# Tribe Epistemic Logic

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*In this paper I introduce a constructive logic based on the model of tribal epistemology.*

In most of human existence, humans have lived together in tribes of hunterer-gatherer societies[1]. The world was a place of wonders, horrors and unknowns. With the advent of philosophy and science, more and more parts of the world become knowns. There is a potential risk that in the future, humanity will lose parts of its history, e.g. to genetic changes, collapse or space travel, which alters how humans see the world. Obviously, it is not a high risk that humans will forget that they lived in tribes at some point in time of history. The kind of risked loss is Seshatic[2] in nature, where the particular form of language bias in the mathematical reasoning of the tribe culture is lost.

Tribe Epistemic Logic is intented to preserve the mathematical language bias of tribal epistemology[3]. One can think about this as a more abstract version of the work that linguists[4] do to preserve natural languages in danger of extinction. Linguists use grammar[5], dictionaries[6] and phonetic alphabets[7] to record the structure of sounds, words and meaning in written form, such that people in the future can reconstruct extinct languages[8], even there are none who natively speaks the language. Seshatic loss in culture happens when there is experience that is transferred from master to student in generations, that is not yet formalised in a such way that it can be reconstructed.

The most important part of knowledge reasoning in a tribe culture is to distinguish between knowledge that is accepted, rejected or "out there". The tribes did not think of the world as some place where something was explicitly true or false, as in classical propositional logic. Neither did they think of the world as a strict constructive logic where all things true have a proof. This kind of abstract universalisation came much later with the rise of Platonism[9]. Truth in the tribe culture was something that was bended to be used to control the behaviour of a small group of people. Today, this mechanism is still in place at various levels of society, but only able of influencing opinions, as access to information and logical software increases. The control of truth in a tribe was much more significiant as it could determine whether the tribe survived a crisis. As humanity transitions into a galactic civilisation[10], survival depending on control of truth will very likely vanish, since the time delay in proportion to capacity of local information processing will force redundant systems and protocols for interactions between clusters of populated solar systems.

To model how a tribe culture reasons about knowledge, it is best to forget the standard notion of `true` and `false` as signifying truthfulness. However, it is also important to remember that epistemic reasoning in tribe culture was very sophisticated. Only because tribe culture had a different way of reasoning, does not mean that we should judge them as "barbaric". Yes, violence and prejuice was common in tribal communities, but "barbaric" is only a made up word for calling someone else with a slightly different perspective as a kind of "low culture"[11]. It is possible that in a violent and prejuicial society that there exist humans of high genuinity and brilliance.

However, what did tribe culture mean about the "out there"? How does the world as a whole, with its perceived wonders, horrors and unknowns related to the home of the tribe? One desirable criteria when formalising this in constructive logic is that, although something seems to be external or outside, it might be not external nor outside forever, which can lead to contradictions when not being careful. A better word for this, that captures both the intended meaning of externality and the potential for internalisation, is "wild". The world was seen as wild in tribe epistemology[12], as opposed to the language bias obtained from modern mathematical theories of physics. This notion of "wild" is extremely important to understand the psychology of epistemic reasoning within tribes.

A wild kind of knowledge is something where the truthfulness property of it is insignificant. This might seem fundamentally incompatible with modern interpretations of logic. However, remember that in this case of modelling tribal epistemology, the truthfulness of knowledge in general is of less importance than its effectiveness of controlling the behaviour of people. So, one can interpret this wild kind of knowledge using a different notion of `true` and `false` that is unrelated to truthfulness:

| | |
|---|---|
| true | Knowledge that is accepted |
| false | Knowledge that is rejected |
| wild | Knowledge that is "out there" |

The axioms of Tribe Epistemic Logic were derived from this idea and are the following:

1. $\forall$ x { x ∨ ¬x ∨ wild(x) }
2. $\forall$ x { wild(x) => (¬¬x ∨ ¬x) }
3. $\forall$ x { (x ∨ ¬x) => ¬¬wild(x) }

Where `wild` is a 1-avatar of `x`[12]. This might be thought of as a newtype.

One inspiration was taken from the paper on "Existential Propositions"[13],
where `$\forall$ x { ¬¬x ∨ ¬x }` is an assumption called "Excluded Middle for non-Existence".

Tribe Epistemic Logic implies Existential Propositions,
since `$\forall$ x { ¬¬x ∨ ¬x }` is provable from the 1st and 2nd axiom.

From the 1st and the 3rd axiom, one can prove `$\forall$ x { ¬¬wild(x) }`.

The semantics of this logic, is that the wild kind of knowledge is not exclusive from accepted or rejected knowledge. Instead, it is present everywhere, within every knowledge as `¬¬wild(x)`, although one has no direct proof of it. This language bias might have contributed to the development of spirituality[14] in tribal culture.

The explicit expression of knowledge as wild, was used to communicate between people living in tribes about what is "out there". The wild kind of knowledge was in some sense universal, which was like in the state of without proof or without pointing toward to it. However, when pointed out, the wild knowledge became particular and comprehensive although it did not determined whether this kind of knowledge was acceptable or rejectable. Hence, the uncertainty of this nature could produce a sensation of wonder, horror or unknown. These emotions or thought patterns related the individual and group to the context depending interpretation of external stimuli.

An optional fourth axiom is the following:

4. $\forall$ x { wild(x) == (wonder(x) ∨ horror(x) ∨ unknown(x)) }

This fourth axiom might be augmented with further variations of describing the wild.

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