

Open Peer Review on Qeios

Samuel — a dialogue about incompleteness

Johan Gamper¹ 1 Subrosa KB Funding: No specific funding was received for this work. Potential competing interests: No potential competing interests to declare. **Abstract** Samuel seeks out Kurt at a pub and initiates a discussion. Soon Kurt becomes engaged. What is it that is incomplete? Samuel: I don't know. Can we talk? Kurt: About what? Samuel: That. Kurt: Go away. Samuel: A minute? Kurt: What? Samuel: I wonder. Kurt: About what? Samuel: It's so definitive. Or so not definitive? Kurt: Yes? Samuel: The incompleteness. It's so definitely incomplete. Therefore, not definitive. *Kurt*: I have just shown some incompleteness in mathematics. Samuel: I wonder. Kurt: I'm a mathematician.

Samuel: What's incomplete?

Kurt: Yes. It's still incomplete.

Samuel: They say you could complete it. By adding a Gödel sentence. I wonder.



Kurt: There are things that are true that cannot be proven.

Samuel: How could you now? That they are true?

Kurt: There are ways.

Samuel: Do you ever think about absurdities?

Kurt: No.

Samuel: Thought so.

Kurt: Should I?

Samuel: No. You should never give up.

Kurt: Is that your mantra?

Samuel: I often give up. It's in my nature.

<u>Kurt</u>: Things can be true even if they cannot be proven locally. You don't know how much money I have in my pocket. I have some.

<u>Samuel</u>: I believe you. But is it that interesting with "truth"? Why should I bother? I don't know how much money you've got. So what?

Kurt: You got a good point there.

Samuel: Thanks.

Kurt: But I think I have proven something more substantial.

Samuel: You cannot prove everything?

Kurt: How can you know if you cannot prove it? No system is foolproof. I don't know. No system is foolproof.

Samuel: Seems reasonable.

Kurt: What is a system? It isn't foolproof. But what is it? What is foolproof? What is a system?

Samuel: Waiting for something?

Kurt: Formal system. Formal.

Samuel: Seems boring.

Kurt: It's fundamental. Boring is beside the point.



Samuel: Fundamental as in... what? *Kurt*: The fundamental is incomplete? Samuel: No. Kurt: Yes. Samuel: Do you know what you are talking about? Kurt: Formal systems are incomplete. Samuel: But are they fundamental? Kurt: Epistemologically, yes. Samuel: Do you know that? *Kurt*: Formal systems are epistemologically fundamental. Samuel: Okay. Kurt: But are they fundamental? Samuel: I wonder. Kurt: "What is knowledge" is less fundamental than "what is". That must be true? Samuel: Prove it. Kurt: Listen. "What is", is incomplete? Samuel: The formal systems are? Kurt: Yes. But "what is"? Samuel: "What is", is incomplete as such or as "what is"? Kurt: "What is", just is? Samuel: How could it be otherwise? Kurt: "What is", as such, is complete. Samuel: Thank you, Lord. Kurt: "What is", as "what is", is incomplete.

Samuel: A formal system is?



Kurt: A formal system is, therefore it is incomplete.

Samuel: Formal systems are instantiations of "what is"?

Kurt: Proofs are typical for all instantiations?

Samuel: You'll need something more fundamental.

Kurt: Only a less strong system can be foolproof!?

Samuel: You have found it!