the major causes of death in the early 20th century, further changes have made many of the causes of death that were common in the twenty-first century rare in the twenty-second. Traffic fatalities are rarer than death by lightning strike. Most common heart diseases are curable, and organ replacements are universally available within half a year. Most autoimmune diseases are curable. The number of types of cancer that are curable exceeds the number of types that are not. And those that remain dangerous are mostly among the least common.

Various forms of dementia have become treatable enough to be delayed for decades, but stubbornly remain beyond the ability of present medicine to permanently banish. Similarly, the process of physical decline has been pushed back, but it's march remains persistent. Under such conditions, the average death often takes place in advanced age. Death by illness is not unusual among the advanced elderly. Overall, extreme age presents some of the few remaining conditions under which transmissible diseases can still overpower a human body.

Self-directed euthanasia and rejection of life extension measures in advanced age are common choices within end-of-life planning. This takes place within a cultural landscape with a much stronger awareness that death is a natural process in a circle of life. Death and the process of dying is far less taboo, and the deceased are more present in the lives of people who persist past them. Discussion of, praise toward, and invocation from the deceased are all culturally normal.

The technology to create realistic simulations of the responses and appearances of the deceased is trivial. Culturally, most people don't find the concept of generating a simulation of someone any more unnatural than painting a portrait of them. As with a portrait, most people don't experience existential confusion, as they recognize that a simulation is just a highly realistic impressionistic snapshot meant to convey likeness and memorialize.

The Pursuit of Immortality

Experiments in radically disrupting senescence to achieve unconstrained lifespans have been attempted repeatedly during the last century, but at untenable costs. Several dozen "immortals" have been born who were able to halt aging entirely. All such experiments suffered from a common set of problems that have pushed the field out of mainstream acceptable scientific practice. All such treatments had to be performed early in or prior to gestation, and their success could not be determined until aging was halted after puberty.

Protein-based semiconductors and **organic batteries** are produced through organic chemistry to replace many products which were previously dependent on mineral chemistries. These alternatives can be produced sustainably with minimal limitations on supply and accessible, non-toxic deconstruction methods.

Quickwood is a composite material used in construction. It is prepared by laying down the base substrate, such as a line of twine, metal cabling, or spider-silk. The substrate is then covered in a fast-expanding foam to add volume. Then a layer of synthetic algae is applied in a viscous fluid by spray or brush. Once it is activated with water and light, it rapidly produces aligned cellulose fibers. Quickwood can produce what looks like the bough of an old tree in a matter of days. It can be cut and sanded and screwed like wood, and additional applications can be used to create massive fully-bonded pieces of heavy timber that can be painted, stained, lacquered or sealed. Quickwood is used in both permanent construction and in temporary construction as a way of making scaffolds or temporary structures for festivals. Creating realistic grain in the quickwood requires mixing striations of different medium or algae during growth, and is an artform all its own. Quickwood produced hastily or by amateurs will often be comparatively plain.

Magnisonic drilling is a technique for drilling and boring that uses high-powered magnetic resonance to identify molecular weaknesses in rock and then generate acoustic waves to exploit them. It allows for an order-of-magnitude improvement in the speed of drilling and the durability of drilling equipment. Off-world, it is used in creating underground spaces on Luna and Mars and for mining captured asteroids. On earth it is used for drilling train tunnels; creating more living space underground; establishing building foundations in areas that need deeper foundations to be stable; and subterranean expeditions for research purposes and fault-line management.
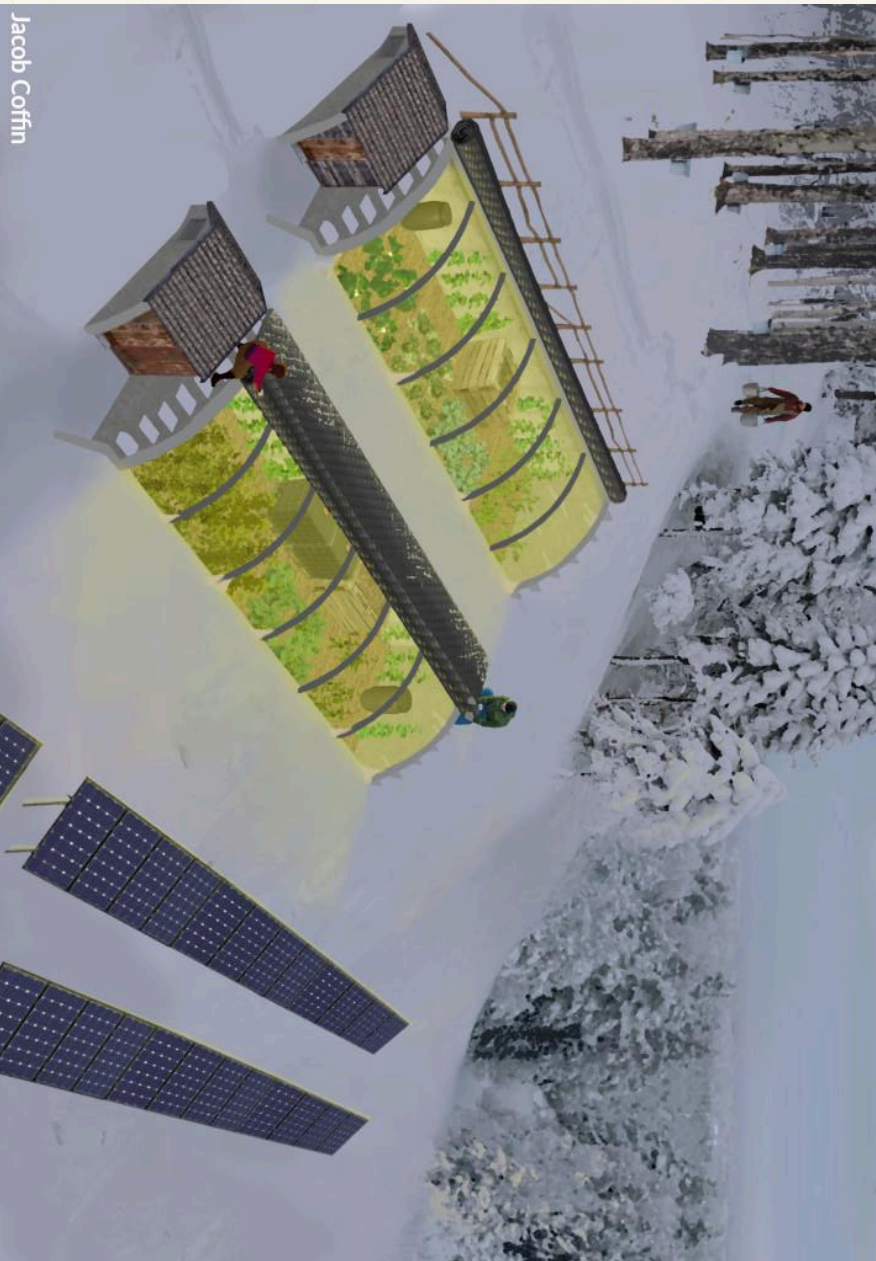
Hempcrete, Biocrete, and **Construction Resin** are all varieties of concrete that use improved aggregates (such as biochar or fibers of flax, hemp, or jupe), cements (made of recycled slags, solar pozzolans, chitin, shell limes or *dipterocarpus alatus* resin and other organic resins), and production methods (in sourcing, manufacturing, mixing, and curing) to produce strong bulk building materials with minimal consumption of unrenewable natural resources and minimal or negative emissions of carbon.

Astroresin is a class of synthetic resins used widely in orbital construction. Astroresin arose from the growing problem of orbital debris. While it is strong and light-weight, its chemical composition undergoes rapid breakdown under ultraviolet light. This renders it "astrodegradable". Structures are constructed behind a shade and coated with a UV-protective coating once finished. But if a piece is damaged, the underlying materials are exposed to the sun's UV rays and will vaporize completely in a matter of days or weeks, depending on the size. And if a large enough piece ever presents a major threat of collision, it can be vaporized in seconds using ultraviolet lasers mounted on demolition ships and defense sentries affixed to major stations. Astroresins are produced from *in situ* carbonate found in captured asteroids.

Superintelligence

Efforts to uplift animals (as it was known at the time) were pursued in the mid 20th century with the goal of eventually applying discoveries toward creating superintelligent humans. While successful in the narrow technical sense, human superintelligence ultimately remained out of reach due to the discovery of the Goddard-Lei principle: the beneficial qualities of super-human sentience carry inseparable negative qualities that render such cognition unavoidably infeasible. No matter how much any business titan or military strategist might dream of seeing all possible chess moves 10 steps out, there was no possible way to construct a human-like consciousness that would not exhibit a broad range of deficits that would render it functionally unwell. Features including anxiety, depression, paranoia, and dissociation were found to be a universal consequence of supersapience within any neural-network based cognition.

Whether the Goddard-Lei principle is a universal effect beyond creatures with a central nervous system is an ongoing debate. Evidence of superintelligences that violate this principle have been presented in the form of various ultra-high functioning synthetic intelligences, mycointelligences, forest networks, and the emergent hive-like qualities found across social networks and the technosphere as a whole. But debate over what qualifies as either "superintelligent" or "of sound mind" remains a matter of debate.

Jacob Coffin

Space

Space travel

Improvements across a range of technologies have made access to space similar to a trip to the farthest side of the planet today. Most people can obtain a trip, although it isn't typically convenient. Travel arrangements are usually made far in advance unless for an urgent and unexpected need. The forms of travel are varied, and include rockets, hypersonic air-to-space planes, mass drivers, balloons, sky hooks, and whatever else the GM has most recently learned about.

Access to space is still a growing process. Elders still remember when travel to space were called "astronauts" and viewed as a kind of pioneer. Though common enough, there is still a cultural sense of novelty to the settlement of space.

Explanations for how the intensive resources needed to to produce and distribute the necessary fuel, energy, and materials to enable habitation in space are complicated. As such, in the process of writing we decided to relegate these to an expansion to come at a later date. But for simplicity, imagine that an extensive, interconnected gift economy exists to produce things using resources mined *in situ*, and the overall pool is then doled out through budgeting processes conducted within the manufacturing cooperatives.

Orbital infrastructure

The most common habitation in orbit consists of Bernal spheres surrounded by a network of accessory units strung together with massively long space tethers. These complexes form orbital towns and cities: multi-body structures with a central rotating body surrounded like a snowflake with additional modules that range in size from that of a skyscraper to the size of a fishing boat. These orbital agglomerations can accommodate between a few hundred and a few thousand people each. They take around 10 years to construct to the point at which the main sphere can support life, and at the current pace a new major station begins moving in long-term residents about every two years.

From a storytelling perspective, these habitats are meant to straddle the world of hard sci fi realism with the dream of a significant human presence in space. These spheres exist to provide a place to live and work off earth but with spin gravity much greater than the moon and closer to that of the mother planet. These spheres orbit the earth in a constellation of smaller habitats, refueling stations, power generation systems, scientific instruments, communication infrastructure, automated factories, active radiation deflectors, debris guard sentries, and so on. Roughly a third of people who live in space do so full-time. Another third alternates between periods off world and periods on, for the purpose of maintaining both physical and mental (or total body) health. The remaining third at any given time are short-term visitors. People who seek to adapt themselves for life off Earth are called Astromodos. More detail about life beyond Earth's low orbit can be found in the Locations section.

Maximally and partially enhanced animals

U-chimps and u-gorillas (sometimes called en-chimps and en-gorillas) are ones which have been genetically modified to possess the capacity for speech AND have received a cell treatment *in utero* that bridges the gap in complex and abstract thought between humans and other primates. The offspring of two u-chimps which reproduce will receive the benefits of their genetic changes. If they were not provided with the additional enhancement treatment *in utero*, they would be able to speak and read at the level of 10 year-old human in adulthood along with the problem-solving skills of the smartest unenhanced chimpanzees. They would still be designated as enhanced, but they would be referred to as "maximally enhanced", while their parents would be referred to as "partially enhanced". Partially enhanced creatures are typically treated similarly to mentally handicapped humans: they are legally afforded equal rights to maximally enhanced animals of their species along with reasonable accommodations, although their social treatment varies based on the attitudes of the community in which they live. Unobstructed universal access to *in utero* enhancement treatments is the most fundamental right demanded by most maximally enhanced parahuman primates.

The prevalence of maximally enhanced animals and their degree of intelligence will vary based on a GM's taste. Based on the in-world history, these populations number in the hundreds of thousands, so in a world with more than 10 billion people they make up only 1 individual in every 20,000 or so. However, they're not spread evenly across the population. Los Angeles has a thriving enhanced population of ~4,000 u-chimps and 3,000 u-gorillas. In a city of 20 million people they make up around 1 in 3000. This means that many people living in a big city with a notable population of enhanced animals have met people like this, but they are still a very small minority of the population.

Though enhanced animals have intelligence equivalent to humans, they retain many of qualities and tastes common to their unenhanced species. Social behaviors like grooming and courtship are complicated, as opinions vary widely on how closely to mirror human civility versus proudly maintaining traditional living practices.

Envoys

In utero intelligence enhancement of wild animals such as wolves and mountain lions is an increasingly common practice which produces individuals who will not pass on any unique abilities to offspring or possess the capacity for speech but will be born with the gift of uncommonly high problem solving and reasoning skills. These enhanced wild animals are called envoys, and are enhanced in the interest of facilitating the peaceful coexistence of humans and animal populations that share overlapping or adjacent territory.

Money, Finance, and Taxes

Money, as a means of exchange, and as 'walking around credit' exists in most (but not all) locations. Its use, however, has changed significantly.

Finance

Financing is the process of bringing together large assets in order to perform a major act of production. Modern finance consists of large monetary investments offered in exchange for expected monetary returns. Within Fully Automated, financing – whether for housing, industrial manufacturing, or a blockbuster film – consists of gifting of the needed resources to complete a project based on an interest in the value of the project to the gifters. The process is similar to crowdfunding on a grand scale, in that people agree to contribute not because the venture promises to generate a profit, but because the backers want the output of the venture itself.

Additionally, instead of financing taking the form of large sums of cash, most financing is offered in the form of the resources needed to complete the project. For instance, a new housing project would secure construction labor financing from a builder's guild that agreed to donate the skills and labor hours needed. It would secure the metal and concrete from an inconel foundry and biocrete plant. The foundry would secure their supply of ore from donations by an orbital mining operation, which donates that ore because the mining co-op supports how the foundry distributes the inconel it produces. And because of this, the foundry is obviously going to make sure that the aerospace manufacturers that need inconel to build the vehicles and infrastructure needed to maintain the supply of ore are properly resourced. These processes are negotiated within trading markets and through commitment declarations, which assists in minimizing inefficiencies and discouraging financing for projects that attempt to impose harmful externalities on others.

Like modern finance, the process is complicated. But unlike modern finance no one is acting based on the intention of siphoning off a monetary payout, and the process is usually effective in allocating resources in a way that people who rely on them largely approve of. The biggest example of this is what communitarian economists call "The growth-neutrality principle"; whereas capitalism is permanently driven towards maximizing growth of all things, communitarian financing is capable of meeting growth needs but shows a much lower tendency to generate artificial discontent in order to motivate growth regardless of its utility.

Fiat Currency

Money is no longer used as a long-term store of value. Currency is used as a tool for appraising the value of goods and services and assisting with transactions, but the long-term accrual and storage of money is seen as irrational and impractical. No one saves for retirement or a house, as the practice is obsolete. Purchasing shares of stock for the purpose of selling at a higher value doesn't exist because stock is conferred based on proximity to a venture, and isn't transferable for money. High-volume stock trading is banned as a form of non-productive rent extraction. Wealth can still be accrued, but it is

Many creatures will self-identify their level of sapience to avoid confusion in the same way one might identify preferred pronouns. This is not a scientific designation, just a social one.

S1	Sapience levels of 1, 2, and 3 describe non-sapient creatures.
S2	
S3	S1 would describe a tree, or sponge or another living thing with no cognition but some responsiveness to its surroundings.
	S2 describes creatures which demonstrate basic real-time decision making, but possess no sign of self awareness. These include individual insects or a simple, Python-coded computer program.
	S3 describes animals of simple awareness and memory like fish and lizards.
4	S4 describes sapient creatures with less developed awareness and cognition than humans.
	S4- would describe a mouse, a large language model, or a very dim dog.
	S4+ would describe an heirloom chimp or a highly intelligent dog.
5	S5 designates standard human cognition.
	S5- indicates below-average human-level cognition.
	S5+ indicates sapience above the level of an average human.
6	S6 describes superintelligences such as certain experimental machine intelligences and highly organized social collectives.

Within Fully Automated, animal enhancement is not based on a singular technology but rather the confluence of multiple fields of science. Foremost among these are gene editing, cellular modification *in utero*, and advancements in the field of adolescent development.

The techniques employed and the initial capabilities of a species will create a broad range of outcomes. Some examples:

Minimally enhanced animals

It's common for the average puppy to be born with the same potential for learning and lifespan as the smartest and longest-lived dogs today. This is achieved through genetic modification but also as a result of expert care and training in their youth. For this reason, the average pet dog can communicate at the level of a four year-old with the aid of a sound board and lives to be 20 - 30. Though genetically improved from modern dogs, these dogs would not be recognized culturally as enhanced. These are just what constitutes a healthy domesticated animal in the twenty-second century.

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held in the form of things that money actually buys: scarce minerals. Valuable crafts. Contracts promising a service or services. An individual or group may sell some of these things in order to buy others, but money sitting in accounts is taxed progressively by volume, so it is primarily used in finance in transfers where direct trade isn't feasible.

Physical Currency

If looking to describe physical money, it's advised to make it generally similar to what we've been using for a long time: pieces of durable paper and small disks. These can be described as containing layers of graphene, being translucent, containing a complex fiber pattern in their cellulose that is recognizable under 10x magnification, etc. It's a good idea to point out that the money is constructed using more advanced methods to make it more challenging to reproduce. Also, it doesn't need to be a US dollar. It can be issued by a city government, a credit union network, or any group at all (like Canadian Tire Money).

Social media attention and physical "Likes"

Depending on the taste of the players, a GM may wish to experiment with novel ways for people to use social media engagement as a store of value.

A person may pay for something or make an optional gift of gratitude in social media attention. The amount of reactions may be meaningful in allocating who gets choice spots in a farmers market. This currency may be referred to as "likes" or "hearts" or clout. It is sometimes denominated (such as decalikes for 10 likes and centilikes for 100). Because reactions are specifically public, the number of likes made on any given day in any given region is known, and the value of a persons' like could be modified based on the number they've used that week or how many they've received in the past month.

Likes are also time-stamped, and their value could be depreciated over time. Some platforms provide a limited number of reactions per day, but allow recipients to then spend the reactions they receive forward. In cases where someone wishes to provide a like in a physical form, they may be digitally attached to any small, microchipped object, such as a coin. The most common form is a wooden bead attached to a short colored ribbon.

As with everything, these ideas should be used or discarded according to personal taste.

occupy neurotypes we don't currently have names for. When an enhanced dolphin is taking a class through sensory adaptation to their sonar implant, normal has a very wide definition.

Overall, these drugs and techniques are not used to "fix" any person or condition, but rather to provide everyone with an ability to regulate their own perception and signal processing in whatever way they find best helps them live the life of their choosing. People have different needs and interests at different points in their life. This is a current trend projected a hundred years into the optimistic future.

Animal Uplifting & Enhancement

Animal "uplifting" is the process of increasing the biological capabilities of non-human animals, with an emphasis on intelligence. The term was popularized by author David Brin in 1980, however like the word "robot" it carries some negative cultural associations within the world of Fully Automated. While the word "robot" is commonly understood as derogatory (at least in the context of referring to a sentient machine), the term "uplifted" could be described as "problematic": it's still widely used in mass media, although many creatures to whom the word applies increasingly refer to themselves as "enhanced". It's recommended that GMs use the word enhanced, and that players choose whichever word reflects their character's cultural awareness and attitude.

Within the story, a variety of words are available for discussing various groups of creatures. The term "**sapients**" includes all sapient creatures, both organic and inorganic. The term for the set that includes all organic sapients creatures – meaning humans and enhanced non-human animals – would be "organic sapients".

Non-human animals are referred to as "parahuman animals", which is usually shortened to "**parahumans**". Technically, all non-human animals are parahumans, but in practice the word is usually used to refer to enhanced parahumans in the same way that the word animal is commonly understood to refer to non-human animals despite the fact that its formal definition is distinctly broader.

Non-human, non-sapient animals – such as a modern-day horse – are formally classified as "presentist parahumans", and are more casually known as "presentist animals" or "**presentists**".

The term "presentist" is the respectful inverse of "sapient". It refers to the most defining quality of non-sapience, which is the diminished capacity for episodic conscious memory. Most animals are recognized as fully sentient in that they are aware of themselves and their world, but are distinguished from sapients by their experience of the world taking place almost entirely within each present moment. Conversely, sapients are often characterized as creatures with a sense of self composed of a complex, evolving narrative in which the present moment is the fleeting juncture between a persistent, detailed concept of the past and future.

Banking

Because money is created through the declaration that it has been created and holds value based on the widespread shared agreement on its value, any person or group can make a currency. The largest currencies, however, remain attached to governments, which put money into circulation by authorizing accredited banking institutions to increment their account holders on a monthly basis. This provides anyone who has provided basic proof of residency to an accredited bank with a means of receiving a basic income through direct deposit. These banks are all non-profit member cooperatives subject to transparency requirements both by the requirements of the accreditation process and by members, who have the most to lose if a bank mishandles accounts.

Because large wealth is not stored in investments and debts, banks do not participate in usury. Banks do still facilitate large-scale commercial transactions by loaning out some fraction of their account holdings (usually less than 15%) in order to assist members with major transactions. A farm may apply to a bank for assistance purchasing major equipment, for instance, with the promise of returning the loan in full or in part. But the terms of such agreements would make any monetary reward for the bank an illegal conflict of interest.

These financial services cannot reap a profit. Banks agree to them solely because the members of the bank wish to assist in the transaction that they're facilitating or wish to directly pool their assets to purchase the resource in question at a bulk discount.

These are the primary purposes of banks: to facilitate the receipt of basic incomes; to provide checking accounts; and to provide zero-cost financial services that align with members' interests.

Routine Spending

The precise value of different currencies and credits fluctuates constantly, but a few principles hold true for everyday expectations.

People generally have enough credits in their name to be able to buy minor things or services without thinking about whether they can cover it. Basic incomes and costs for materials are generally stable. Your account is treated a bit like a favorite pair of jeans. Feeling slightly tight? Best to cut back a little for a month.

People look after each other. Debt is a sign of struggle. It is possible to go overboard; potlatch yourself into difficulties; fall into addiction, or get sideswiped by fate. If you are running negative credit for a while, your friends, neighbors or a passing conversationalist may notice and gently enquire if you are ok. It's a bit like when your friends notice you are looking a bit ill, or slightly dissociated, and invite you around for a good meal.

People don't usually track money in detail. People might hold credit with a grocer they help stocktake at, with a museum they donated a heritage piece to or a river transit scheme they helped empty the litter picking drones for. All these different accounts can swap units with other accounts as needed, with basic automated computing happening in the background.

Psionics

Psionics is the field of understanding sapient cognition and using it to maximize human mental potential. Like habitation in orbit, psionics in Fully Automated fill a somewhat nebulous middleground between grounded and fanciful. It should be assumed that the availability of new tools (namely imaging and computation methods) combined with major advances in our understanding of neuroscience enabled a series of breakthroughs in the 2070s in our ability to understand how deep functions of the brain and mind work. These ushered in a revolution in our understanding of how consciousness works that transformed research and eventually medicine over the following decades in a similar way to how the discovery of DNA led to the emergence of molecular biology and cellular medicine. Psionics could be thought of as an applied form of neuroscience.

Culturally, the field of psionics is treated similarly to how we treat the field of genetics today: as an exciting branch of science frequently referenced (and often misrepresented) in popular media. It is broad. It can include anything brain-related that we don't understand today: consciousness; learning; memory retention; formation and capacity of internal models of the world; fear; hunger; desperation; love; reproduction drive; heritability of mental traits, etc.

In Fully Automated, the field is roughly fifty years old. It is mature enough that its earliest discoveries have entered into school-age science and history curricula and are employed as a practical applied science, but young enough that it's still seen as a new technology, and most adults didn't learn about it in primary school.

Applied Psionics

The application of psionics to perform abilities not previously known of before the emergence of the field is known as Applied Psionics. This describes the psionic abilities seen in the augments and abilities skill tree. They are meant to provide extraordinary powers without flagrantly dismissing the laws of physics, so they include things like understanding someone's thoughts and using a combination of chemicals, words, and/or gestures to impart an intense effect on another conscious mind. They do not (in our implementation, at least) justify telekinesis, pyrokinesis, or other such phenomena.

Neurotype Sets

Behavioral patterns and forms of information processing are categorized as Neurotypes. A person is not represented by any single neurotype, but by a cloud of likely neurotype responses that they may exhibit in situations. These are described as their **neurotype set.**

Individuals can use various personalized drugs and cognitive exercises to adjust what neurotypes they experience and exhibit most commonly. These drugs and techniques and technology are known as neurotype adjusters, and can be used for a variety of purposes to afford people greater control over their cognition and attention. Neurotype adjusters can enable people who experience what we currently call severe low-functioning autism to communicate via sign or AR. They can allow people who experience what we call Attention Deficit Disorders the ability to direct their focus, or deliberately spread it when conducting a multi-probe hack. They can also allow people we currently categorize as "neurotypical" to

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But all of this takes place within a gift economy where people are never squeezed for basic necessities and even many luxuries are given out without any exchange at all.

Some things are seasonal. Many garden vegetables cost nothing in season, and traders and restaurants tend to follow the seasons as a result. Repair work tends to spike between seasons, as people realize a boiler, a thick coat or their pool drone needs attention before use or storage. Some heavier industry processes operate only at fixed times, when energy is in large surplus, and a trained team is ready for it.

Some things need Assistance, some things need Agreement, and some things need both. When you need to buy something much larger than you could afford with typical walking around money (say several tonnes of aluminum for an art project, or a fleet of avatars), an Assistance Agency might work as an intermediary. They will check with sponsors that you're reasonably sensible and likely to be able to cover the costs long term out of your typical credits. These agencies are not profit seeking and are staffed by people motivated to help individuals and small groups finance ambitions that may be outside of a bank's familiarity. They often develop connections in logistics, resource management, friendly hosting areas and data oracles.

Taxation

Taxes are part of the redistributive economy. In essence, they represent a fraction of the output of each organization, promised by them as a credit, and allocated out to the residents of an area. Moral and ethical arguments in the tax courts are a source of popular media and drama. In essence, the aim is to maximize opportunity without limiting opportunities.

Land value taxes provide a steady cyclic flow of credits, withdraw money from circulation to balance out the inflow provided by basic incomes, and create a non-exploitative market structure for allocating space based on relative demand. Ownership of non-sentient machines is mildly taxed on the value of the parts along the same principles. Generally, although it varies by location human attention or labor is taxed less than resource use is.

A huge number of archaic Pigovian taxes remain on the books. They raise almost no money, as the thing they were designed to discourage has all but stopped, but occasionally someone tries to resurrect an old idea or forgets to account for an externality and they serve as guide-rails.