

June 17

I woke up late. I think I spent the night at the control-room again, but I am not sure. All I remember, was that Gaya was in the dream. I had her on my mind as I awoke, and was afraid I would miss her at breakfast. I got fully dressed, so I wouldn't have to return to the room before the walk, and hurried to the dining room. Gaya showed up five minutes after me. I said: "What a coincidence! I just came in myself!". Gaya smiled, as usual: "It is not a coincidence. I asked Dekker to call me down when you arrive." Diplomatically, I tried to retrieve some information: "What do you usually do when you are here? don't you have plans?" What I meant to ask, of course, was how did she make herself so available to someone she just met. "Nothing. I walk, I talk to people." "Do you have many friends around here, besides Mr. Dekker?" "I know quite a few people that live here, if that is what you mean. But I have no plans. Don't worry, you are not imposing."

We had breakfast and went for a walk in Edam's quiet streets. I let her lead, as I assumed she knew her way much better than I. We were walking along the centuries-old traditional Dutch houses, with their large windows facing the street. Many of the houses had fat, lazy cats stretched on the window sill. In one window, there was a porcelain cat in a sitting position, and next to it, a real live cat, in the exact same position. They looked like twins. We stopped and looked at the two almost identical cats, when the real cat quickly jumped down, and quickly came outside. The cat started humming, rubbing itself against Gaya's legs. She knelt and gently patted the animal. A moment later, the cat left and resumed its position at the window, next to its porcelain twin. I spoke³¹: "Can you repeat this trick with the **other** cat?" Gaya smiled, but said nothing.

³¹ Both speakers, S1 and S2, assume **each other** to possess a special, objective subdomain. It **should** be exactly identical for both, but there is no way of telling, except by **speaking** to each other: By constructing sentences (*wff*)s, transmitting them to the other speaker, and receiving *wff*s in return. What they are trying to speak **about**, is the properties which belong to their shared subdomain. However, they often find themselves discussing properties that do **not** exist, do **not** belong in the subdomain. they devise a special syntax, specifically designed for this purpose. First, they call the properties that **exist** (in the objective subdomain) **objects**, and the properties that do not exist, **predicates**. They also invent a special notation, they call **predicate logic**⁵⁷. This new, advanced, sophisticated notation, is based on the (primitively understood) distinction between properties that exist (objects) and properties that do not (predicates). It is based on the primitive notion of **participation** (In the objective subdomain). This newly devised notation is applied every time they wish to discuss inexistent properties. **(1)** The *wff* $(x \supset P)$ becomes $(x)Px$: **Every property** (*entailing*) x (*namely, every object*), **entails the predicate P**. **(2)** when S1 wants to convey the fact that a predicate P is **not** entailed by all objects (that there **is** at least one object that does **not** entail P), he constructs (instead of $\sim(x \supset P)$) a *wff* that is the negation of the previous one: $\sim(x)Px$. This is the **denial** of (1), but at the same time, it is an **affirmation** of existence: Of the existence of **some** object (included in x), that does not include P. Taken as an affirmation of existence of some (unspecified) object, an alternative notation is used: $(\exists x)\sim Px$: **There exists some property** (*included in*) x , **an object**, which is **not included by** (*does not entail*) P. Naturally, $\sim(x)Px \equiv (\exists x)\sim Px$. In the next case **(3)**, $x \supset \sim P$ (or $P \supset \sim x$) turns into $(x)\sim Px$: The (inexistent) predicate P entails a contradiction ($\sim x$). But this is also a **denial** of existence: of **any** object that entails P: $\sim(\exists x)Px$. Again, naturally, $\sim(\exists x)Px \equiv (x)\sim Px$. Finally, **(4)** $\sim(x \supset \sim P)$ (or $\sim(P \supset \sim x)$) is an affirmation of existence of some object, which includes P: $(\exists x)Px$.

This concludes the basic transformation from propositional calculus to predicate logic, based on an *apriori* understanding of the property of **participation in the** (presupposed) **objective domain**. Let me summarize:

Many people in Edam have cats (I had two, temporarily), but **every** house in Edam has beautiful plants, everywhere: In the window, in and around the house. We passed several plant shops, with an incredible assortment of plants. I said to Gaya: The people here have a thing with plants; almost an obsession, don't you think?" "You make it sound **wrong**," she answered. "On the contrary. I think it is wonderful. But there are many beautiful things. why **plants**?" Gaya smiled. "Because they **live**!" "You mean they are more beautiful because they live?" "No," she answered. "Plastic or silk flowers can be no less beautiful. Plants **live**, so they need **care**. It is the **care** that plants require, that makes them so appealing to humans; To **some** humans." "Plants and cats" said I. "And kids" added Gaya with a smile. "Do you have kids?" "Three daughters" I said proudly. "How nice!" She seemed delighted to hear that. I changed the subject: "You are a very interesting person", I said courageously. "Believe me, everyone is interesting. Unfortunately, hardly anyone knows this fact. I think **you** are interesting. Tell me about yourself." I said: "But it has to be a fair exchange. You will tell me about **yourself**". "Naturally," she said. "It does not work any other way. You will tell me about your world, and I will tell you about mine." I hesitated, but encouraged by her completely uninhibited behavior, I asked if I could ask her a personal question. "But of course!" She said. "How come you never tell Mr. Dekker how long you are staying?" "Because I never know whom I will meet. My plans are flexible. I always stay as long as it is **interesting**. and it always is. Sometimes for a long time. When it is over, I know it is over. Never before. But don't worry about Mr. Dekker. I always pay for the room until the next guest occupies it. He is just carrying on."

Predicate Logic Propositional calc.

$$\begin{aligned}
 Pa &\Leftrightarrow a \supset P \\
 (x)Px &\Leftrightarrow x \supset P \\
 (\exists x)Px &\Leftrightarrow \sim(x \supset \sim P) \\
 (x)(Px \supset Gx) &\Leftrightarrow x \supset (P \supset G) \\
 (x)\sim(Px \supset Gx) &\Leftrightarrow x \supset \sim(P \supset G) \\
 (\exists x)(Px \supset Gx) &\Leftrightarrow \sim[x \supset \sim(P \supset G)] \\
 (\exists x)\sim(Px \supset Gx) &\Leftrightarrow \sim[x \supset (P \supset G)] \\
 (x)(y)Pxy &\Leftrightarrow x \supset (y \supset P) \\
 (x)\sim(y)Pxy &\Leftrightarrow x \supset \sim(y \supset P) \\
 (\exists x)(y)Pxy &\Leftrightarrow \sim[x \supset \sim(y \supset P)] \\
 (\exists x)\sim(y)Pxy &\Leftrightarrow \sim[x \supset (y \supset P)] \\
 (y)(\exists x)Pxy &\Leftrightarrow y \supset \sim(x \supset \sim P) \\
 (y)\sim(\exists x)Pxy &\Leftrightarrow y \supset (x \supset \sim P)
 \end{aligned}$$

Equipped with the newly acquired notion of **existence**, our two speakers and their (mutually assumed) shared objective subdomain may proceed to invent **mathematics**. All they need, is an agreed (shared, objective) **object** hereafter called **the empty set**. The empty set **exists**.⁵⁸ The primitive relation prevailing between properties (objects and predicates alike) provide the notion of **membership**, which, together with another presupposed existent property, the **object** 'the empty set', is enough to construct the whole realm of **objective** mathematics. This view supports a Platonic, **realistic**⁵⁹ view of mathematical entities. (Whereas in the terminology employed here, 'objective' is synonymous with 'existent'.) This discussion will be developed further in footnote 42.

I returned to my footnotes. I find it hard to concentrate. What an amazing lady! I try to focus on *radical translation* and *existence*. Down there, I already have two **speakers** in place, in the process of creating a **joint world**. In a way, that is what Gaya had offered to do with me. I don't know much about her, aside from my **presuppositions**. What would be the best approach to **really** understand her? A standard subject-predicate natural language hardly seems **enough**.^o I skipped lunch. I knew that if I looked for Gaya, she would be there, and my footnotes would suffer. Maybe it will be a good idea to tell her about the thesis. Maybe she will surprise me again, and I will combine business with pleasure. We'll see. Still, it can wait until dinner. Apparently, she's not going anywhere.

I spent the rest of the day in my room. The dining room was packed because of the weekend, and Gaya said she had to spend the evening with some local friends (She **did** have friends in Edam). Mr. Dekker was relieved to find out that I have no objection to having dinner served in my room. I finished footnote 31 and printed today's crop. Only three pages! at this rate I'll need three **months** in Edam, not three weeks! While getting ready to go to sleep (don't forget to brush your gums!), I was planning tomorrow's conversation with Gaya. Even if nothing significant happens with my footnotes, at least Gaya might provide me with an interesting story to tell. If she allows herself to be pushy, so can I: Tomorrow I will ask her about her religious, or metaphysical inclination. I wonder if she is a Buddhist or something. I know next to nothing about eastern philosophy. May be she will enlighten me. Good night.

^o Our two speakers continue to enhance their expanding joint objective world. They invent a variety of abbreviations, to improve the efficiency of their communication. For example, instead of saying "B implies (or entails, or is included by) A, **and also** ~B implies ~A", they say "A is the **cause** of B", where A and B are **objects**. When A and B are not objects, but predicates, they say "B is the **reason** of A". (See footnote 46 below).