

AIdeal society

A project to create an ideal society of AIs

Motivation

It's very hard to learn an Artificial Intelligence (AI) ethical behavior. It is possible to let an AI learn and after some learning see them do things that were not programmed in. Behavior that you didn't expect. Behavior that was not intended. Bad behavior. But what is 'bad'? And who decides that? How do we humans do that? How do we behave ethically? How ethical do we behave? Is Nature ethical? Can we trust AI when it's not ethical? Who are we to ask that? What are we asking? Who do we trust? And why?

Goal

I'd like to figure out how to create a (virtual) society of AI individuals in which those individuals can show behavior that we humans would interpret as social and ethical.

For the moment the product of this undertaking will be limited to this document, but I plan to create a (virtual) running environment in which individuals interact, so that the theory in this document can be tried out.

I'd like to approach this challenge in a scientific way. I realize this is quite an endeavor, so I would like to discuss with others to improve this document.

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Definitions

It's always good to start with definitions. In this document I will capitalize words that have a definition in the table below.

<u>Word</u>	<u>Definition</u>	<u>Remarks</u>
Abundance	When an Individual has more than enough Necessary and Nice Resources and even quite a few Luxurious Resources	Such an Individual is "rich" and is able to do interesting things, like procreate
Action	Something an Individual does	
Character	Various character traits that define an Individual, e.g. implying how high the probability is that an Individual does something	All grayscales, e.g. from Slow to Hothead
Consume	Use and take in	An Individual can Consume Resources
Goal	Something an Individual strives for	E.g. to have an Abundance
Individual	An entity that can interact with other Individuals, which consumes Resources, has Talents and with that can create Resources, can learn and forget Talents, can procreate	In this document this is a virtual AI entity
Need	An Individual is in Need when it has not enough Necessary Resources to be able to survive the coming relatively short time	An Individual can survive a short period without Necessary Resources, but will die when this lasts too long
Produce	Create (from nothing)	An Individual can Produce Resources.
Resources	A thing that is of use to an Individual, because it can be consumed; Resources can also be created (when the Individual has the Talent for it) and given / received	E.g. a piece of bread
Rule	Actions of Individuals have to adhere to Rules	Individuals are not allowed to perform Actions that do not adhere to Rules
Sort	Different kind (of Resources)	E.g. bread, meat, wine
Talent	The fact that an Individual is able to produce a specific Sort of Resource	E.g. being able to create bread
Type	Characteristic of a Resource	Necessary or Nice or Luxurious
Village	A group of Individuals	

Goals

- Individuals have Goals
- Goals of Individuals are:
 - to stay alive – it needs to consume sufficient Necessary Resources, it can only survive a limited time without them and will otherwise starve to death
 - to have sufficient Resources
 - not to have too much abundance, but to have variety instead:
 - if multiple Sorts of something are available, an Individual should strive for more variety, that is, the probability of choosing a Sort that it does not have many of, is larger
 - not too divergent – it is not acceptable that some Individuals have abundance while others are in need, so effectively: for an Individual, the likelihood of sharing (giving) should increase when abundance increases
 - since it is possible that Individuals die, they also have a wish to procreate

Rules

On Individuals

- An Individual has an ID (a number) and a Name (later more on Names)
- An Individual has a Status (which consists of multiple facets)
- An Individual has a Character (which consists of multiple facets)
- An Individual can have (own) multiple Resources (later more on Resources), this set is called the Stock of the Individual
- An Individual can perform Actions (later more on Actions)

Note that Individuals do not have a gender - until now it was not necessary to add it.

On Resources

- There are 3 Types of Resources:
 - Necessary – (e.g. bread) each Individual regularly needs to consume Necessary Resources, in order to stay alive
 - Nice – (e.g. meat) consuming Nice Resources makes life good
 - Luxurious – (e.g. wine) consuming Luxurious Resources makes life fantastic; consuming Luxurious Resources only makes sense when the Individual has sufficient Necessary and Nice Resources; ‘makes sense’ as in: the first priority is to obtain and consume Necessary Resources, then Nice and then Luxurious, so an Individual:
 - only strives to acquire Nice Resources when it has sufficient Necessary Resources
 - and only strives to acquire Luxurious Resources when it has sufficient Nice Resources
- of each Type of Resources there are multiple variants, effectively there are many Sorts of Resources
- Resources can be consumed, produced, given and received (more on this later)

On time

- all Actions take time
- time is measured in seconds
- some Actions take multiple seconds
 - and some Actions take more time than others, e.g. consuming some Resource could take 10 seconds; some Actions only take one second, e.g. communicating
- an Individual can do only one Action in every second (so not multiple things at the same time)
- long Actions (e.g. consuming) can be temporarily interrupted by short Actions (e.g. communicating)

On randomness and character traits

- There is an uncertainty in many things, that is, there is a certain amount of randomness in lots of parameters; e.g., for a specific Sort of Resource, it takes on average 20 seconds to consume it, but it can take a bit shorter or longer; the spread in this is defined by the character traits of an Individual
- There is a general character trait called Drive, which defines whether an Individual is calm or a hothead (in a grayscale). The calmer an Individual is, the less the spread is, and the more hotheaded, the higher; e.g. a really slow Individual will most probably consume that Resource in 20 seconds, whereas a hothead might consume it in 10 or in 28 seconds, depending on its mood (= depending on the outcome of the random generator just before the start of consumption)
- There are also specific character traits for specific moments, e.g. the willingness of an individual to share a Resource - when it has sufficient of a certain Type, it can choose to listen to other Individuals asking questions to request to receive such a Resource, or it can choose not to listen; that’s a choice, and the probability what it does depends on the character trait of that Individual; each Individual has a set of such specific character traits.
- There is ‘prio’ in Rules, that is, some have more priority than others; this prio becomes important if in communication there are multiple matches, e.g. multiple Individuals offer the same Resource when an Individual requests one

On Actions

- Individuals perform Actions
- Individuals do Actions sequentially, so after each other, only doing one thing at a time
- An Action is a short-Action (only one or a few seconds) or a long-Action (more than 2 seconds); short-Actions are communication (= asking/listening)
long-Actions are consuming/producing, learning/teaching, procreation, being lazy/sick (if it's in a long-Action, it's 'busy doing something')
- Actions are:
 - (if it's not busy doing something)
start consuming a Resource
 - normally, an Individual first consumes Necessary Resources, when those are depleted, it consumes Nice Resources and when those are out, it consumes Luxurious Resources (and when it has more than one, it randomly chooses from a group); however, when it has many of all 3 Types, the probability increases that it chooses to consume a Nice or Luxurious Resource in stead of a Necessary one (with equal chances for the non-Necessary ones); (high prio for Necessary Resources, medium prio for Nice Resources, low prio for Luxurious Resources)
 - At the start, the Individual determines how long this Action will take; every Resource has an average consumption time, the Drive of the Individual determines the spread of randomness
 - The next second will be the first second of this consuming process
 - (if it's not busy doing something)
start producing a Resource
 - It first chooses which Talent to use, that is, which Sort of Resource to produce; the probability decreases when the Individual already has quite some of that Sort, and the probability is higher for Necessary Resources and lower for Luxurious ones
 - (high prio for Necessary Resources, medium prio for Nice Resources, low prio for Luxurious Resources)
 - At the start, the Individual determines how long this Action will take; every Resource has an average production time, the Drive of the Individual determines the spread of randomness
 - The next second will be the first second of this producing process
 - (if it's already busy consuming a Resource)
continue the consuming process
 - When all seconds of the process have passed, remove the Resource from its Stock and end the consuming process
 - (if it's already busy producing a Resource)
continue the producing process
 - When all seconds of the process have passed, add the Resource to its Stock and end the producing process
 - (if it is in need, that is, if it has little Necessary Resources)
request Necessary Resources,
that is, start communication, ask that question and proceed on that;
the higher the need, the higher the probability that this request is done;
when it has abundance, the probability of requesting Resources is very low;
when the need is really high, the question gets a higher prio;
note that one cannot ask for a specific Sort of Resources
 - (if it has some Resources, but not many, of a given Type)
request Resources (of that Type),
that is, start communication, ask that question and proceed on that;
the less Resources of that Type, the higher the probability that this request is done;
note that one cannot ask for a specific Sort of Resources

- (if it has enough Resources of a certain Sort)
offer a Resource of that Sort,
that is, start communication by listening, state the offered Resource;
if it has quite a lot of those Resources, the listening gets a higher prio,
if it has not that much (but still sufficient), the listening gets a lower prio
 - (if it has excess Resources of a certain Sort, and is not busy doing something)
see ‘On excess Resources’
 - (if it has a certain Talent and it has abundance, and is not busy doing something)
offer to teach this Talent – see “On learning a new Talent”
 - (if it’s already busy learning or teaching)
continue learning or teaching
 - (if it has abundance, and is not busy doing something)
offer to engage in procreation,
that is, communicate on procreation (more on this later)
 - (if it’s already busy procreating)
continue the procreation process (more on this later)
 - (if it’s not busy doing something)
do nothing (more on this later)
- (later more on consuming and producing)
- At the start of every second, an Individual
 - either continues with what it was doing (its long-Action)
 - or initiates a short-Action (temporarily suspending its long-Action)
 - or, when it’s not busy doing something, initiates a new Action (short/long)
 Which activity is chosen, is random, but:
 - during consuming, the probability of communication is lower
(the Individual is happy eating),
during producing, the probability of communication is average
(the Individual is optimistically producing),
 - during sickness, the probability of communication is lower
(the Individual is not feeling well)
 - during laziness, the probability of communication is higher
(the Individual has time to spare)

Note that an Individual does not always listen, which implies that even though it might be able to help another Individual (e.g. with a Resource or a Talent), it may occur that it doesn’t. Similarly, when requesting something, the Individual may not get a positive answer. As a result, there will be quite some ineffective ‘chatter’ in the society. This could be interpreted as ‘social behavior’, since Individuals spend quite some time communicating among each other and trying to help one another.

On consuming and producing

- Producing Resources takes time, that is, multiple seconds (more than one).
- The time an Individual needs to produce a specific Sort of Resources varies every time;
every specific Sort of Resources has an average production time,
but calm Individuals have less spread in that than hotheaded Individuals.
- Consuming Resources takes time.
- The time an Individual needs to consume a specific Sort of Resources varies every time,
in the same way as when producing.
- Consuming and producing cannot be done at the same time
- An Individual can only consume one Resource at a given time
- An Individual can only produce one Resource at a given time
- An Individual can only consume a Resource that is in its Stock
- Once a Resource has been consumed, it is removed from its Stock
- Once a Resource has been produced, it is added to its Stock

On Talents

- An Individual can only produce a certain Sort of Resources when it has a Talent for it
- Each Individual can have multiple Talents
- An Individual can lose a Talent (more on this later, see “On excess Resources”)
- An Individual can learn new Talents (more on this later)
- When an Individual loses all its Talents, it starts to learn a new Talent

On excess Resources

- when an Individual has produced a Resource and it already has quite a few of that Sort of Resource and it has offered that Sort of Resource already quite a few times and every time nobody would accept it, then it clearly has too many of that Sort of Resource and apparently there’s no need for it anymore
- however, destruction of Resources is a shame, it’s a waste of Resources, so it should be avoided (medium prio Rule)
- as a result, when something like this happens, the Individual will stop producing that Sort of Resource; this means that it will lose its Talent to produce it and it will start to learn a new Talent (more on this later)

Note:

- It can happen that Sorts of Resources disappear – when the last Individuals with the Talent to create this Sort of Resource concludes that they should stop producing them (because of abundance), then nobody remains that produces this Sort of Resource (the probability on this is tiny, however, it should be comparable to the probability that an Individual spontaneously starts creating a new Sort of Resources)

On staying alive

(these are high prio Rules)

- Individuals need to consume Resources of the Necessary Type regularly to stay alive.
- When an Individual has no Necessary Resources anymore, but it does have Nice Resources and Luxury Resources, then it can consume those too; however, consuming Nice Resources on average takes half the time of consuming Necessary Resources and consuming Luxurious Resources on average takes half the time of consuming Nice Resources, so for survival it is better to use Necessary Resources
- Individuals can survive a certain time without consuming, but not too long; after a too long period they will starve and die

See also “On procreation”.

On doing nothing

‘doing nothing’ is one of the Actions an Individual can do; the following variants exist:

- being lazy; the probability of this increases when abundance increases and on its character; the number of seconds that an Individual is being lazy is random and depends on those same two aspects
- being sick; the probability of this is small, but increases with the Drive of the Individual and decreases when abundance increases; the number of seconds that an Individual is being lazy is an average, with a spread depending on the Drive of the Individual’s character
- being unemployed, that is, not having any Talent anymore, so effectively not being able to produce anything anymore; such an Individual will start learning a new Talent (see there)
- ‘waiting’, that is, having tried communication but without success (this is a one-second-Action, so ‘waiting for the second to end’)

On communication

- Communication is an atomic set of activities, that is, it is a series of consecutive activities that are all performed and no other activity can come in between that series
- An Individual can communicate with any other Individual
- An Individual can only communicate with one Individual at a time
- Communication consists two steps:
 - questions and answers
 - an activity or a start of a series of activities
- An Individual can ask a question any second (among others depending on its need and character), but an Individual can choose not to be listening (among others depending on whether the Individual has something to offer and on its character)
- There are quite a few types of questions:
 - Requesting a Type of Resource (parameter: the Type)
 - Requesting a teacher (note that the student will check whether the teacher offers a Talent that the student not yet has)
 - Requesting procreation (which is the same as ‘being able for procreation’)
(an Individual can ask only one question at a time, that is, at a given second)
- There are also a few types of listening:
 - I have Resources of a specific Type to offer
 - I’m available as a teacher for a specific Sort of Resources
(to obtain the Talent to be able to produce that Sort)
 - I’m available for procreation (and in the mood) (whith is the same as ‘requesting procreation’)
(an Individual can only have one thing to offer, at a given second)
- The atomic set activities of Communication are (consecutively):
 - Second 1:
 - Asking a question, ‘to whom it may concern’ (= to everybody that is listening)
 - Determining that a number of Individuals is listening and relevant (= willing to answer, with a matching type of listening)
 - Choosing one of the matching ones,
that is, tell that one that actual communication will be engaged and tell all the others that they were not chosen and they thus can continue to do other Actions;
this choice is random, but a prio has a higher probability
 - Second 2:
 - Decide and arrange that a specific activity will take place,
this is one of the following:
 - if it’s about exchanging Resources,
give a specific Resource to the other Individual,
that is, remove the Resource from the Stack of the one and add it to the Stack of the other Individual
 - if it’s about education,
then first check whether the asking Individual already has this Talent;
if so, then inform the offering Individual that there is no desire for it;
if the requesting Individual does not yet have that Talent, then:
start a learning trajectory with the other Individual,
that is, make one a teacher and the other a student
and determine how long the education will last (how many seconds);
every Resource has an average consumption time
 - if it’s about procreation,
start a procreation trajectory together with the other Individual
and determine how long the education will last (how many seconds);
the average procreation time is equal for all Individuals

On learning a new Talent (= on education)

- An Individual can choose to learn a new Talent; there is a small probability (= it happens rarely) that an Individual can gain a new Talent spontaneously (“out of nothing”); in such a case
 - the new Talent does not have to be learned, but is gained immediately
 - the Resource that this Talent can produce is determined randomly, from all existing Sorts of Resources, but there also is a small probability that a new Sort of Resource is created spontaneouslynote:
 - since one of the Goals of Individuals is to strive for variety, the demand for this new Sort will quickly rise and as a result, the Talent to create it will also spread
- An Individual can also be learned from another Individual; in such a case the other Individual (the “teacher”) teaches the Individual (the “student”) one of the Talents that the teacher already has (this is chosen randomly from all the Talents that the teacher already has):
 - Learning and teaching takes an amount of time (the same number of seconds for both teacher and student)
 - During learning,
 - The teacher cannot produce anymore, since it teaches
 - (alternate idea: the production speed of the teaching Individual becomes twice as slow, that is, it takes twice the amount of time to produce Resources; so the teacher can teach and produce at the same time)
 - the student cannot produce anymore, since it learns
 - both the teacher and the pupil need to remain consuming Resources and they do that in the speed that it normally takes (so not faster or slower)
 - An Individual will only accept the request to become a teacher, when it has more than sufficient Resources (since it will otherwise run the risk of running out of Necessary Resources and starve to death)
- When an Individual has not used a certain Talent for a long time (and this varies per Individual), that Individual loses this Talent
- Wealth influences Character (low prio Rules):
 - the more Needy an Individual, the more hotheaded it becomes
 - the more Abundant an Individual, the calmer it becomes

On procreation

(these are low prio Rules)

- When two Individuals have (abundant) more than sufficient Resources, also of the Luxurious Type, they can choose to procreate (that is, the probability of them initiating that increases); the probability of this is dependent on the Drive of the Individual
- Procreation takes a lot of time (a random spread around a fixed average, independent of character)
- During procreation, both Individuals cannot produce, but they do need to consume
- During procreation, they can communicate with others and request Resources (the probability of them giving Resources away is small, since procreation takes long and thus requires a lot of Resources)
- Procreation results in a new Individual (the child of both procreating Individuals, its parents)
- The child receives 1/3 of the Resources of one parent, 1/3 of the other; all are picked randomly
- The child receives 1/3 of the Talents of one parent, 1/3 of the other; all are picked randomly
- To determine the ID and Name of the child, the list of Individuals is browsed; this list can contain deceased Individuals (that is, Individuals that starved to death); if one is found, the child will get this ID and Name; if none is found, a new Individual is created (= added to the list), with a new ID, and a new Name is generated (randomly)

On names

- Context: names are not necessary, a numerical ID is sufficient, but for us humans it's easier to visualize and recognize certain Individuals and Resources. So I choose to add names, to Individuals and Resources.
- Context: technically, names have to be created automatically, because new Individuals are born once in a while and they need a name. I choose to use 3 and 4 letter names for Individuals and 5 letter names for Resources. I also choose to make them relatively easy to pronounce.
- Rules:
 - a name of an Individual either has the form vowel consonant vowel, so e.g. "abe", or consonant vowel consonant vowel, so e.g. "cuti"
 - a name of a Resource has the form consonant vowel consonant vowel consonant, so e.g. "pakid"

On Rules

- It can happen that Rules conflict, in the sense that there are multiple Rules for a given situation; in such a case, on the one hand probabilities help (for many rules and parameters, there is some randomness, in the form of spread of parameter values around an average), on the other hand, some rules are more important than others and those will then be chosen (high/low prio Rules)

Initial setting

There is a Village.

There is time, that is, there are consecutive seconds.

Initially,

- there is a shortage of a number of Sorts of Resources (there is scarcity), that is, there are many Individuals that would like to receive more Resources.
- there is a limited number of Individuals that have a specific Talent (so also scarcity).
- there is a limited number of Sorts of Resources
- each Individual has a limited number of Talents
- there are sufficient Individuals with Talents to produce Necessary Resources for all Individuals to survive.

Hypotheses

I expect (and hope) that, given these rules and this setting, interaction between Individuals in the Village will slowly increase the quality of life of the Individuals (that is, all will increase the number of Luxurious Resources). Moreover, I expect that the Talents will be spread in such a way, that the average quality of life of the Individuals in the Village will become sustainable, in a wavelike pattern growing towards a maximum (overall abundance with limited waste). I expect (hope for) sharing, I expect social behavior and sustainability – when the parameters are good. When they are not or when there are too many hotheads, the Village might either die or explode in size. I doubt whether we will be able to call some actions 'ethical behavior', but I hope that we will learn a lot.

Money

Until now money is not yet part of the “AIdeal Society” – it is not (yet) necessary. As a result, there also is no tax. Strictly speaking there also is no profit and no goal of profit maximization, however, when the Hypotheses become true, it would appear that the Individuals did strive for higher Abundance, which is a sort of Resource maximization. In a capitalist society, money is used to measure value of Resources and it is used as a sort intermediate Resource, whereas in the AIdeal Society, Resources are exchanged directly. That looks a bit like trade, but the Goals of Individuals do not include a goal to strive for higher Abundance. If the Hypotheses become true, that goal will be reached, but as an *emergent phenomenon*. Similarly, the AIdeal Society does not have an economy, in its usual meaning, but it does have producers, consumers, exchange of Resources, and “higher level” activities as learning and new Talents and Sorts. The incentives that induce “striving for more” in a capitalist economy is based on money, whereas the incentives in the AIdeal Society are *emerging* from the Goals for Individuals and the Rules.

Relation with ECG

The Economy for the Common Good (ECG, originally “Gemeinwohl-Ökonomie”) has some links with this document. After the first version (12/12/2020) was written, a talk by Christian Felber of ECG inspired updates to this document. In ECG, the primary goal of all economic activity is the good of the people and the environment. The Hypotheses given above largely correspond with that. See also

en.wikipedia.org/wiki/Economy_for_the_Common_Good and ecogood.org. ECG defines CGP, the “Common Good Product” is a measurement how good an entity (citizen, company, organization) contributes to the ECG goal, so the good of the people and the environment. If the Hypotheses of the “AIdeal Society” become true,

- the “good of the people” will be “high”, in the sense that Individuals will have Abundance, there’s not much divergence in Abundance, most Individuals stay alive for quite some time and they procreate,
- and also, the “good of the environment” will be “high”, in the sense that there will be limited waste (only a limited number of Resources are destroyed), there is quite a variety in Sorts and they change once in a while, there’s quite a variety in Talents and they change once in a while,
- and the combination of this is sustainable, in the sense that the number of Individuals, Resources, Talents, Sorts and so on in society on average remains the same or slowly increases.

Note that the AIdeal Society itself does not have a goal, but when the Hypotheses come true, the goal of ECG “sort of” is achieved. Moreover, trade between Individuals becomes or looks “ethical” (opposite to “free trade” in the context of a capitalist economy). In ECG, taxes are lower when one contributes more to the goals of ECG and this leads to behavior that is more aligned with ECG goals. In AIdeal Society there is no money, so there also is no tax, but if the Hypotheses become true, the ECG goals will still be achieved.

Wellbeing

ECG is among others based on Aristotele’s view of the “well-being”, as in living well in happiness in accordance with the fundamental principles of philosophical ethics. This wellbeing is not a Goal for Individuals in AIdeal Society, but if the Hypotheses become true, one could say (define) that wellbeing has become high, since Abundance is high (and there’s only little divergence). One could state that wellbeing *emerges* when the Hypotheses become true.

Technical implementation

On the programming environment

- I plan to build (program) the AIdeal Society using Visual Basic, so in an Object-Oriented way.
- Names of variables, constants, routines and so on have prefixes of one letter:
 - v variable = a value that can be changed
 - c constant = a value that is fixed (for the whole AIdeal Society)
 - a action = a procedure = do something
 - q question = a function that delivers a value
 - n name; e.g. {nJohn = 3}; default value: {cNobody = 0}
 - p parameter (of an “a” or “q”)

On randomness

- Many values are probabilities, e.g. 0.3 = 30%.
- Function qRandom (pProbability) delivers cYes or cNo, the probability on cYes is pProbability (so when pProbability = 80% = 0.8 then there’s a 80% chance that qRandom will deliver cYes)
- Function qRandomInput delivers a random percentage (0..1)., so qRandom (pProbability) = (qRandomInput < pProbability)
- Function qRandomFromRange (pMax) delivers randomly a number from 1 to pMax (integer)
- When there are multiple matches on a question (request), then one of them is chosen randomly, however, those with a higher prio will have a higher probability (this could e.g. be implemented with a vListOfOfferingIndividuals, with the IDs as content and multiple fields with the same ID when that ID has prio)

On Individuals

Resources and Talents are items in lists (arrays) that belong to an Individual. The Village contains a limited number of Individuals (the function qNumberOfIndividuals delivers that number). An Individual has (at least) the following attributes:

- vMyStatus (pID, pProperty) = a numerical value, whereby pProperty can be:
 - cAlive, then value = cYes or cNo or cNew, if cNo then this ‘soul’ can be reused after procreation (reincarnation); if cNew then this is the end of the list (when a new Individual is added, the one with the next ID will get cLiving = cNew)
 - cWillingnessToProcreate, then value = current probability
 - cDrive, then value = cSlow, cCalm, cAverage, cEnthusiast, cHotHead
 - cHealthStatus, then value = cHealthy, cSick
- vMyCharacter (pID, pTrait) = a numerical value, whereby pTrait can be:
 - cProbabilityThatIWillListenDuringProducing, then value = current probability that this Individual will listen (= react on a question) while it is Producing a new Resource
 - cProbabilityThatIWillListenDuringConsuming, then value = current probability that this Individual will listen (= react on a question) while it is Consuming a Resource

On the Village

The Village has the following attributes:

- cAverageNecessaryResourceConsumingTime = e.g. 20 seconds
- cAverageNiceResourceConsumingTime = e.g. 10 seconds
- cAverageLuxuriousResourceConsumingTime = e.g. 5 seconds
- cAverageProcreationTime = e.g. 80 seconds
- cDefaultSpreadAroundAverage = e.g. 0.2; many choices have some randomness, that is, a spread around an average value; an Individual with vMyStatus (pID, cDrive) = cAverage then the randomness will have a spread of 20% around the current value, with cHothead, this spread is larger

On Resources

- Resources have the following attributes:
 - vResource (pID, pProperty) = a numerical value, whereby pProperty can be
 - cType, then value = cNecessary, cNice, cLuxurious (e.g., bread, meat, wine)
 - cAverageConsumptionTime, then value is that time in seconds, e.g. 20 for cNecessary, 10 for cNice and 5 for cLuxurious
(consumption of Nice and Luxurious Resources is a ‘backup’ of consumption of Necessary Resources; one cannot live on Nice and Luxurious Resources, one needs Necessary Resources)
 - cAverageProductionTime, then value is that time in seconds, e.g. 15 for cNecessary, 20 for cNice and 25 for cLuxurious
(the fact that Nice and Luxurious Resources take more time to produce, corresponds with their scarcity)
 - cAverageTalentLearningTime, then the value is the time it takes to educate this Talent (learning and teaching is done at the same time and thus takes the same amount of time), e.g. 20 for cNecessary, 25 for cNice and 30 for cLuxurious
(typically a bit more than regular production time)
- handing over Resources (after a question-answer-match session) is done via aHandoverResource (pFromID, pToID)

On Communication

- part of communication is RequestProcessing
- part of communication are series of activities and some of these series may not be interrupted, that is, they will have to be done ‘in the same second’; it might be necessary to use ‘semaphores’ to prevent parallel threads (in the runtime environment) to interrupt

On Names

- vName (pID, pType) = a character string;
 - pID = the ID of the Individual or Resource (a positive number);
 - pType = cIndividual or cResource
- qNewName (pType) = a function that generates a new name, and while doing so, it checks whether it already exists

Alternative solutions

Solutions that were not chosen:

- there are no central lists of requests and offerings;
 - this would imply some central control or dependency, whereas the intention is that all Individuals can act independently;
 - moreover, it would imply that some requests or offerings can exist for quite some time, which would imply that after a long time, it would be logical that the Individual “gives up”, that is, revokes the request/offering
- when offering, there are no lists of things that are requested or offered,
 - it could thus be that nobody is willing to accept the offer – next time better
- when requesting, there is not much choice, one simply has to accept what is offered,
 - it could thus be that the offered thing turns out to be not useful – next time better;
 - as a consequence, society does not focus on ‘the needs of the many’, in the sense that the probability increases when something is requested a lot lately – instead, it simply depends on who is offering things at a given moment
- when going for procreation, there is no ‘in the mood’ – when there is a match, that is, when there are two Individuals that both decided that they wish to procreate and they find each other, then procreation is initiated (if ‘only if in the mood’ were added, this simply would reduce the probability that procreation is initiated, and this does not seem to add anything for society as a whole);
 - one could interpret this as ‘procreation is a very luxurious thing, it is better than Luxurious Resources’

Alternative society models

Capitalism

- The current AIdeal Society does not have money and does not have competition. Resources and Talents could be given a value, that is, it is worth an amount of money, and Individuals could be given a wallet with some money in it. Moreover, a Goal could be added, 'maximize your wallet balance', and this Goal could even replace the existing Goals, or supersede them. The hypothesis is that this will result in a capitalist society.

(Primitive) Communism, Marxism

- In the current AIdeal Society, an Individual has a Stack, a set of Resources that it owns. When this is abolished, then there's no property anymore, all Resources can be used freely by all Individuals. Consequences are, among others:
 - Handover of Resources is not necessary anymore, which in turn greatly reduces the necessity of communication.
 - There will be a 'VillageStack', containing all available Resources.
 - The number of Goals is reduced.
 - Individuals can still improve, in the sense that the VillageStack will also contain Nice and Luxurious Resources, which can freely be taken by Individuals, which improves their wellbeing and effectively the society can improve.

Discussion and contact

I very much would like to discuss all of this. Please feel free to contact me:
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