# A Proof from PROTEIN*

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**Abstract**

This is just an experiment.

We assume that the reader is acquainted with the elementary theory described in the appendix.

**Axiom 0.1 (The eating habits of animals)** *A is an animal* $\wedge$ *B is a plant* $\wedge$ *C is an animal* $\wedge$ *D is a plant* $\wedge$ *C is much smaller than A* $\wedge$ *C eats D* $\rightarrow$ (*A eats B* $\vee$ *A eats C*).

**Axiom 0.2 (The fact that caterpillar food is a plant)** *A is a caterpillar* $\rightarrow$ *food of the caterpillar A is a plant.*

**Axiom 0.3 (The fact that snail food is a plant)** *A is a snail* $\rightarrow$ *food of the snail A is a plant.*

**Axiom 0.4 (The fact that snails eat snail food)** *A is a snail* $\rightarrow$ *A eats food of the snail A.*

**Theorem 0.1** $\exists(x_1, x_2, x_3)\ (x_1 \textit{ is an animal} \wedge x_2 \textit{ is an animal} \wedge x_3 \textit{ is a grain} \wedge x_1 \textit{ eats } x_2 \wedge x_2 \textit{ eats } x_3)$.

Proof[1]. We show directly that

$$\exists(x_1, x_2, x_3)\ (x_1 \text{ is an animal} \wedge x_2 \text{ is an animal} \wedge x_3 \text{ is a grain} \wedge x_1 \text{ eats } x_2 \wedge x_2 \text{ eats } x_3). \tag{1}$$

Clearly,

$$\text{Reinecke is an animal.} \tag{2}$$

Clearly, Daffy Duck is an animal. Clearly,

$$\text{Isegrim is an animal.} \tag{3}$$

Clearly, corn is a plant. Because of the fact that caterpillar food is a plant

$$\text{food of the caterpillar Kathy is a plant.} \tag{4}$$

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Clearly, Reinecke is much smaller than Isegrim. Therefore by the eating habits of animals, (3), and by (2)

$$\text{Reinecke does not eat food of the caterpillar Kathy.} \tag{5}$$

Clearly,

$$\text{Daffy Duck is much smaller than Reinecke.} \tag{6}$$

Clearly,

$$\text{Snaily is an animal.} \tag{7}$$

Because of the fact that snail food is a plant

$$\text{food of the snail Snaily is a plant.} \tag{8}$$

Clearly,

$$\text{Snaily is much smaller than Daffy Duck.} \tag{9}$$

Because of the fact that snails eat snail food Snaily eats food of the snail Snaily. Therefore by the eating habits of animals, (4), and by (7) and since Daffy Duck is an animal Daffy Duck eats food of the caterpillar Kathy. Hence by the eating habits of animals, (5), (4), and by (6) and since Reinecke is an animal and Daffy Duck is an animal

$$\text{Reinecke eats Daffy Duck.} \tag{10}$$

Therefore by the eating habits of animals, (7), (8), and by (9) and since Daffy Duck is an animal and corn is a plant Daffy Duck eats corn. Hence by (10) and since Reinecke is an animal and Daffy Duck is an animal we have completed the proof of (1).

q.e.d.

# Appendix

- $A$ is a wolf $\rightarrow$ $A$ is an animal
- $A$ is a fox $\rightarrow$ $A$ is an animal
- $A$ is a bird $\rightarrow$ $A$ is an animal
- $A$ is a snail $\rightarrow$ $A$ is an animal
- $A$ is a grain $\rightarrow$ $A$ is a plant
- $A$ is a snail $\rightarrow$ $A$ is much smaller than Daffy Duck
- $A$ is a bird $\rightarrow$ $A$ is much smaller than Reinecke
- $A$ is a fox $\rightarrow$ $A$ is much smaller than Isegrim

- Isegrim does not eat Reinecke
- Isegrim does not eat corn
- Daffy Duck does not eat Snaily
- Daffy Duck is a bird
- Kathy is a caterpillar
- Reinecke is a fox
- corn is a grain
- Snaily is a snail
- Isegrim is a wolf