Four

TUESDAY
On How to Get by Without Concepts

Again, the rabbit woke me up. I saw him standing in the doorway, just as agitated as the day before.
“Quick, quick. We are late for tea!”
I rubbed my eyes. For a few seconds, I was bewildered again. I did not know where I was, or what I was doing there.
“Quick, quick. It is getting late!”
I slowly remembered Monday’s scene with the rabbit, and the afternoon spent with Non-Professor O. I looked around the room, and found that nothing had changed, not even the light coming in through the window.
“What time is it?”
“What time do you think it is? It is tea time.”
“How can it be the same time as yesterday?”
“How do you think it is? By being the same time. I have never been asked such boring questions.”
I got up and went to the mirror. At least I was still wearing the same clothes as when I went to sleep.
“I am going.”
The rabbit closed the door and disappeared. I went and stood by the window. The town was still there. Still sleepy, I came down the stairs and went toward the terrace. I opened the door and there was Non-Professor O, just as I saw him the first time.
“Hello, Alice. I hope that you slept well.”
“Like a log. It seems like I slept all day, right?”
“I do not know.”
The same tray with tea and crackers and the fruit bowl with an apple were on the table. I was ravenously hungry and devoured the crackers in a second. Non-Professor O prepared his pipe. Fortunately, we did not say anything for a few minutes.
“I was thinking about what you told me yesterday, and then I remembered another of my perplexities.”
“Go ahead.”
“Not long ago I was out to dinner with Laura. We were talking about why she has ended up doing what her father said she would do, something she always rejected. I mentioned destiny, which brought on a long discussion. Laura asked me why I say that destiny gives us signs. And then I remembered the story. ‘There was a merchant in Baghdad who sent his servant to market to buy provi-
visions and in a little while the servant came back, white and trembling, and said, «Master, just now when I was in the market-place I was jostled by a woman in the crowd and when I turned I saw it was Death that jostled me. She looked at me and made a threatening gesture; now lend me your horse, and I will ride away from this city and avoid may fate. I will go to Samarra and there Death will not find me.» The merchant lent him his horse, and the servant mounted it, and he dug his spurs it its flanks and as fast as the horse could gallop he went. Then the merchant went down to the market-place and he saw me standing in the crowd, and he came to me and said, «why did you make a threatening gesture to my servant when you saw him this morning?» «That was not a threatening gesture, » I said, «it was only a start of surprise. I was astonished to see him in Baghdad, for I had an appointment with him tonight in Samarra.»”

He looked at me intently.

“I think I can also help you with that sort of perplexities.”

“I cannot just imagine how.”

“Be patient. We will start by remembering what a concept is in the human world.”

“A concept.”

“Yes. Among other things, without concepts the mental life of human beings would be chaotic, given that we would perceive each thing as unique. Every morning upon opening our eyes, we would be born into a new world from which we would have to learn everything. The alarm clock would not be an ‘alarm clock,’ but would be a new object that we would have to analyze, just as we would have to do with each thing that we found.”

“It would not be such a bad idea to forget that an alarm clock is an alarm clock. I do not like alarm clocks.”

“I do not either. In any case, without concepts, we would be overcome by the fantastic diversity of what we experience and we would be incapable of remembering even a fraction of what we see. Consequently, concepts function, in the first place, to categorize. When as human beings, for example, we go into a room, we experience each particular object as an example of a class, category, or concept that we already know and that we have recorded some place in our brain. If we come across a wooden object that is made up of a 80 by 140 centimeter board resting on four legs 75 centimeter high, our cognitive system probably activates the entry of the concept ‘table.’”

“Not always!”

“Say that it normally happens like that.”

“As you wish.”

“Let us suppose then that if we come across a wooden object that is made up of a board resting on four legs, our cognitive system probably activates the entry of the concept ‘table.’ And that is because our concept of ‘table’ allows us to identify the wooden object made up of a board and four legs as a ‘table.’
Therefore, among other things, the concept of ‘table’ assumes the knowledge of something about the properties of the entities that belong to the class of table, and whose properties can be used to categorize any new object that we see and that has a board and four legs as a ‘table.’ In addition, if we do not recognize a new object that we see as a table because, for example, it is made of plastic and is transparent, but we are told that it is a type of table, we can prove that the object has all or many of the properties of a table; that is, we can use those conditions that underlie our concept of table.”

He stopped for a moment.
“Okay?”
“More or less.”
“Secondly, concepts have the property of being able to be combined with each other. This allows expanding the catalogue of objects that can be categorized through the combination of existing concepts to provide for new concepts, such as the case of the concept of ‘table’ and that of ‘chair’ being able to be combined to give the concept of ‘furniture,’ because we identify the table as one of the objects that are found in any house.”

He stopped again.
“Do you follow me?”
“I think so.”
“Thirdly, concepts effectively relate to language, which makes possible communication among human beings. Thus, the sentences that we hear and say can be easily interpreted, given that the words correspond to concepts. Finally, concepts allow the cognitive system to reason about the world without the need to always have the world in front of it.”
“Okay, but where is this going?”
“I cannot find in Arkadia anything that corresponds to concepts. Although it may appear impossible to you, not only do Arkadians not know what a concept corresponds to, they have not even reached the point of defining any human concept, not even that of ‘table.’”
“How is that possible?”
“The distinguishing characteristic of the Arkadian kognitive structure as compared to that of human beings is that all their conceptual competence is slife-dependent. Sometimes the effects of this peculiarity are seen in situations that are not conceptual but that show how the kognitive system works. An example would be what happened to Katherine the other day, when she ran into someone she knew on the street, and even though she was aware that she knew this person, and that she saw him on a daily basis, she could not figure out who it was until he told her he was the local butcher. Seeing him somewhere other than in his usual place, dressed in a different way, had dispossessed him of the slife context necessary for her to recognize him.”
“But that is a problem of recognition, right?”
“Yes, but I only wanted to make the point that Arkadians do not have concepts as something separated from slifes. And recognition may be the easiest way for you to understand.”
“If you say so.”
“The rest of Katherine’s conceptual knowledge is just as slife-dependent. If she knows something, that something has a full name, first and last; that is, it is inscribed in a specific slife context.”
“Okay, but do Arkadians have conceptual capabilities or not?”
“In a way, they do. Arkadians seem to demonstrate a capability to think abstractly, to create a general idea from the occurrence of particular cases. So, Arkadians understand and can correctly apply the idea of cause and effect that they appear to have abstracted from the occurrence of specific events, like billiard balls hitting each other.”
“Can that capability be compared to what human beings show?”
“I would say that I consider Arkadians capable of attaining the same things that human beings have achieved, like understanding the basic forces of nature, discovering and manipulating their genetic code, and even visiting the moon.”
“Can Arkadians simulate human conceptual capabilities to that degree?”
“Let us say that if we were to examine the kognitive system of an adult Arkadian, and put it to the test, we would be surprised because we would see effects of categorization and conceptualization that are quite similar to those of human beings. Although the kognitive system is based on slifes, when an Arkadian has to show a degree of conceptual capability, the kognitive system is capable of making conceptual abilities emerge that are like human ones. Arkadians also tend to group elements together the way human beings do, like in natural classes —dog, elm tree— or elements classified by human beings as artifacts —hammer, computer. K has even observed connections between elements that human beings call ad hoc categories.”
“What?”
“Ad hoc categories.”
“I have heard you perfectly well, but I do not understand what you mean by ad hoc categories.”
“By ad hoc categories I mean categories that we create when the situation makes it necessary or desirable.”
“Like what?”
“Like things to take out of a burning house.”
“I see.”
“Additionally, Arkadians also group elements that have no easy theoretical description, like the ones that allow Katherine to say that a painting by some artist —Klee— has been influenced by another painter —Cézanne. When Katherine is told to differentiate between animals that give milk and those that do not, she is capable of activating her memories of cows, and when she is told to
activate animals that graze in the pastures of the island of Gor, she can activate memories that include cows and horses. If someone asks Katherine what the most typical bird is, her answer will be possibly similar to the human one. If she is asked to describe the characteristics of a car, her answer may also be similar to what human beings would say. Likewise, all Arkadians can, for example, identify conceptual properties in the specific memories of their slife background. They can tell you if a house has the property of having windows, and they can tell you that the Tyrolese house is the most typical.”

“How do you know that they do not have concepts?”

“Note that the burden of proof is on you. That is, it is you who would have to show that they have concepts, and that is something that nobody has been able to do, up to the present. Arkadian conceptual organization corresponds to slifes, and conceptual phenomena can be explained from the point of view of the slifes. The only thing that the kognitive system shows is that it is capable of conceptually organizing the world, that is, it can organize past slifes, or at least the ones that are presented to the subject in the psychology department laboratory, and it is done in such a way that these slifes can be extracted, divided, or sectioned as if they were being divided into categories. We could say that this conceptualization is only a mechanism used for the exploration of their slifes. Thanks to this mechanism, our average Arkadian can adapt to lab tests and respond effectively and according to any human conceptual theory. The most typical birds are the ones that appear the most frequently in the individual’s memograms and the ones that are associated most often with the word ‘bird.’ If at school Arkadians were shown representations of penguins instead of goldfinches, I can assure you that penguins would become the most typical bird. Similarly, the required characteristic of cars is that they have a motor, because all the cars that Arkadians have panceived have motors. Slife background allows Arkadians to fulfill, as I will explain later, the kognitive requirements that concepts are so useful for, without them having a conceptual structure like the human one. I would say, therefore, that Arkadian conceptual competence is one of conceptual effectiveness more than a conceptual structure.”

“What?”

“In Arkadia, the assessment of an individual’s conceptual competence would be based on whether the person can adequately discern an object, an apple, for example, or an attribute, its red color, and that the person knows, implicitly or explicitly, the conditions that make that concept what it is. With given circumstances, the Arkadian would show that the person does not confuse the object, and can make himself or herself understood, all of it without the concept. In other words, if the concept of ‘apple’ helps human beings to discriminate between apples and pears, it would be reasonable to expect that the slife background of Arkadians will allow them to discriminate between apples and pears. If the concept is also useful to the human in talking about the attributes of
apples, comparing them with pears, then it would also be reasonable to expect that an Arkadian can carry out the same activity. And so forth and so on.”

“Cannot you give me any proof of the absence of concepts?”

“Let us see. If instead of asking Katherine to distinguish between horses and cows, you ask her to distinguish qualities of cows from qualities of horses that have not appeared in her slifes, even though they are qualities of cows and horses, then Katherine would not be able to do it. Another way to reveal the slife structure would be to ask Katherine to describe different contents of her past. If this could be done with enough time and systematization, we would see that Katherine can describe many more and varied contents than concepts she can apply. However, you can ask Katherine to try to establish categorical divisions among different human concepts, and you will see that, with some exceptions, she will never be able to do so. So, for example, the different nuances that Katherine can find in the analysis of the human concept of ‘love’ correspond to a great many slifes. However, if we do an experiment in which we ask an Arkadian to define the five most important feelings, love will be one of them, and it will incorporate the characteristics belonging to what underlies the human concept of ‘love.’”

“I am not sure if I understand.”

“Look, when we ask a talented human tennis player how to serve the ball, two things may happen. If that player learned without receiving theoretical lessons on the game’s movement, the tennis player will probably respond, ‘I cannot explain the movement; I just do it.’ However, if we ask a tennis coach, we will probably hear the description of the movement divided into parts and times: ‘The first movement is throwing the ball up in the air, while we bend our legs, bring the arm and the racket back, and lean backwards. The second movement is leaning forward and moving the racket toward the ball, and finally the contact phase, when we use all our strength to send the arm forward....’ In short, when human beings want to, we are capable of breaking down the movement into parts and times, although the movement is not the articulation of parts and times but a coordinated and continuous action. The Arkadian kognitive system displays the same ability for conceptual segmentation ‘when necessary,’ even though it does not have a structure based on segments.”

I heard some barks in the distance, and a laughter, and then a ship siren. The town appeared to be living the same life as the day before. The light had the same degree of intensity, and the clouds were still battling against the wind. The church bells broke that sensation.

“How can the conceptual similarity between Arkadians and human beings be explained, then?”

“It will not be easy to explain it to you, but I will try. Remember, the kognitive system of Arkadians has two basic large capabilities. One of them corresponds to their competence in discerning a huge amount of contents, which
allows them to analyze a slife at a very subtle level. The other corresponds to
their capability to find similarities and likenesses and establish connections
between current slifes and past memograms, and among the elements of these
slifes with elements of other memograms. Yesterday, we dealt with their capabil­
ity to discern, and today we will talk about the other one. I will try to explain
how I believe that the absence of concepts in Arkadia is overcome.”

“Go right ahead.”

“Now you know that slifes are comprised of kontents, of all the elements
that the kognitive system of an individual notes, that these kontents have an
activity within the time limits of a slife, and that they are modeled by the same
system. I have also explained to you that the slifes leave imprints, dynamic
imprints that can associate with one another, and that are not representations or
copies of reality. Arkadians need no representations or copies. Their brains are
powerful enough to discriminate, without representations, cows from horses:
what they see as a cow is so particular that nothing, or very few things, could be
confounded with it.”

“That is what you say, at least.”

“Trust me. We have also seen that every slife, as insignificant as it may be,
is a particular slife, at least at the moment that it is recorded in the nervous
system. We said that in the first few years of life an extremely rich and varied
group of slifes is formed. During this critical period, an individual may have
thousands of slifes, and these are the ones that, in the long term, will support the
kognition and the life of that individual. From the moment of birth, and probably
even before, each Arkadian has had hundreds of thousands of new slifes that are
recorded individually. At the beginning, this is due to the circumstances, since
new slifes are constantly occurring: the baby hears its mother’s voice for the first
time, then it hears another voice and differentiates it, then a third voice is distin­
guished, more voices that start to be associated to each other, and the association
of similar things represents a slife in itself, and so forth and so on.”

“I still think that is too many slifes.”

“I understand that the magnitude of slifes that this implies would appear
impossible for one brain to take. Let us suppose, for example, that each slife lasts
five minutes, which is a lot. This would mean that in the first four years of life,
Katherine could have around two hundred fifty thousand slifes. However,
considering the design of the Arkadian brain, this phenomenon presents no
problem whatsoever. According to current research, the capability of the Arka­
dian central nervous system to record memograms is extremely high, and we
have no difficulty in thinking that they may have hundreds of thousands of
different memograms for each specific situation.”

“Can you prove that?”

“No, but indications exist. The capability to individualize slifes and to
remember them is extraordinary. Arkadians can remember instantly a particular
slife that took place sixty years ago, for example, their first sip of alcohol, without having to have remembered it ever before.”

“Do all slifes have the same importance?”

“No. As I earlier said, for some slifes is probably true that the Arkadian brain will need more activity than for others. However, all situations have the status of slife, regardless of how much cognitive, perceptual, or emotional effort is devoted to it, what time of life it takes place in, that day’s situation, or the degree of awareness involved.”

“So that brings us back to the problem that the Arkadian brain is packed with particular slifes, right?”

“No. As I pointed out yesterday, once the memograms are established, something strange happens. Upon having a new slife, the brain superimposes the kontents that shape that slife on those past kontents that have a degree of similarity, which we will talk more about later, and it disregards the differences in detail that are maintained in the original memogram. You could say that a kind of ‘confusion’ between current and past kontents takes place. Thanks to this confusion the life of an Arkadian is not an endless series of unique events, of particular slifes.”

“Confusion indicates poor functioning, doesn’t it?”

“No exactly. I call it confusion so that we can understand each other, but it is more like a ‘superimposition.’ Moreover, the poor functioning of this capability for confusion, that is, the inability to find similarities among kontents, has serious consequences, because it means that the Arkadian has to live in a different world every day. In fact, some Arkadians suffer from this inability to ‘confuse,’ and are thus able to tell about their kontents practically from slife to slife. This may appear like an advantage but it is not. These Arkadians show limited kognitive capabilities, because they are incapable of what we human beings call ‘generalizing.’”

“Very interesting.”

“But let us continue with the subject of ‘superimposition.’ Yesterday, I gave you the example of Katherine going up a flight of stairs. We said that when Katherine went up the stairs for the first time, the slife of climbing the first step was constituted as an original slife, just as the second step, and then the third, the fifth, until she got to the top of the stairs. But starting with step number 50, the kognitive system may begin to confuse the ‘going up steps’ kontents and that after a while Katherine will no longer differentiate between the twelfth time she climbed a step and the two hundred and twenty-fifth time, although she might between the first and the twelfth. As a result, a time comes when the kognitive system begins to superimpose the different kontents for going up steps, and will begin fusing them together to finally have only the ‘going up steps’ kontent or ‘steps.’ This process can be extended to all other slifes in the life of an individual.”
“And then?”

“When two slifes are comprised of similar elements, and we will have to clarify this concept more fully, the kognitive system tends to group them, to confuse them, to let the differences disappear. In other words, panception discerns, and memory confuses. The Arkadian brain is sharp when it comes to discerning kontents, but not sharp when it comes to remembering the distinction between two kontents that play a similar role in similar slifes. Two things can happen now. Similar kontents, although they are not the same, tend to be confused and therefore to superimpose one another. Slifes with similar kontents and associations also tend to superimpose each other. Looking at herself in the mirror after getting up in the morning is a slife for Katherine; however, it is so similar to the ones she has had every day that her brain confuses them. Once the kognitive system connects the slife to another one, the two are superimposed, they fuse, and thus become a single memogram.”

“Sounds fine to me.”

“From now on we will use the term konceptual connections for the network of connections that are established between the occurrences of particular kontents, and that are carried out based on panceptual similarities; that is, they include elements that in human terms are perceptual, emotional, and cognitive.”

“Examples, please.”

“Suppose that Katherine has a slife, let us say she sees a cow for the second time. As soon as Katherine sees the cow, her kognitive system establishes a connection with the kontent that shaped the slife of a few days before when she was walking through the countryside and saw a cow for the first time, including in that kontent all kinds of panceptual elements, from the color, the shape, the movements, even the emotional impact that the vision of this animal produced in her.”

“What does it explain the connections between ‘cows’ and not between ‘cows and horses?’”

“The truth is that no differences occur among the connections of the memories of many kontents that we human beings categorize as different. But more intense connections occur between the memories of particular kontents, and based only on this differential intensity it would be possible to speak of categories. All of Katherine’s memories of ‘cows’ will present more intense connections among each other than those memories of ‘horses’ and ‘cows.’ However, until some particular figure/ground configuration appears, which I will explain later, only a continuum of magnitude will occur among connections, and not a critical change. In fact, a common tendency among Arkadian children is to extend associations to memories of kontents that do not belong to the category that we as human beings would assign them. This is what happens when Arkadian children say that the moon is a ball, or that horses are dogs. The ambiguities, the mistakes, the excessive generalizations are natural phenomena derived
from the very nature of konceptual connections.”

“Then it must be very difficult for an Arkadian to find out what makes something similar, right?”

“Right. For Arkadians themselves, appreciating the incredible amount of konceptual connections that a given kontent has is not an easy task. But just because this network is not apparent and cannot be seen does not mean it is not there. Curiously enough, it is this inability to appreciate the amazing capability of the kognitive system to sustain, manipulate, and organize the large number of memograms and konceptual connections among them that makes Arkadians think they have the same conceptual structure as human beings do. But the great wealth of konceptual connections makes it impossible for Arkadians to analyze the ease with which, for example, a child creates connections between the kontents that appear in memograms. These connections go beyond what can be analyzed by looking only at what an Arkadian child does, and this is especially so if the analysis takes place in the confined world of lab experiments.”

“How many types of connections can be established?”

“No limit exists. In each slife, we can discern a multitude of different kontents, and the memory of each one of them can establish associations with many other elements of other memograms. The number of these konceptual structures is enormous; it is much higher than the number of human concepts. For each Arkadian, hundreds of thousands of slifes and of particular memories of kontents, and of konceptual connections occur. For each memogram numerous connections with other memograms can exist, so if we expand that to all possible memograms, the number can reach astronomical heights. The slife of being, for example, ‘in danger,’ like being intimidated by a threatening dog, can connect with other slifes experienced by that Arkadian that have the same kontent of ‘danger,’ like being intimidated by a threatening professor, but in addition, the kontent ‘dog’ that appears in the slife can connect to other memories of dogs that appear in other situations. Also, as I said yesterday, a great deal of kontents, and therefore of connections, are established between unconscious kontents, of which we still have only a small catalogue.”

“What would you say is the main difference as compared to human beings?”

“That the kognitive system can use any type of kontent to establish connections, not just what ‘appears’ to be the same, in the human sense, that is, taking into account only perceptual aspects. Arkadians do not just say that a specific cow looks like another cow because it has ‘four legs’ and it is ‘white with black spots.’ Something more exists in the connection between cows than the simple perceptual kontent understood from the human perspective. Emotional elements are involved, like the kontent that K would characterize as ‘completely-inoffensive-animal’ and even cognitive elements, like the one K would say corresponds to ‘apparently-stupid-animal.’ The connection is based on the
integration of several panceptual kontents.”

“Then what are the criteria used to determine that ‘the next day’s cow’ is similar to ‘the preceding day’s cow?’”

“I wish I could answer you. Proving what I am saying would require having a clear idea of what ‘the same as’ means; that is, I should have an Arkadian theory of similarity. But I do not. However, keep in mind that even we human beings lack a robust theory on what similarity means. We can say few things though, such as we will never discover the way the kognitive system establishes connections if we base our approach only on the perceptual analysis of the world’s objects or properties. We need the other kontents as well.”

“You cannot say any more than that?”

“Knowing what Arkadian similarity consists of is difficult, since the kognitive system fuses the panceptual elements, as it compares them. I will give you an example. On some occasions, Arkadians may find a likeness between two family members, so they may say that Erik is ‘the spitting image of his father,’ although Erik cannot see the likeness anywhere, and we have a hard time finding ‘objective’ data for two faces that establishes the likeness. Furthermore, to drive the point home, sometimes Arkadians will say things like ‘Churchill looks like a bulldog.’ The analysis of how these likenesses are established goes beyond what we human beings would call the perceptual characteristics of both elements. Something in the slife of a father and son makes them similar to Arkadians which goes beyond the simple perceptual analysis of the kontents of each individual. The emotional sensations produced, for example, also have to be kept in mind, as well as their relationship with the surrounding, and lots of other potentially relevant characteristics, because these are discerned by the kognitive system in each slife of a father and son, or of Churchill and a bulldog. A detailed analysis of them would take a long time. The same thing happens when an Arkadian says, ‘Nikole has a thread of a voice,’ and the friends who are listening understand instantly. The sensation provoked in an Arkadian by a quiet voice with a high pitch is spontaneously connected with a thread, which is fine and delicate. However, the connection is not made only because of an analysis of the perceptual characteristics; a lot of other kontents have to be added as well, and many of these, remember, are unconscious. Among other things, the complexity of similarity based on panception has the result of it being difficult for Arkadians to say how two objects are different, even when they are convinced that they are different, such as in the case of ‘a threatening look’ and ‘a friendly look.’ In the same way, for them is easy to say if they are similar when many kontents are combined at the same time —deciding if Churchill looks like a bulldog— but saying if two objects are the same as regards one particular kontent is quite difficult —saying if Churchill and a bulldog have the same eyes. In short, the similarity connection is made by the kognitive system based on general panceptual characteristics, including perceptual, emotional, and cognitive kontents. So
it is the fusion of these contents, and in order to characterize them, we need the kognitive system and its architecture, as well as the object or property."

“To say that what makes Erik look like his father depends on the kognitive system, on the slife, and on the context in which it is inscribed, is not saying a lot.”

“You are right. I hope that I will be able to answer you more fully before too long. In the meantime, the only definition that I have available is that what is similar is what Arkadians find similar. Even though this seems circular, I believe that for now we can work with this hypothesis. Human beings also have to trust other people to know some things, like knowing which particular people are considered beautiful, since we still do not have objective and absolute criteria for beauty, although we have worked out a few. Remember the example of the panception of color. The color that an Arkadian panceives is not a property of the object to which the color is attributed; objects do not have the colors that Arkadians, or human beings, attribute to them. Color, as content, comes from the relationship between the kognitive system and the object. As a result, the solution as to why an Arkadian finds an orange and the sun at dawn to be similar cannot come from an analysis of only the objects or the individuals, but of the relationship of these objects with the kognitive system. The making of connections of similarity between a father and son is ‘the’ consequence of the whole kognitive system being activated and of the contrast between the current slife and the past slifes. A perceptual analysis of the content will not give us the answer. At any event, I am convinced that when the basic operations of kognitive architecture are discovered, the problem of similarity will be resolved. So, until that moment comes, let us leave aside the analysis of what it is that makes today’s cow similar to yesterday’s cow, while taking into account that K has observed an astonishing regularity in the way in which the kognitive system establishes connections: all Arkadians find the same similarities between fathers and sons, and all Arkadians agree that today’s cow is similar to yesterday’s cow.”

“You are letting me down.”

“If you press me, I could say that the Arkadian capability for finding similarity is characterized by being dynamic, exhaustive, and contextual. It is dynamic because the type of similarity applied changes from one stage of kognitive development to another. In other words, it is influenced by age, slife, the surroundings, the method of presentation and even the emotional state of the individual. It is exhaustive, because the panception of similarity tends to use multiple sources of information. And it is contextual because the way in which associations are established between two objects can be based on different elements, depending on what the purpose is.”

Non-Professor O stopped talking for a minute. I took the opportunity to stand up and stretch my legs. The smell of orange blossom was slightly stronger.
than it had been the day before.

“I do not understand how to differentiate between the slife in which Katherine sees an apple without knowing that it is an apple, another one in which Katherine sees the apple as an apple, and a third in which she sees the apple and sees it as a kind of fruit.”

“In the first slife you describe, Katherine has not yet established a konzeptual connection among the memories of apple, which is what she experiences in the second, while in the third, she has established a figure/ground in which the figure is the konzeptual connection of ‘apple’ and the ground is the konzeptual connection of ‘fruit.’”

“I do not know. It appears strange to me that all the conceptual capabilities take place in slifes. Do not they think abstractly about any element, outside of the slife?”

“No. The connections exist only between kontents, which are prisoners of the slifes, are completely absorbed in them, and cannot be separated from their participation in those slifes. When Erik sees his mother pour water into a glass, the memogram derived from this slife establishes ‘pouring water’ as the figure, and ‘kitchen’ as the ground. Later, Erik may see his mother ladling soup into a bowl, and still later putting silverware into a drawer. After these situations, the kognitive system establishes a connection among the figures of these three memograms, in such a way that Erik can panceive something similar among the actions, although he is not in a position to say what it is. Then K can say that the system has established a konzeptual connection for the relationship kontents/container.”

“Is not that an element extracted from the slife?”

“No. The konzeptual connection does not exist independently of the kontents anchored in the slife, in that it is not a new type of entity. In the connections among memories of cows there is no more than the traces left in the kognitive system of the cows Katherine has experienced in the past. It is not a representation of the ‘cow’ that is connected, nor is it a mental scheme, nor an image; it is the panceptual residue that, if it is repeated, establishes a connection with the original.”

“Not even in the case of more abstract concepts like ‘freedom?’”

“No. These human concepts in Arkadia are anchored in slifes that have transferred a particular signifikance from ordinary slifes, acquired during spontaneous interaction with the world, constrained by the kognitive system, and by the social and physical environment.”

“Could you explain that a little better?”

“Let us suppose that Katherine is crazy about a television program that is on at seven in the evening. But her mother only lets her watch the program once in a while because, according to her, that time of day should be homework time. Katherine does not agree with this rule, and jumps at the chance to watch the
program whenever she can. One day her parents have to go away on a trip for a week and they leave Katherine under her grandmother’s care, who is a lot more easy-going than her mother. When Katherine gets home from school the first day she has the slife of ‘turning on the television without being told not to.’ So this is her first slife of ‘freedom.’ From then on Katherine will have many other slifes of freedom that will be characterized thanks to that first slife in which the figure/ground was ‘being able to do something without being stopped by anybody.’ So, the day that Katherine hears on the television that the people of Pulanda are demanding ‘freedom’ for the island, her kognitive system will transfer that first personal slife in order to understand what is happening in Pulanda, and this transfer will be characterized with the signifikance ‘Pulanda wants to be able to do something without being stopped by anybody.’ In short, Katherine understands how the people of Pulanda ‘feel’ and ‘what they want’ and this is because she transferred her slife in the matter. Without that transfer, Katherine will not understand what is happening in Pulanda.”

“Are these transfers frequent?”

“Yes, and they work for all kinds of what we human beings consider to be abstract concepts, like the hierarchical relationships between concepts, such as those that allow human beings to know that a poodle is a dog, that a dog is a mammal, and that a mammal is an animal. Again, Arkadians manage this by taking into account that konceptual connections can become a figure/ground of a slife. For this to happen, first we need the Arkadian to have experienced slifes whose figure/ground is one of ‘relatedness’ or ‘part/whole’ and which are in turn specific figures/grounds. This figure/ground can then help in understanding that a ‘dog’ is an ‘animal’ as it is transferred to a slife in which the figure ‘dog’ is located next to a ground with the konceptual connection of ‘animal.’ The fact that they are necessary obviously has disadvantages.”

“Like what?”

“Establishing this type of hierarchical relationship between konceptual connections in specific slifes means that the relationships do not have to preserve all the properties of relatedness, as the one established by human beings does. For this reason, a lot of incongruous situations can occur, that do not respect the logical structures of hierarchical relationships. So, an Arkadian child can say that a ‘dog’ is not an ‘animal,’ even though the same child is capable of spontaneously grouping dogs with cats, horses, and other animals. Another consequence is that, even though no limit exists to an Arkadian’s ability to establish the relationship of parts/whole between konceptual connections, they do display difficulty in detecting the relationships of inclusion in classes that we human beings would call theoretical, such as that dogs are animals. This is not a limitation in their logic; it just means that this type of relationship is poorly represented in slifes. Arkadians have no problem discerning the connection that links a poodle to a German shepherd and not to a cat, because they have seen plenty
of poodles and German shepherds, and because these two contents share some crucial panconceptual elements, such as that they bark, they are expressive, loyal, affectionate, etc. However, the concept ‘animal’ corresponds to a weak conceptual connection: Katherine does not have many memories of that content, and therefore putting it into the context of a life is not an easy task. The associations imposed from the human perspective, like ‘Arkadians and horses are animals,’ can reorganize the lifefaces, but their life strength is much less than the usual contents.”

“Let us take a break.”

“Fine. I will take the opportunity to show you another Arkadian specialty.”

Non-Professor O disappeared from the terrace, returning shortly with an unlabeled bottle. He opened it, splashed some liquid on his hand, spread it around and then gave me his hand.

“Smell it.”

It appeared ordinary enough.

“Arkadian perfume. What is special about it?”

“You will see later.”

“If you say so.”

“Shall we continue?”

“Yes. I am still not quite sure that what you have told me is enough to explain how Katherine can think about tables, horses, love, or freedom. When I talk about tables, I am talking about tables, and when I talk about horses, I am talking about horses, and when I talk about numbers, I am talking about numbers. Concepts are things that are fixed, stable, coherent....”

“True, we cannot say that thinking ‘with’ a concept is the same thing than thinking ‘about’ a concept. To say so would be confounding a tool for thought—the specific memories of the concept— with an object of thought—the meaning of the concept. One thing is to have formed, thanks to life, a fluid set of similar objects, such as feeling that all spherical leather objects have some likeness to one another, and quite another thing is the concept of ball. The concept has to correspond to units of thought, stable generalities that have the potential to become real through language.”

“That is what I say.”

“But in Arkadia things do not necessarily happen like that. The Arkadians have a brain that structures their past in such a way that it allows them to adequately fulfill the conceptual requirements of their environment.”

“Wait a minute. The human concept of cause and effect is pretty abstract.”

“You are partly right. The concept of cause and effect cannot be understood in human beings as something concrete because the concept is an abstraction, and not the summary of a great variety of situations. However, in Arkadia, the wealth of the cause and effect relationship can be established in the different figures/grounds of the lifefaces of an individual. The way in which konceptual
connections allow for a generalization, in human terms, is possible thanks to the occurrence of a specific figure/ground, like the cause and effect in a game of pool. It can connect with other memories, like the slife in which a ball broke a window pane, or the slife of eating and not feeling hungry any more. In the long run, the great wealth of all these slifes allows the connection to be emphasized around what they share, the ‘panceptual weight’ of cause and effect that we are talking about, and therefore it will always carry with it those properties that appear to distinguish the human concept of cause and effect, namely, contiguity and temporal sequence.”

“But try as I might, I cannot imagine what kind of ‘panceptual weight’ would explain that a chair and a table are considered ‘furniture.’”

“Again, you are partly right. For human beings, in order to categorize a chair and a table as ‘furniture,’ we have to have more information than what comes from the similarity between a chair and a table. Categorizing and finding things to be similar are two separate processes. Categorization appears to depend more on theory, to be more motivated by the purposes of the individual as regards the objects, and it involves properties that are not obtained from the similarities among individualities. However, it is not that way in Arkadia. What makes an Arkadian believe that non-slife information is in the category of ‘furniture’ is that the connection between a chair and a table goes beyond what is perceptually similar, in the human sense, but not beyond what is panceively similar. The relationship between the types of furniture is not a visual similarity, but a functional similarity, and this is also included in the panception of a kontent.”

“How can everything that defines a concept be included in a slife? The concept of ‘apple’ includes, for example, the characteristic that the apple is ‘round’ and that it ‘satisfies hunger,’ but it would be hard to incorporate that into a slife, wouldn’t it?”

“Two ways exist to guarantee that the occurrence of kontents in slifes fulfills what we could call the properties of a human concept. The first, and the most common, is that the memories carry with them these properties, whatever the nature of the properties may be.”

“How is that possible?”

“I will explain. Let us suppose that Erik has an intense konceptual connection among his memories of apples, and he has konceptual connections among all round objects. The konceptual connection between the different round objects is present in all the memories of apples. This is the reason behind the idea that the konceptual connection of apple carries with it, and preserves the property of ‘roundness’ without having it as specific data. Among the consequences of this is that if Erik is asked to separate round objects from non-round objects, he will always put apples in the category of round objects. We would say that a human ‘has the implicit information that apples are round.’ Extending the case, we can
say that more or less the same thing happens with all the other conceptual properties.”

“And the second?”

“The second way in which conceptual properties are preserved in the structures of the memograms is if the property, the attribute, has been converted into a signifikance, that is, if it has become the focus in a figure/ground. If, for example, the konceptual connection that joins all round objects is focused on as a figure, with the konceptual connection of apple as ground, then the property, the attribute will become the signifikance. We would say that a human ‘has explicitly conceived that apples are round.’”

“So no difference exists between the category of, to give a wild example, ‘all cows that I have seen on Saturday and that are more than two years old’ and ‘all the cows that I have seen?’”

“No, that is not it either. You are right to point out that even in Arkadia not all konceptual connections have the same ‘value.’ Some konceptual connections, like the network of associations between the memories of ‘cow’ can work like an element, like a unit, an atom, at least potentially. Their preeminence, caused by repetition of the connection, allows the structure to present special conceptual properties. The connection joining all the occurrences of a kontent make it possible that when one of them is activated, all of them are activated and act in coordination, as if they were a context, a ground upon which a new slife can be based. The robust and intense connection among the particular memories of ‘cow’ means that, among other things, the kognitive system can discriminate cows from other animals as if it were a fixed element, and guide its activity in the world and its perception according to, approximately, the basic rules of human conceptualization and categorization. This type of connection underlies what we have called the kontent of a slife.”

“You are telling me this now!”

“Patience, because this is what allows us to indicate that every Arkadian contains a type of structure that can function as a nuclear element. When we say that the kontent ‘house,’ or ‘red’ or ‘relatedness’ appears in a slife, we suppose that the Arkadian kognitive system has established a connection among the individual memories of slifes that stays active. And this connection has properties that are superimposed, at least partially, on the properties of the human concepts of ‘house,’ ‘red,’ or ‘relatedness.’”

“Is not that a concept?”

“No, because they are konceptual connections like any other, except that they can function as units in a dispositional way.”

“Dispositional?”

“By dispositional I mean that property that is manifested only under certain circumstances. You see, sugar has the dispositional ability to dissolve in water, it being dispositional because it is an ability manifested only under circum-
stances, when it is added to a glass of water and shaken. Similarly, the kontent ‘cow’ is a dispositional entity, since its reality is not different from that of other connections that also exist between elements of a memogram, such as the connection between ‘tables’ and ‘cows.’ Both tables and cows can be seen as having four legs and a body, although the connection between instances of cows works partially like a conceptual structure of the human type because it facilitates discrimination between cows and horses. This dispositional entity has, therefore, kognitive power, because each time that a memory of kontent is activated, all the other memories connected to it are also activated. This way it can guide the perception and the action of the system with a categorical knowledge. However, this knowledge will always be anchored in the slifes that gave rise to these konceptual connections.”

“Do not they have any rules that help them define the borders of a concept when they make it emerge, as you say?”

“Let us see what happens with the concept of ‘gift.’ Just like a human, an Arkadian can discern what objects can be considered appropriate birthday gifts. Choosing an appropriate gift depends on several variables, such as:

(1) The age, sex, interests, and socioeconomic status of the recipient.
(2) The relationship between the giver and the recipient (parent-child, employee-boss, student-professor, friends, lovers, ex-lovers, acquaintances, etc.).
(3) The reason for the gift (birthday, graduation, reconciliation, Christmas, gratitude, etc.).
(4) The appropriate amount of money to spend.

So, when Katherine has to choose a gift for her ten-year-old neighbor, she must keep these variables in mind, and more. That is how Katherine knows that a machine gun, a car, a cheese sandwich, a potato, a copy of the Yellow Pages, and lingerie would be inappropriate gifts. But the Arkadian community has never made explicit rules about these variables, and children are not taught more or less general rules about it either, but Arkadians do learn to give appropriate gifts. No specific rules exist; instead, the konceptual connections of ‘gift,’ of all the gifts Katherine has seen being given and accepted, work as a unit to allow her to discern the right objects and times.”

“So what criteria does the kognitive system follow to consider something to be a kontent?”

“They are many and varied.”

“Are they similar to the human ones?”

“Sometimes they are and sometimes they are not. In general, we can extract criteria with which panception appears to adapt itself to a concept. Allow me to cite a case, the concept that we human beings call ‘object.’”
“Go right ahead.”

“In Arkadia, people have studied what all the ‘things’ that we human beings call ‘object’ have in common with each other, and they have reached the conclusion that, in general, the objects correspond to the ‘things’ that are panceived according to three conditions. One of them is the ‘condition of contact,’ by which the surfaces of an object move together. A car can be panceived as an object by an Arkadian, in that all its surfaces move at the same time. But a pack of wolves is not panceived as an object because the surfaces of each wolf do not always move jointly with those of its fellow wolves. The second condition is ‘cohesion,’ by which all objects are connected because their surfaces are always connected. A ball is connected with everything that we human beings call ‘object’ because when it is hit, all of its particles follow the same trajectory. But a stream of water is not connected with other objects because it can be broken down into thousands of drops that each follow their path, and the surfaces of the droplets are only connected temporarily in the stream. Lastly we have the ‘condition of continuity,’ by which an Arkadian konceptually connects everything that describes only one trajectory in space and time. This means that the trajectory of an object, for example, a moving train, cannot be occupied by another object, such as a car going through the moving train.”

“So?”

“Adding up these principles allows us to define the basis of the connection established by Arkadians among those things that human beings call ‘objects.’ These principles do not define what a human philosopher would consider the sufficient and necessary conditions to characterize an object as ‘object.’ Because of this, not everything that the Arkadian notes as ‘object’ will be an object, but at least these principles allow for the identification, the isolation of objects as ‘objects’ in a large percentage of the cases, without having to carry out complicated operations of conceptual analysis. These conditions depend on the characteristics of the kontent, of the kognitive architecture of the Arkadian brain, and the slifes accumulated by the individual over time.”

“Are not these like the conditions of a human concept?”

“They do not appear so. In human beings some conditions would allow us to say whether an individual has or does not have a concept. This is true, among other reasons, because a concept can be said to be defined independently of a specific individual and that person’s slife. A concept is something that human beings can share regardless of the life that each one has lived, of the objects seen. Quite few people have shared the same slifes with tables, nor have they seen the same tables, yet in spite of that, they all have the same concept of ‘table,’ whatever that concept may be. This is why people can understand each other. Also, they have those concepts that seem completely independent of slife, such as the concept of cause and effect.”

“Does not language play a role in Arkadian conceptual capabilities?”
"The appearance of language is crucial in the evolution of the kognitive system, in that it allows most children to manipulate the konceptual connections. After the first six months of life, the Arkadian child incorporates linguistic forms that anchor slifes and konceptual connections. Thanks to words, the child can fix connections more intensely than others, which will end up making them special. Many kontents are established thanks to the social environment reinforcing the connections among the memories of a category through language. Thus, the connections of the ‘cow’ kontents were reinforced in Katherine by the community, her mother, her friends, so that in the long run they became much stronger than the connections that link ‘cows’ with ‘horses.’ Each time that Katherine’s mother says ‘cow’ when she sees or says something about a cow and not a horse, Katherine is incited to look for something among the connections of ‘cows’ that fix those connections and not others. This does not mean that Katherine will stop confounding ‘cows’ and ‘horses,’ since the connections of similarity do not depend on language but on the connection between the kontents ‘cow’ and those of ‘horse.’ Moreover, this process does not guarantee that all the konceptual connections are connected with words, because many connections correspond to kontents of which the Arkadian is unaware, like the connection that exists among objects that are at floor level, that are paid a lot of attention, and those that are above their heads, and are barely noticed. This is why the best place to hide in Arkadia is in the branches of a tree and not behind a bush. In any case, as I told you, the kontents that an Arkadian has experienced may be identified, or named, or they may not be, but the number of unnamed connections is fantastically higher than the ones that do become named, and therefore recognized as what human beings call ‘concepts.’ Konceptual connections are much more numerous than the names that the Arkadians have to name them. As a result, the number of konceptual connections derived from panceptual similarities among elements of the slifes is much higher than the words that an Arkadian will learn."

A cat appeared on the balustrade out of nowhere. It looked in our direction, and then just ignored us while wrapping its tail around itself.

"I cannot understand something. If each child depends on personal experiences to make connections, then every Arkadian child will likely have konceptual connections that are completely different from those of his or her classmates, right?"

"Two independent factors combine and guarantee that konceptual connections are shared among Arkadians. First, we have the brain’s architecture. The kognitive system restricts, by way of its structure, the establishment of types of konceptual connections. Thus, Arkadians tend to unify the ‘continuity’ type, the ‘cohesion’ type, and the ‘contact’ type. Second, the Arkadians have a great slife wealth; they have a lot of slifes that are rich and varied, which brings about a good degree of homogenization among the different Arkadians. Because Arkadians interact with the same objects, with other people from Arkadia, and that
they do more or less the same things, after being in Arkadia awhile, a child ends up having about the same number of slifes with equivalent signifikance. As figure 2 illustrates, all children end up seeing the same number of chairs, which they have looked at from all possible angles, and which they have used for many different purposes. Similarly, it does not matter that at the beginning Katherine has fixed a cause and effect relationship in the form of one billiard ball hitting another, because Katherine will have experienced several situations to which she has transferred this type of relationship that will be superimposed on many that Erik has had, who started by fixing the relationship of cause and effect in his backyard, when he broke a window with a rock. Even if only these two slifes determined the transferable signifikance, all the particularities of that konceptual connection, its consequences, its formal implications, will be the same as, or else quite similar to, the ones that may have been formed by another Arkadian in a past slife. Therefore, when both of them light up the slifes in which the figure/ground is the relationship that K characterizes as cause and effect, the conceptual properties that are derived from them will be the same, as will be the capability to transfer this figure/ground to new situations. Thanks to these two
factors, the architecture of the kognitive system, and the great slife wealth that the Arkadians possess, we can understand how Arkadians share the same conceptual understanding.”

“Can this be proven in children?”

“It is difficult. To start with, the Arkadian kognitive system does not develop in stages, as has been postulated for the human cognitive system, in such a way that we can check to see if the child has already gone through this or that stage. No specific milestones exist at which point the system begins to work in a completely different way and which deserves special attention. As the slifes do not follow a specific outline, they are liable to have an infinite number of contextualities, and the kognitive evolution of the child is quite variable; stages of general learning are not observed. Nobody directs the life of Arkadians to the point that they are forced to have or not have slifes. The real konceptual milestones that the child reaches are always in reference to specific slifes, in which types of kontents are discerned that become a figure/ground, and that later can be transferred to other slifes or can modify past memograms. No rules decide which konceptual connections will be established first, and which ones will come later, although sequences do respect the laws of logic, such as hierarchy: to experience the konceptual connection of ‘cardinal point’ the Arkadians have to have first experienced ‘east-west.’ Another interesting aspect is that, although no fundamental difference occurs between what is specific and what is abstract, from the human point of view can be said that an evolution occurs, and that Arkadian children seem to begin with knowledge of the physical world, and only then do they move on to understand terms like ‘justice,’ ‘nation,’ or ‘peace.’ However, a lot of evidence exists that a sense of the abstract is being applied to many kontents that appear early, such as the particle ‘because’ that Arkadian two-year-olds use quite easily. True, after the age of two, children emphasize, reinforce, thanks to the appearance of language, those konceptual connections that are superimposed on human concepts, that is, those that refer to objects, properties, and specific actions. However, reinforcing these connections does not mean that the earlier ones no longer exist, that they play no role, or that new ones are not created.”

I heard the shrieks of children, as if they were all leaving some place at the same time. But I could not see them.

“Okay, then how and when can we say that an Arkadian has something equivalent to the human concept of ‘cause and effect’?”

“I am still not sure about how it can be determined that an Arkadian is competent in a given concept, that is, I do not know what would indicate that a person carries out kognitive activities as if he or she had the concept. No clear criteria exist concerning this point. Some depend on what an Arkadian can do and on other occasions on how the situation is apprehended, or how it is reasoned. My characterization of concept in Arkadia is of the pragmatic type. In this
sense, we could say that an Arkadian is conceptually, in the human sense, competent if the structures of the slifes and the associations among them allow the Arkadian to sufficiently fulfill the requirements that a conceptual structure fulfills in human beings.”

“At least a moment must exist when we could say that Katherine knows what a table is?”

“More or less.”

“What do you mean by that?”

“You will agree that in human beings intuitively assessing whether someone is competent in a given concept or not is certainly possible.”

“I do not know what to tell you.”

“Let us say that we will not be satisfied until the konceptual connections fulfill what we could call the ‘conceptual conditions’ of a concept. And we will say that the conceptual conditions are the conditions that, when they are described by human beings, correspond to the properties of one concept, and only that concept. For the time being, it will be enough to suppose that the conceptual conditions are the sufficient and necessary conditions that K has about that concept, and therefore we will call them:

K Conditions: The sufficient and necessary conditions of a human concept.

In this sense, what allows us to say with certainty that the Arkadian displays conceptual competence is if that person fulfills what I am going to call:

Conceptual Competence: A konceptual connection is conceptually competent when it ‘satisficingly’ fulfills the K Conditions of a concept.

“Oh, good heavens.”

“Let us look at what all this means, starting with the term ‘satisficing.’ Consider the example of a soccer player. When a forward shoots the ball toward the goal, the goalkeeper needs to predict the movement of the ball in order to stop it. To correctly calculate this trajectory, the Arkadian kognitive system would need to apply a branch of physics called dynamics. Dynamic information describes the forces that cause the movement or that act on objects with mass, taking into account variables, like the mass of the object, in our case the ball, its force, velocity, etc. However, the kognitive system of the Arkadians apparently does not calculate the trajectory of objects according to dynamics, since it does not take magnitudes such as mass or force into account. Research carried out up to the present indicates that the kognitive system is only sensitive to magnitudes described by another area of physics: kinetics. Kinetic information describes the pure movement of the bodies without taking into account their mass, only the position, velocity, and the acceleration of the object.”
“And?”

“The problem is that kinetics is less effective than dynamics for predicting the trajectory of objects with mass. Experiments show that Arkadians make a lot of mistakes when predicting the trajectory of objects with mass. However, in daily life, in soccer games, they manage to get by quite well in spite of the mistakes. Not only do they stop goals, they also are capable of moving around without running into each other, and of anticipating the trajectories of players or balls in order to intercept, follow, or avoid them, which is useful for soccer players, or for anybody who wants to avoid being run over by a car.”

“Why does the kognitive system use such an imperfect system?”

“Kinetic computation is much simpler than dynamic computation. By adopting kinetics, the kognitive system saves itself from having to use a much more complicated system. And the mistakes made are usually small and solvable with the constant update of information provided by the senses. What I mean is, the kognitive system may make a small mistake in predicting the trajectory of a ball as it leaves the forward’s foot, but the sense of sight allows for the almost immediate update of the real trajectory. Therefore, we can say that when we look at the capability of Arkadians to deal with objects in real situations, like a football match, they adapt themselves effectively, although not completely, to the real movement of the object. This incomplete but satisfactory effectiveness is what I mean by ‘satisficing.’ In other words, the kognitive system fulfills the K conditions of the trajectory of objects satisficingly, predicting the object’s trajectory pretty well, and avoiding, for example, that the other team scores against them. If we generalize this point, we can say that conceptual competence of Arkadians does not strictly correspond to knowing the K conditions that make the concept of ‘object with mass’ the human concept of, ‘object with mass.’ No Arkadian has the sufficient and necessary conditions of, ‘object with mass,’ but as long as the condition of competence is fulfilled, ‘stopping goals and not being run over,’ they can probably get by in the world without too much difficulty.”

“When is something satisficing?”

“A given konceptual connection is satisficing when it effectively contributes to the survival, reproduction, or communication of the Arkadian. The konceptual connection among ‘stairs’ is satisficing if it is not confounded with that of ‘cliff,’ when that of ‘apple’ is not confounded with ‘spider,’ and if two lovers understand each other when they say, ‘Let us make love.’”

“Is anything ever satisficing enough?”

“The concept of satisficing is a continuous and dynamic one. For one thing, an Arkadian fulfills the condition of competence in a partial way; that is, not a point at which it is fulfilled exists, while it was not fulfilled previously. Instead, normally, as the person grows, he or she fulfills it a little bit more each day. In other words, Arkadians do not acquire conceptual competence for ‘apple,’ ‘freedom,’ or ‘love’ all of a sudden. If that were the case, they would have to be
based on some kind of rules that are acquired, but, as we have seen, konceptual connections are entities that connect memories immersed in a magma of slifes. What helps a konceptual connection get closer to conceptual competence is what we could call competitiveness among konceptual connections:

*Satisficing Condition:* A konceptual connection is optimized, it gets closer to K conditions, if and only if it has konceptual competitiveness.

In other words, a konceptual connection only needs to do a better job at fulfilling a conceptual competence when conceptual interference occurs, such as when Katherine eats a pear because she confounded it with an apple, and she realizes that she hates pears. At that moment, her kognitive system becomes activated, and it looks for new kontents that will allow her to distinguish better between apples and pears.”

“What advantages does this satisficing have?”

“A satisficing fulfillment provides many advantages. I will give you an analogy from the human world: chess. In a game of chess, no player, no matter how good, can examine all the possible moves, because it would take forever to decide on one. Keep in mind that in a game, choosing the ideal move would involve evaluating something like $10^{120}$ combinations, which is beyond the capability of any human being, or any Arkadian. Players can only generate and examine a small number of possible moves, deciding on one as soon as they find one that is satisfactory, which is the move that appears the best out of the subset that has been evaluated. Since the player cannot examine every single outcome, a chess move is not ideal, but satisficing.”

Non-Professor O stopped talking. I got up. The cat had disappeared. Swallows were above me, having a bite to eat.

“Is everything you have mentioned so far enough to explain the conceptual competence of the Arkadians?”

“No. We have only explained a part of their conceptual competence.”

“I am not surprised. What is supposedly left to be explained?”

“The conceptual capability of Arkadians in those human concepts that cannot be conceived by the kognitive system.”

“What are you referring to?”

“I am referring to concepts like ‘atom,’ ‘multiplication,’ or ‘Big Bang.’ Even though these concepts cannot be conceived by the kognitive system, Arkadians can use these concepts just like human beings do.”

“So how do you explain this ability?”

“Through a type of slife that I will call *surrogate* slifes.”

“Here we go again....”

“I will explain. Some human concepts cannot be anchored in slifes, and therefore Arkadians cannot understand them. No way exists for an Arkadian to
understand the concept of ‘infinite,’ or the amount, the numerosity, represented by the number 125, and this is because no slifes that anchor these kontents. Learning the concept of the amount of ‘125’ for an Arkadian is different from learning ‘red,’ ‘love,’ ‘contents/container,’ or ‘shoe.’ The slifes involving the kontents and konceptual connections of ‘red,’ ‘love,’ and ‘shoe’ have, let us say, a direct slife dimension of the kontents, while ‘infinite’ does not. However, thanks to the amazing plasticity of kognition, not every kontent has to be anchored in direct slifes. In these cases, the network of konceptual connections does not contain the impact of the kontent; instead, it evokes a set of slifes that guarantee the K conditions for the kontent. The concept understood from the human point of view is delegated in these slifes.”

“If you cannot explain this a little better....”

“I will give you an example that will help you understand the idea. I am sure you have measured an object, say, a table, using the length of your hand, right?”

“Yes.”

“When we measure an object with our hands and say that it is ‘50 by 30 inches’ we have delegated to our hands the function of measuring, even though they are not a measuring stick, nor is measuring one of their uses. However, since ‘we know that a hand measures more or less 6 inches’ we can use our hands as a surrogate measuring stick. Arkadians are competent in many non-slife concepts because they have a set of hand-slifes in which non-slife concepts have been delegated, making them surrogate slifes.”

“How is that possible?”

“Say we are talking about the concept ‘atom.’ Many Arkadians know that an atom is made up of electrons, neutrons, and other particles, and that hydrogen and oxygen are atoms. Since panceiving an atom directly is not possible, the Arkadian requires another type of slife to be able to conceive ‘atom.’ Let us suppose, just to make things simple, that in secondary school the teacher has shown Erik a plastic mechanics model that has colored balls representing the protons, and other balls representing the neutrons, and little ones going around the nucleus that represent the electrons. Fine, this model in the class slife is panceived as a plastic model, and I will not go into why and how Erik panceives it as a plastic model, because I would have to talk about a million previous slifes. Let us just say therefore that Erik panceives it as a plastic model and that is what becomes the figure of this figure/ground. Now, the plastic model is incorporated into the class slife as figure, and the word ‘atom’ as ground. Starting at that moment, Erik’s kognitive system has available to it a slife that will be connected to all the other slifes of ‘atom.’ That slife will serve, for example, as another part of the kontent ‘molecule.’ So, for example, perhaps in the future more connections will be added with slifes in which ‘valences,’ ‘chemical notations,’ and ‘H₂O’ are mentioned. However, Erik will not derive mental outlines or abstrac-
tions from these specific slifes; instead, the kognitive system will use the model-slife as a surrogate slife of the concept ‘atom.’ True, the surrogate slife will not always be able to possess some kind of ‘similarity,’ such as may exist, however distantly, between a model and a real atom.”

“I do not know if I understand the stuff about the surrogate slifes. Could you give me another example?”

“Let us take the case of arithmetic. The slifes that allow an Arkadian to be competent in arithmetic are not truly arithmetic slifes, but they are slifes whose kontents have been delegated arithmetical concepts.”

“How?”

“Remember, the numbers 1, 2, 3, 4, 5, 6 correspond in the human realm to ‘numerosity of sets.’ When we say that 25 students are in a class, the ‘25’ refers to a property of that class, what we could call ‘numerosity 25,’ which is the same property that a drawer with 25 pieces of silverware in it or a solar system with 25 planets, or any other set of 25 things. Just as we can say that all the students in the world have the property of having sometime gone to class, we can say that all the sets of 25 elements in the universe have the property of having a numerosity of 25. For each number, obviously, we have a different numerosity. If Arkadians did not know how to count, they could not differentiate a group of 25 things from one of 26 things, and that is why they cannot conceive the kontent ‘set of 25 things.’”

“But they do know how to count.”

“Yes, but what I want you to understand is that counting is ‘the’ resource that the Arkadians have to make up for their inability to conceive the numerosity of sets of more than five or six things. Arkadians share this inability with ordinary animals. A dog, a bird, or even a primate does not differentiate between a set of 25 things and another one of 26. Groups of 25 things do not have anything special that groups of 26 do not have. Similarly, Arkadians do not have the concept of ‘sets of 25 things.’ When they have a set of 25 things in front of them, they do not feel the ‘twenty-fiveness’ of the set, while if they have a bunch of apples before them, they can conceive that they are in the presence of apples and not of pears. Because they can count, they can identify that this group has 25 things, but they cannot conceive that it has 25 things. They need an instrument, counting, to be able to identify this fact, but they do not need an instrument to conceive that it is a group of ‘apples’ or ‘horses.’ When an Arkadian says, ‘in this class are 25 students,’ that individual does not have the concept of 25, because he or she has no slifes that allow for that kontent to be conceived.”

“You said that they can conceive groups of a few things, right?”

“Yes. The kognitive system is only capable of experiencing kontents of low numerosities. An Arkadian can distinguish between sets of 1, 2, 3, and even 4 things. That is, Arkadians can attribute the numerosity of ‘1,’ ‘2,’ and ‘3’ to any group of one, two, or three objects. If you offer an Arkadian child three pieces
of candy in one hand, and two in the other hand, and you say to choose a hand, the child will go straight to the hand with three pieces of candy, without counting. If you offer five candies in one hand and six in the other, the child will have to count. Therefore, Arkadians can be said to have slifes characterized as slifes of the numerosity ‘1,’ ‘2,’ or ‘3’ in the sense that the figure/ground is the act of focusing on the property of numerosity ‘1,’ ‘2,’ and ‘3.’ With groups of four or more objects, the Arkadian can only roughly distinguish the difference between two sets, and can say things like ‘more than ten objects,’ or ‘around 20 objects,’ or ‘many objects.’ These slifes are, however, considerably less rich in examples and much more contextualized.”

“So where is the problem?”

“The problem is that in order to carry out arithmetical operations, Arkadians need to operate with amounts, with numerosity. Therefore, since they do not conceive of amounts higher than four or five, when an Arkadian child does the following math problem:

\[256 + 345 + 456 = 1,057\]

the child is not carrying out an arithmetical operation in the true sense. In order to have the concept of addition, the Arkadians should be capable of understanding the numerosity ‘256’ and add it to the others. But, as I just told you, Arkadians are incapable of having the concept of ‘256.’ In the same way, when Arkadians say, ‘We have 12 classes with 25 students, therefore we have 300 students,’ they do not have the concept of multiplication, nor do they have the concept of division.”

“How do they manage to carry out and understand arithmetic problems?”

“Thanks to surrogate slifes. In the specific case of arithmetic, we have several types of surrogate slifes that make use of different abilities and instruments. First is the ability to count. Thanks to the ability to count, establishing any numerosity is possible. The higher it is, the longer it will take. Also, adding or subtracting on your fingers ends up being complicated, and multiplying and dividing is not possible. For that reason, the following instruments are the most important for competence in arithmetic: language and Arabic notation. These instruments allow for the delegation to numerals of amounts that cannot be conceived slifely. Thus, when ‘125’ is written, said, or heard, an Arkadian does not have to understand the concept of, ‘125.’ The concept is delegated to the numeral. Finally, another type of surrogate arithmetical slife exists, the operation-slifes, which are the slifes that record, among other things, the multiplication tables, or special algorithms, such as that of addition. Remembering, without having to conceive, that ‘three times four equals twelve’ or that while adding up the first column:
‘we carry the one’ is a great advantage when it comes to doing mathematical operations. Language, algorithms, paper, pencil, and other structures, allow for the creation of slifes that delegate real operations. In short, the slifes that enable Katherine to say something correct about ‘125’ or ‘atom’ are slifes that do not contain or result from the impact of these kontents, but are complex slifes structured around slifes that incorporate or satisfy the slifes that guarantee the K conditions for that concept.”

“Do not Arkadians distinguish between the two types of slife?”

“No, because the surrogate slifes end up being transparent; the Arkadian is so unaware of their use that it appears they are not different from the genuine slifes. Just like when someone learns to play chess by learning the rules of movement for the different pieces and then forgets the rules, even though they are still being applied, the use of words like ‘125’ or ‘atom’ has taken the same path.”

“If these surrogate slifes work so well, why are not all concepts delegated?”

“Because Arkadians would not understand anything about the world. Also, disadvantages exist with the kontents ‘125’ or ‘atom’ being anchored in slifes that guarantee the K conditions, and not the direct impact of these kontents. The most important of these disadvantages is that often errors in the application of the kontents occur; sometimes the Arkadians will take one of the slifes that corresponds to another term. The slifes for the term ‘125’ are quite similar to those for ‘126’ and even for ‘156,’ as are the slifes for 4x7 and 5x7, and confounding them is easy. Arkadians can easily confound ‘atom’ and ‘molecule,’ especially if they have not enriched their original memograms with lots of additional memograms, which is what physicists and chemists do. They can also confound ‘X is 166,000 light years away from Earth’ with ‘X is 166,000,000 light years away from Earth’ since the panception of 166,000 light years is quite similar to that of 166,000,000 light years, even though it is a colossal difference as a property of the universe. Kontents that are delegated tend to suffer a lot more application errors.”

“Do not these errors occur with the genuine slifes?”

“No, these problems do not arise in the case of genuine slifes, since an Arkadian will unlikely confound the kontent ‘love’ with that of ‘fear’ by mixing up the discrimination of some slife having the property ‘love’ with another containing ‘fear.’ That would be the situation in which Katherine is being held up by a robber, and she does not know whether to ‘declare her love to the robbers’ or ‘run away from them.’ In these cases, the konceptual connections used by Arkadians do have a basic and fundamental occurrence in the slife back-
ground.”

“Do not surrogate slifes have any advantages?”

“Yes. Surrogate slifes are much more flexible; their uses can be varied in a much simpler way than for original slifes. This has happened in the history of Arkadian culture, since some of these slifes have changed their guaranteeing the K conditions for some kontents when something new has been learned about the original kontents. This occurred in Arkadian science when it was discovered that a person with epilepsy is not possessed by the devil, or when it was discovered that atoms are composed of elements more fundamental than protons and neutrons. In all of these cases, the slife can vary its conditions of application, since the memogram in which the kontent is inscribed can vary its structure without any problems.”

He stopped talking.

“Are we doing okay?”

“I do not know what to tell you. Before that darn sun goes down and puts an end to the afternoon, and keeping in mind how different the Arkadians appear to be from human beings, I would like you to tell me how the conceptual capability of Arkadians should be studied.”

“In my opinion, since the elegance of the conceptual structure does not correspond to the true nature of Arkadian kognition, what we should do is beginning an area of research that dissects the slifes to the most minute detail, examines what, of those slifes, the Arkadian identifies, selects, how it is organized, what kind of associations are established with other slifes, when and how transfers are carried out. No doubt about it, this is an arduous task, and what lies ahead is the detailed study of kontents, of the structure of slifes, which will take us a long time.”

At that instant, as if it had been listening to me, the last golden rays of the sun disappeared from the terrace. I looked at the horizon, and saw the lingering glow of the sun.

“Time to go to bed!”

“But I have a lot of things to ask you.”

“As I told you yesterday, we will have time to talk about whatever you want. You have been able to ask a lot of things today, haven’t you?”

“Yes, I have, but I have other questions to ask you.”

“Tomorrow.”

“Tomorrow, tomorrow. Always tomorrow!”

“You have to be patient.”

“Give me one reason to be patient.”

“Have you ever been to an art gallery?”

“Yes, I have.”

“Do you think that you were able to appreciate the last paintings of your visit in the same way that you appreciated the first ones?”
“You have a point there.”

We stood up. I got to my room just slightly more alert than the day before. I went to the window. From there I could see the same part of town as from the terrace. As if by magic, it appeared that even the dogs had gone to sleep. I sat on the bed and tried to think about everything that Non-Professor O had told me.