Intro to Logic Notes
1/23/2020

Informal Proofs	Formal Proofs
has ambiguous natural language (e.g. English or Chinese)	no ambiguous natural language
cannot be executed and checked by a computing machine	*can* be executed & checked by a computing machine (HyperSlate$^{\text{TM}}$)
supposed to have learned how to produce, to an appreciable degree, in High School - but likely didn't	have not learned how to produce relevant system (though may have had some Prolog)

Example: Defuse bomb by cutting red/blue wire given these assertions:

(1) If the red wire runs to the bomb, then the blue wire runs to the bomb; and, if the blue wire runs to the bomb, then the red wire runs to the bomb.

(2) The red wire runs to the bomb.

If either wire is more likely to run to the bomb, that wire *does* run to the bomb, and the bomb is ticking with only a minute left. If both are equiprobable, neither runs to the bomb and you are powerless
Blue is more likely, and the correct choice.

Proof. There are 2 initial cases, both (1) and (2) are true, or they are both false. If they are both true, then red and blue must both run to the bomb and are equiprobable. If they are both false, then we have not red, but blue can still either run or not run, making blue more probable. □

Special Llamas Disjunction

There's a thing such that it's both a llama and a non-llama;
or
there's a thing such that if it's a llama, everything is a llama;
or
there's a thing such that every llama is a non-llama.

Is this disjunction true, false, or unknown?