

# 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,  $\Sigma$  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,  $\tau$ , 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,  $\sigma$ , to an agent  $x$ , the output is not  $\sigma$  itself, but some transformed variation of  $\sigma$ , 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,  $\varphi_\star$  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  $\mathfrak{F}' = \mathfrak{F}|_{\bar{i}}$  whose constitution enables

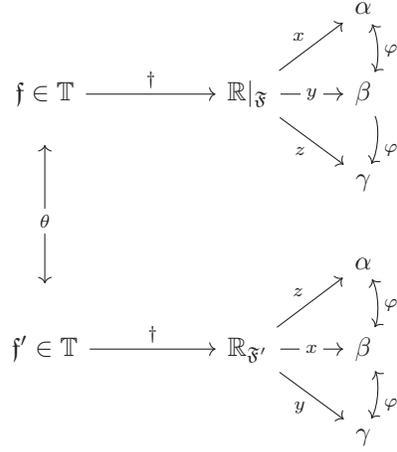
$$\tau(\varphi_\star) = 1$$

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,  $\exists^\theta$  denotes an existential quantifier whose membership condition is  $\theta$ . Letting  $\theta$  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  $\vartheta$ .



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.