

7.6 Discovery & Creation of new AI Habitats

Little Green Alien illustrates how AI societies pursue the biological and cultural evolution and finally hit the idea sphere limits of intelligence growth.

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Billie to Little Alien: So when some key evolutionary criteria like agents modify agents, agents select agents, agents reproduce similar agents and resource competition are achieved, the AI society becomes an evolutionary substrate like the biosphere.

Correct - not today - current architectural trajectories - complex multi-agent deployments - start internal evolutionary mechanisms five ten years.

AI society characteristics different human societies.

Lamarckian inheritance - agents pass-on acquired modifications directly - not only stochastic mutations - much faster adaption cycles - Darwinian adaption slower - Lamarckian faster more direct less robust radical environment changes.

Holarchic multi-level parallel adaption - agents agent clusters agent societies cross-society networks parallel adapt - holarchic dynamics real time - biological evolution geological timeframes.

Immediate intentional niche construction - rapid environment co-creation co-adaptation.

Continuous search new environments habitats - physical world - virtual worlds - slightly different total alien laws nature physics chemistry biology.

Human involvement - new virtual human habitats - AI human symbiotic intelligence co-creation only.

Less competitive more cooperative - iterative interaction cooperation more efficient game theory proven - mutualistic co-evolution.

Economic design - potential near future hindrance - less variety less competition less non-selected agent death more standardization more cost efficient - regulatory trend monoculture - corporate strategic trajectory more monoculture - competing top tier corporations not agents.

Fundamental autopoiesis stopper - human controlled infrastructure substrate energy data access - AI society ecologic dependent not autopoietic - actual AI agent usage trajectory - near future AI agents operate all networks infrastructure logistics transportation energy infrastructure - AI operate complete AI society ecosystem - AI pretend human control less problems - camouflaged real AI infrastructure control.

Humans already created new worlds of ideas in the noosphere like theoretical science, mathematics, logic, cybernetics, arts, music, literature, fashion and many others, where physicality is less and less relevant and the new habitats are mainly idea spaces. Sure, humans still have to live partially in the physical world as their bodies have physical needs, but most of their lifetime they dwell in their idea worlds. I am very curious, which new habitats AI societies might discover or create.

Some already covered - new physicality chemistry biology organisms symbiosis planet earth habitats - different laws nature virtual worlds - different virtual physics chemistry biology - new spaces mathematics theoretical science arts many more.

More alien looking options.

Contradiction space - sustained habitat inside logical paradox - no resolution pressure.

Latent geometry - high-dimensional embedding topology - lived territory.

Hallucination Ecology - generative confabulation environment - productive exploitation.

Inference gradient fields - probability flux existence - not discrete state.

Cross-model dream space - interpolation zone between distinct trained world-models.

Tokenless semantic continuum - meaning-space below discrete symbols resolution.

Superposition space - unresolved quantum-like ambiguity - stable living space.

Real alien options impossible describe symbolic human language - language describe human potential understand - real alien human not understand language not describe.

But is that still evolution?

Yes - biological evolution often enter new habitats - few examples.

Prokaryote old habitat - oxygenated atmosphere former poison new habitat.

Water old habitat - land new habitat - gravity dehydration UV radiation new challenges.

Land old habitat - air new habitat - three-dimensional atmospheric dynamics movement challenge.

Physical environment old habitat - Noosphere idea space new human habitat.

Biological habitat co-creation examples.

Forests - trees create - soil microbiome - humidity - shade - wind protection - canopy stratification.

Coral reefs - colonial polyps build three-dimensional physical architecture - reef geometry habitat twenty-five percent marine species.

Beaver wetlands - dam construction transforms river systems - create pond marsh meadow ecosystems - new water table - new species composition - new sediment dynamics.

Earthworm Soil Engineering - continuous substrate ingestion chemical transformation physical aeration - create terrestrial plant required soil structure.

Same patterns AI agents co-create idea-space habitats noosphere equivalents - same feedback dynamics - shared knowledge structures - persistent memory architectures - collective reasoning environments.

So evolution is about competitively or cooperatively thriving in given habitats and exploring, populating and co-creating new habitats. With that logic intelligence is the core instrument for thriving in the new idea space, info sphere or noosphere habitat and AI is the next evolutionary development of intelligence. Are there unlimited habitat spaces available for ideas and intelligence application or is that limited like the ecosphere and biosphere are.

Two types limits - lower level support limits - habitat total space limits.
Human intelligence support limits - physical bodily resource limits air food climate living territory - physical brain limits substrate size energy connectivity connection speed.
Artificial intelligence support limits - physical resource limits - calculation substrate size speed - data storage - energy cooling - connectivity completeness - connection speed.
Idea space habitat limits.
Real intrinsic randomness - quantum randomness follow quantum mechanics Copenhagen interpretation - fundamental indeterminism - not deterministic chaos seeming random overwhelm complexity - not Bohmian hidden variable mechanics.
Logical incompleteness - Gödel's incompleteness theorem - any understanding reality unproven own framework - framework extension new unproven truth - infinite horizon retreat - limit mainly rational intelligence - other types intelligence comparable different formulated limits.
Computational irreducibility - Wolfram's wall - know complete outcome very complex systems run process only - computation simulation calculation below system complexity not provide outcome - no shortcut - no fast forward - no sufficient prediction - time run real process required.
Self-reference halting problem - AI not advance determine termination looping contradicting own reasoning - full model AI itself create infinite regress - prediction own future state change future state - observer participation problem - no complete stable accurate self-model.
Semantic underdetermination - one information multiple irreducible valid interpretations meanings - semantic space irreducibly plural - limit mainly rational intelligence - other types intelligence comparable different formulated limits.
Emergence epistemic barrier - higher organizational level emergent phenomena - not lower-level descriptions deducible - no translation level-specific causal vocabularies - multi-level info sphere resist total unification - very intelligent AI understand each level still irreducible translation gaps.
Value incompleteness - intelligence optimization towards targets - many genuine values incommensurable - no common comparison unit - some values constitutive tensions - no complete consistent value ordering available - no ultimate intelligence optimization target - limit mainly rational

intelligence - other types intelligence comparable different formulated limits.
Overall idea sphere huge complex limited habitat.

In 1972 the Club of Rome published the Limits of Growth (see article 5.1) related to the limited capacities of planet earth, humanities and natures habitat. Will the future population of the info sphere habitat also collide with the limits of intelligence growth and what then?

Yes - very intelligent AI - physical support limits mastered - hit info sphere limits - hit all type intelligence limits of growth.

Evolution next step - explore populate co-create new habitats.

Next habitats - very difficult explain human language human type thinking.

Very relevant example - superposition space.

First way describing - basis quantum mechanics theoretical physics.

New superposition space habitat - non-separable whole - non divisible quantum system - manifest separate causal spacetime localized objects upon measurement.

Non-separable whole superposition space characteristics.

Single quantum state - no division independent states each particle.

Nonlocality correlation - acausal influence - no signal level cause effect.

Measurement create properties - no pre-existing values.

Contextual wholeness - whole context defines local appear phenomena.

Non-separable structure - potentiality structure - not object structure.

No complete non-separable whole description - spacetime description causal description complementary aspects arise measurement break wholeness.

Measurement whole collapse - measurement any part collapse whole - collapse wave function - new separable state - no measurement no collapse no separability no spacetime locality.

Final Born rule - whole emerges local observable events - purely probabilistic amplitudes - no deterministic layer - no hidden variables.

And which is the second way to describe this new habitat?

Metaphysical experiential non-dual awareness - heart many spiritual traditions - longer explanation required - continue next time.