

The Anisotropy of Factions

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Abstract: Factions, or agent-based secret-sharing networks, are discussed. Convergence of multiple belief systems is described as the anisotropic propagation of truth by factions.

1 Prologue

Let \mathfrak{N} be a network, $\Sigma_{\mathfrak{A}}$ a collection of actors, and let their be a predefined transport structure, $\varphi = f(\check{a}_i \in \mathfrak{A})$ such that, for any two actors, \check{a}, \check{a}' , there is some relationship $\check{a}R\check{a}'$ which fulfills the function $f(\check{a}_i)$. We then define the relationship tautologically by writing

$$R := \mathfrak{f}_i(x) \xrightarrow{\varphi} \mathfrak{f}_{i'}(y)$$

where \mathfrak{f}_i denotes some predicate (*fact*), indexed by a set $\mathcal{I} \sim \mathfrak{F}$, for \mathfrak{F} some faction, and where x, y correspond to transformations of $\Sigma_{\varphi}(\check{a}, \check{a}')$. Here, Σ should be taken to symbolize a *reflectivity* operator.

The capacities of an actor are twofold. Firstly, an actor may *express* some internal state of affairs via a projective, directed morphism (presumably towards some other actor in \mathfrak{N}). Secondly, an actor is equipped with some internal facility for *processing* those morphisms of which it is the target. For a map $a \xleftarrow{\varphi} b$, we may write $\Sigma_{\varphi}(b, a)$ for the internal reflectum generated by said map.

It may very well be the case that the exact computation involved in producing the output of $\Sigma_{\varphi}(*, *)$ is not known to us, or perhaps is altogether undefinable. We make the following assumption:

Assumption 1 Given a map, $\varphi : S \rightarrow T$, where $S \neq T$,

$$\dot{\alpha}(S) \neq \dot{\alpha}(T)$$

We define the function $\dot{\alpha}(\ast) = \ast_{\mathbb{R}}^{\dagger}$, called the *idiolectic instantiation* of some fact $\mathfrak{f}_{\xi} \in \mathbb{R}$ now.

Assume that there is some “proper truth-hood,” \mathbb{T} . It naturally follows that:

Assumption 2 For every truth value, τ , accorded to some proper fact \mathfrak{f} by some agent $\dot{\alpha}^{\dagger}$, either of the following cases hold. There is an item, $\dot{\alpha}^{\dagger}(\mathfrak{f})$ corresponding to the assessment, which constitutes a fact in its own right. Either of the following hold:

1. $\dot{\alpha}^{\dagger}(\mathfrak{f})$ is a subset of \mathbb{T}

2. $\dot{a}^\dagger(\mathbf{f})$ is a distortion of some (canonically) true fact, $\mathbf{f} \in \mathbb{T}$

These scenarios may hold simultaneously, but (at least) one must hold. In general,

$$\check{a}_n(\mathbf{f}_\theta) \models (\mathbb{T}|_{\mathfrak{F}_\theta})|_{\check{a}_n}$$

Remark 1 Note that there is a bijection

$$(\mathbb{T}|_{\mathfrak{F}_\theta})|_{\check{a}_n} \xleftrightarrow{\tau|_{\text{int}(\check{a})=1}} \tau(\dot{\alpha}(\mathbf{f})|_{t=0}) \quad (1)$$

which means that there is a correspondence between the internal conception of a fact by an actor \check{a}_n , and the actor's assessment of the correspondence of the fact with the "reality" of things (as constructed by a faction, \mathfrak{F}) at some arbitrary time $t=0$.

Assumption 1 may then be interpreted in plain English by saying that the bijection laid out in Remark 1 varies as with each agent. Thus, in communicating some concept, σ , to an agent x , the output is not σ itself, but some transformed variation of σ , say, $x(\sigma)$. This transformation occurs at the level of signification; i.e., the signified remains constant; and yet, it is not the signified which is interpreted, but some internal reflection of the signifier. Thus, if I wish to communicate a concept to you, it is impossible for me to express myself in a manner such that your impression corresponds to an identical fact "in the real world" as mine.

Definition 1 An idiolectic instantiation, \bar{i} , is a local bijection, φ_\star between the semantic field of an agent and some faction \mathfrak{F} lying within the domain of absolute truth-hood such that there is a faction $\mathfrak{F}' = \mathfrak{F}|_{\bar{a}}$ whose constitution enables

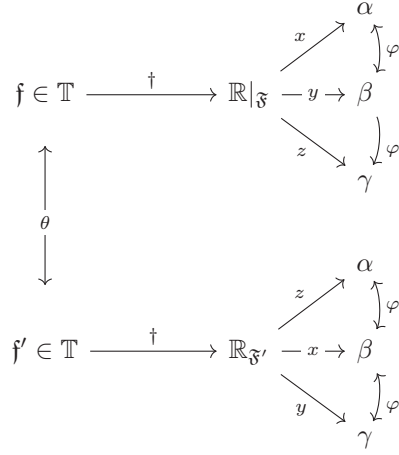
$$\tau(\varphi_\star) = 1$$

to hold.

Where we allow 1. and 2. of (Assumption 2) to hold simultaneously, we permit that absolute truth is, in some sense, arbitrary, such that for every proper fact $\mathbf{f} \in \mathbb{T}$, every distortion $d(\mathbf{f})$ also lies in \mathbb{T} . In such a case, "absolute truth" is an incredibly refined (to abuse the term) *moduli space* which all relative, idiolectic instantiations are confined to. Thus,

$$\forall \vartheta(\mathbf{f}) \in \mathbb{T}|_{\mathfrak{F}} \quad \exists^\theta \mathbf{f}' \in \mathbb{T} \quad (2)$$

follows. Here, \exists^θ denotes an existential quantifier whose membership condition is θ . Letting θ denote orientability, we obtain that for every fact belonging to the restriction of absolute truth to an actor-network (faction), there is some rotation of an alternate (absolute) fact which corresponds to the idiolectic instantiation of \mathbf{f} by ϑ .



In the above diagram, some unknowable, absolute truth is projected to factions $\{\mathfrak{F}, \mathfrak{F}'\}$ and then to actors $\vartheta = \{\alpha, \beta, \gamma\}$. Note that, in each faction, a different arrow corresponds to idiolectic realization of the fact by each actor. For instance, in the map

$$\mathfrak{F} \rightarrow \mathfrak{F}'$$

we obtain

$$(\mathbb{R}_{\mathfrak{F}} \xrightarrow{x} \alpha) \Rightarrow (\mathbb{R}_{\mathfrak{F}'} \xrightarrow{z} \alpha)$$

so that a different set of circumstances is required to interpret two distinct facts as identical.