
Name

Scorpling Flugs

Terms

- Scorples
- Flug

Axioms

1. Given two distinct flugs, either the first scorples the second or the second scorples the first (the possibility of both is not excluded).
2. No Flug scorples itself.
3. If A, B and C are flugs (not necessarily distinct), such that A scorples B and B scorples C , then A scorples C .
4. There are exactly four distinct flugs.

Definitions

1. A Flug that scorples every other Flug is called a **pushy** Flug.
2. A Flug that is scorples by every other Flug is called a **passive** Flug.
3. The **scorples number** of a Flug A is the number of flugs that A scorples.
4. Given two distinct flugs A, C . If there is a Flug B distinct from both A and C for which A scorples B and B scorples C , we say A **indirectly** scorples C .

Theorems

1. If A and B are distinct flugs and A scorples B , then B does not scorples A .
2. If A and B are distinct flugs, either A scorples B or B scorples A , but not both.
3. There cannot be two or more pushy flugs.
4. There is at least one pushy Flug.
5. If A scorples B and C is distinct from A , then A scorples C or C scorples B (possibly both).
6. If A indirectly scorples C , then A scorples C .

Models

- A model of an axiomatic system is an Interpretation of the undefined terms of that system into some carefully specified context where each interpreted axiom “makes sense” in this carefully specified context.
- If any statement of an axiomatic system can be proven using just logic and the axioms of that system, then that statement must “make sense” in any model of that system.
- Finish this sentence: If a statement of an axiomatic system does not make sense in a particular model of that system, then . . .

Homework 1

Do Not Work with Anyone On This Homework

1. Develop a **model** of the axiomatic system of the Scorpling Flugs.
2. Prove the specific problem of the following form assigned to you in class.
Develop an interpretation of the axiomatic system of the Scorpling Flugs in which three of the axioms “make sense” but the fourth does not.
 - (a) **Rosemary, Erin:** Axiom 1
 - (b) **Andrew F, Nathan:** Axiom 2
 - (c) **Andy G, Gerad:** Axiom 3
 - (d) **Anna, Hilary:** Axiom 4
3. Briefly explain how the results of problems 1 and 2 show that
 - (a) there is no axiom in the Scorpling Flug axiomatic system that can be proven from the other three
 - (b) there is no axiom in this system whose logical opposite can be proven from the other three.
4. Prove the theorem assigned to you.
 - (a) **Bryan:** Theorems 1,6
 - (b) **Andrew F, Nathan:** Theorem 2
 - (c) **Andy G, Gerad:** Theorem 3
 - (d) **Anna, Hilary:** Theorem 4
 - (e) **Rosemary, Erin:** Theorem 5
5. Select two conjectures from the list below and for each, either prove it or give a precise reason why it cannot be proved.

Conjectures:

1. There is at least one passive Flug.
2. There cannot be two or more passive Flugs.
3. There are two distinct Flugs where the first indirectly scorples the second. (Indirect scorpling occurs.)
4. Every Flug indirectly scorples some other Flug.
5. For every Flug there is some other Flug that is not indirectly scorpled by the first Flug.
6. No two Flugs have the same scorples number.