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## Epistemology

Consider the Aesop fable of "The Fox and the Grapes." A fox espies a crow, perched on a branch of a tree, with a bunch of grapes in his beak. "Oh, crow," says the fox, "you have such a beautiful voice. Please sing for me." The crow opens his beak to sing, the grapes fall to the ground, the fox picks up the grapes, and trots away.

What is this story about? I think most people will say it is about the effect of flattery on a foolish person. That is clearly the meaning, yet the word 'flattery' or any word(s) that tell the meaning never appear in the story.

The author chose the fox and the crow as devices for adding content to the story without having to add more verbiage. Foxes are sly, and crows make a most irritating caw, as little like music as possible. But the story is not about foxes or crows, or feathers or fur, or trees, for that matter. They were all just a frame for the apparel that was the meaning of the story.

Suppose I told you that story, and a third person was present. When I finished, that third person says, "I don't believe that story, because foxes can't talk." I think we would soon not consider such a person as worth our attention.

Yet, when (some) people read the bible (Old Testament) stories, they take the terms of the stories as the actual substance, hence as the meaning of the story. At the other extreme, (some) people take the stories as mere fables. These people think that the meaning of a story cannot be important. They think only essays and scientific analysis can convey important meanings.

Let us take an actual bible story to illustrate our next point. One of the most famous bible stories is "The binding of Isaac." God commands Abraham to sacrifice Isaac, his only son. Abraham takes Isaac to a nearby elevation, suitable for sacrifice. In the end, Abraham sees something symbolic. From this sign, Abraham concludes that God does not want the death of Isaac, but only a symbolic act, like sacrificing a lamb, instead of Isaac. Happy ending!

Some take the story at its face value: symbols may be substituted for actual. Some Rabbis doubt that Abraham ever thought he would have to sacrifice Isaac. After all, didn't God promise Abraham that he would be the patriarch of a great nation? Where would that nation come from if not from Isaac, his only son? Still others take the point of the story to be Abraham's faith in God to be so great that he will even sacrifice Isaac if God so commands it.

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All these interpretations miss what I regard as the point of the story. The point is contained in a passage I left out in my shortened version above. On the way up the elevation, Isaac says to Abraham, "Father, I see the wood and I see the fire, but where is the lamb?" The point of the story is in that element.

Abraham's faith in God is so great, he would kill his only son. Isaac's faith in Abraham is even greater. Isaac cannot imagine, despite the clear evidence before his very eyes, that any harm could possibly come to him from his father.

The point here is that people are free to interpret stories in different ways. What we needed is a method for deciding which way serves our purposes best.

Our ability to discuss this or any subject is limited by our means of communication. We do not have direct mind-to-mind communication. For me to tell you what I think, I must use sentences in some language. In formal discourse, these sentences are called propositions. They propose or assert some meaning related to our area of discourse.

Let us call a set of propositions an hypothesis, a theory. To us, a theory and a story are both assertions about reality. We make no useful distinction between them. Let us call the meanings of propositions ideas.

We are also concerned with the 'truth' or 'falseness' of the propositions we use.

What shall be our definition of 'reality'? I propose, "Reality is that which does not change when we change what we think about it." Further, I propose, for a thing to be 'real,' it must be detectable by us as something physical, or something that can produce an effect that we experience physically. Whatever does that is real.

The next question is, "What is truth?" Here I propose, as a first approximation, "truth is that which corresponds to reality." By which phrase, I mean true to fact.

One of our problems is that the word 'truth' has another meaning. Using logic, we may assert that a proposition is true. That does not mean that it is necessarily true to fact. It means only that according to the rules of logic, the truth-value of a proposition depends on how it is created from other propositions deemed to be true, or not true.

An example: All Grax are Fingle. Farfel is Grax. Farfel is Fingle. If the truth-values of the first two propositions are true, then the truth-value of the third is also true. The truth of the third proposition is not the consequence of any correspondence to reality of the first two propositions, but solely due to the form of reasoning.

All logic forms use terms like Grax, Fingle and Farfel. When we use the names of real things, we are simply identifying how we wish to apply our propositions to reality.

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At times, often, we use propositions as if true to fact, which we know are not so. An example is: *A line in geometry has extension in space and is made of points that have no extension.*

Also, at times we use a proposition of unknown truth-value, called a postulate, simply for the sake seeing where such an assertion leads.

The contents of a theory are propositions. The contents of reality are things and events. Theories and reality are quite different things. When we say a theory or story is true, we say that the form (not the content) of the story corresponds to the form (not the content) of the reality that we claim it explains.

That is the reason that mathematics is such a powerful tool. Math is all form and no content, until we assign it to some aspect of reality. Such an assignment is called an 'isomorphism,' meaning 'same form.' It is also the reason computers can emulate some aspects of reality, and even seem to think.

In formal terms: A Theory is a Model of some part of Reality, called its Domain.

Finally, to complete our study of epistemology, we need to consider how logical truth becomes factual truth.

*Any proposition derived by the rules of logic from propositions deemed true-to-fact is also deemed true-to-fact.* By this use of logic, we can derive any number of additional true-to-fact propositions. Of course, if the theory is founded on a postulate and not on observed things and events, then the derivation of true-to-fact is no more certain than that the postulate is true to fact.

Even where the truth-value of the postulate cannot be known one way or another, we still can learn a lot about the how all the other propositions of the theory fit together, either consistently or not consistently. Consistency is not truth, but it is not chopped liver, either.

However, in our use of logic there is one absolute no-no. No proposition may have a truth-value that is both (logically) true and not true. Such a situation is called a contradiction. Using a theory that contains a contradiction, we can prove that a thing or an event is both true-to-fact and not true-to-fact. In the presence of a contradiction, the entire theory cannot be used to derive the truth-value of any proposition.

Reality can never be arranged in an impossible way.