# Beyond Artificial Dreams,
# or There and Back Again

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**Abstract.** It is natural to dream Artificial Dreams. Are dreams of Artificial Intelligence artificial, or natural? What is the difference between artificial and natural? This difference is given by language and by what can be grasped with words. Good Old-Fashioned AI (GOFAI) cannot create anything natural, whereas emergent AI can. Emergent phenomena are natural. What is the difference between the roles of an AI engineer in GOFAI and in emergent AI?

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We dream of Artificial Intelligence. We either desire to create it, or to prove that it cannot be created—both because of our fear of mortality. We can deal with our mortality through beliefs in extraordinariness of our mind, consciousness, soul, through beliefs that our soul is somehow special, mystically driven, perhaps given by God. And the idea that AI could possibly achieve the same status by its earthly means, hence endanger our very essence, is so hostile that we simply have to attack it and prevent it from becoming real.

Or—we choose to trust in the craft of Hephaestus and believe that our ability to wield it shall eventually bring immortality to our earthly souls through technology, where AI alife and kicking would be the ultimate proof for us.

And so can we say that our Artificial Intelligence dreams are necessarily artificial? We think not. These dreams are as natural or artificial as our fears, language and culture. But how do we tell natural from artificial? And especially when speaking about fears, thoughts, language, culture?

Every thing, every object has its share of artificial and natural. There is no object purely natural because the objectness itself is the first trace of artificialisation. Understanding a fragment of reality as an object gives the first blow to its pure naturalness. Why? Because our mind engages with the world in an enactive feedback loop and builds around it a conceptual scaffolding. So—because of language. Thus *physis* flees when pursued by language. When Hermes showed the herb, drawing it from the ground to demonstrate its nature, its *physis*, the *physis* was already retreating. Yes, it was still somehow very strongly there, but no more in its pure form because artificiality has already crept in.

So what is it *natural*? Natural is that which defies being captured by language. Naturalness is everywhere where we feel tension between what we wanted to capture by our words and what we really captured. The more tension, the more naturalness we just encountered. Natural is something that we have to abstract away from so as to capture it by language.

On the other side, *artificial* is imposed by language. The artificial is a language abstraction drawn from the soil of *physis* of the world. The artificial is the means of our understanding of the world. However, not much more can be said about the artificial—the more we say about it, the more we feel that we are loosing its original concept. Therefore, the artificiality is very much natural—and so the artificial is the *natural* means of our understanding of the world.

Let's imagine an old rustic wooden table. What is artificial about it? That which we can grasp with words: shape and size of its geometrical idealisation, its weight, colour tone, purpose, or perhaps a description of the way it was made by a carpenter with an axe, a saw and a jack plane. However, we cannot describe how *exactly* it looks, how it feels when being touched, the exact look of its texture and wood structure, its smell.

Now let's imagine a three-legged white round plastic garden table. How to grasp it with words? Just take its designer's drawings and the description of technological aspects of its manufacturing and we have it right in front of us. We do not need to see and touch and feel this table to fully know *how* and *what* it really is—hence it is almost completely artificial. Yet even such an artificial thing has something natural about it: various scratches, defects, imperfections, shabbiness, but most importantly its inherent qualia potential that we exploit when we meet the table right here and now. All these aspects defy being captured by words, and therefore are natural.

Through language, we can build scaffolding around the world. We build it step by step, further and further. We know that if we build a floor of the scaffolding, we can add one more. Yet we know that we can never reach the

sky; we can never breach the horizon—it would always become the chasing of a rainbow. But—at least we know everything about this scaffolding. We know everything about the world it encompasses, as much as we can know about a landscape from the map: it is not for feasting one's eyes on the beatiful countryside, but for perfect orientation it is quite enough. The scaffolding itself is very much artificial and can be exemplified as a particular domain of a scientific discourse. Those things in the scaffolded world, for which "feasting one's eyes" equals "perfect orientation", are purely artificial. The rest is still more or less pertaining to *physis*—especially the world beyond the horizon where the scaffolding does not reach.

However, what if we insist on building the scaffolding even beyond the horizon? We can construct a machine that will do it for us. The machine will pile up the scaffolding floors on top of each other so quickly that it will soon reaches the sky and even further. Or instead of the machine, we ourselves can put many big prefabricated scaffoldings on top of each other, hence going not step by step but by big leaps. This would also build the scaffolding beyond the horizon. But what is such a new scaffolding for us? We still stand where we were before and we know that we will never be able to climb up to the top to see how it looks beyond the horizon. The scaffolding itself thus ceases to be lucid for us anymore and starts to defy being captured by a (meta-)language. *Physis* strikes back. *Physis* again finds its way to the part of the world from which it was expelled.

In other words, when complexity of artificially built systems reaches a level on which it becomes impossible to describe them in finite time—to capture them by language—then the wild and chaotic world takes back what belongs to it anyway and those systems start to become natural. Maybe not at once, but naturalness gradually starts to proliferate through them.

This is exactly the trick of emergentism and emergent phenomena. All we need is *quantity*. Quantity beyond the horizon. A system may consist of purely artificial, perfectly describable, human-made elements. One such an element can be captured by language. Two of them as well. Three, four, five, ... still can be captured by language, hence still artificial. However, if the system consists of 100 billion such mutually interacting elements, it definitely cannot be captured by language—perhaps it can be captured by that superhigh scaffolding, but such a scaffolding cannot be captured itself, so it makes no difference. It is just like in sorites, "little-by-little" paradoxes—only there is nothing paradoxical about it; it is simply the phenomenological givenness of how we perceive the world. *Physis* thus comes back to the system, no matter the artificial in its elements. To put it simply: emergent phenomena are natural, not artificial.

If Artificial Intelligence (now we mean it as a "scientific discipline") creates an "artificial" mind emerging on top of an immensely complex system, this mind will be natural! As natural as our minds are. However, it will not be the AI engineers who are the authors or creators of its naturalness, who shall take the credit for it. The naturalness will be given to it from the same source and by the same means as it is given to everything else in the world. The AI engineers only prepare a substrate for it and then try to build the scaffolding high enough to lure the emergence through it.

AI research and development is metaphorically a Kabbalistic practice of its kind. A group of more or less wise men mould very complex inanimate matter, following strong rules, rituals and traditions, and then they ritually dance around this matter and heap up myriads of words arranged into very sophisticated spells, hoping that these words will evoke the spirit of emergence which brings naturalness and life into the artificial and inanimate.

This is the reason why GOFAI—Good Old-Fashioned Artificial Intelligence, i.e. "classical" AI in its symbolic, top-down paradigm—has not achieved to create anything natural. In GOFAI, the AI engineer is also The Creator, the one who knows how the system works and what it is that makes it intelligent, thinking, with mind. Therefore, the whole system is in front of the horizon, fully within the lucid structure of the scaffolding built by the engineer, fully captured by language—hence fully artificial. A man can be a creator, but only of the artificial.

Emergent AI is in a very different situation: naturalness leaks into artificially created systems through their immense complexity that lies far beyond the horizon of what can be captured by language. However, the AI engineer has a fundamentally different role here: he is not The Creator anymore, and he remains only a priest, sage, shamman, theurgist. He knows what he did but he does not know what exactly it is that makes the system intelligent, aware, sentient, thinking.

So what are our Artificial Intelligence dreams about? If they are about us being The Creators of new *natural* artificial intelligence and minds, then we really dream Artificial Dreams. Yet it is natural to dream Artificial Dreams, and perhaps even pleasant, comforting and helpful. But when we wake up from the dreams, we should seriously start to think how to live with the natural machine intelligence that has already started to emerge on top of our technological artifacts.