

Article

Structure and Superstructures in Complex Social Systems

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Abstract: In classical sociology, there is a sharp separation between the superstructure reflecting cultural ideals and the concrete Structural Base (SB). The authors hypothesize a Doxical Superstructure (DS) in its own space at a higher level, containing concepts such as completeness, necessity and possibility associated with abstract concepts like beliefs, ethics, knowledge, relations and science. The DS or *image* (DS-image) is defined as the “explanation” (for the Subject-agent) of the Structural Base. A Mythical Superstructure (MS) is defined as a third superstructure. An analysis is carried out on the Structural Base. Concepts or denotative significances (d-significances) are defined for SB deontic relations. Alethic properties (existence, completeness, possibility and necessity) and deontic properties (permission, obligation and choice) of deontic relations are introduced, defined, and examined in relation to the Ideological Doxical Superstructure (IDS), including Meinong objects (thoughts, feelings and desires).

Keywords: alethic components; belief; connotation; denotation; deontical components; ideology; image; projection; significance

1. Introduction

In previous works, the authors have defined social systems as Deontic Impure Systems (DIS) [1–10], and provided mathematical properties of their structure. These systems are considered impure because their elements are either living things or materials and what we know of them is constrained by our ways of thinking and may vary from person to person. These systems are deontic because the relations between the constituent elements are predicated on deontic modalities, that is, the systemic social relations of obligation and duty are reflected in verbs such as “shall” and “must”. The main examples are those systems that constitute societies in the human ecosystem. Societies have their own unique DIS that order their relations with their own ways of thinking that are essential for maintaining their own existence. These considerations demand careful examination of the relationship between the speaker and the signs used in knowledge of causes, learning (*language that reflects knowledge of living things and materials*) or passive experience (*dream*). It is found that all references to the conceiving Subject’s intentions are insufficient to fully understand everything that is produced, because what is produced or constructed is related to other parts of the system. This social creation is never equivalent to what is known subjectively. Each semiotic system is sustained through its dynamic interface with its own context comprised of our natural or cultural world. Thus, each DIS, however simple or complex, is perceived by the Subject from a variety of viewpoints.

The dichotomy between structure and superstructure is a contemporary version of the historical dualism of body-mind or body-soul in religion and philosophy. Both materialistic and idealistic thinkers share this dualism. They differ in how they frame the relation between superstructure and

structure. For materialists, the superstructure arises out of the structure, whereas in the case of idealists, the structure is dependent on the superstructure. Proper materialism maintains that the real determines the ideal, and that what is real is the activity of the people. The people's activity, whether the result of material tools, or modern electronic ones, gives rise to *ideals*. Humans are renowned in the animal kingdom for the length of their childhood that enables a long period of learning. In childhood, children learn all sorts of ways of doing things with prescriptions proper to their culture. These learned cultural "ways of living" have a bearing on the economy and economic activities. Similarly, cultural ways of relating to each other, learned in childhood, have a bearing on political activities. So, there are cybernetic interactive processes between the economic and cultural domains, with the political domain being a conduit [11].

Ontology is implied in the relationship between reality and language, and indeed between *superstructure* and *structural base*, both ontology and different operational possibilities are implied. These are different types, certainly related to the same reality; but in any case, the relationship is not clear. Scientific rationality takes extreme measures to try to specify what is outlined by the objects it investigates. However, reality is always defined in two ways at different levels. First, reality is defined as the specific constructed behaviours that are observable and are part of the identity of individuals or (cultural) groups. Secondly, at the social level, reality is considered a unit.

The Structural Base (SB) consists of a society's economic and social life and the norms that are used to enable these features [12]. The Structural Base (SB) is like the framework or architecture of a human social system. Society is made up of various related substructures responsible for governance, economic arrangements, political alliances, and all the educational institutions needed for the technological and technocratic success of the society. Each of these can be considered an individual DIS' subsystem. Human society (we consider this a DIS here) is made up of dynamically interacting parts. We consider the *culture of a society* as being made up of interactions with subsystems in a variety of areas including the political domain, the economic domain and the pedagogical domain. The relationships of the technological subsystem to the other institutions (substructures) in the SB is vital. Bunge [11] states that a technology must be viable for use with other sciences in a Deontic Impure System. This means that technology must enable material production while also being useful to scientifically control both natural and social processes.

The superstructure is associated with the whole of society, including its culture, technologies, and other institutions. It is what "drives" the structure, or maybe, in human terms, it is the "reason" for the structure. The superstructure specifies not only cultural and institutional relations, but also the ways in which people interrelate in terms of their power sharing and social rituals. Using the superstructure, we regulate our interpersonal behavior in terms of learned social guidelines for human activity, so that social behavior in each society has its own specific cultural coherence. Karl Marx [12] emphasized the relation between the superstructure and the economic Structural Base in his model of society (Figure 1). The *base* is defined as the way a society produces what is needed to survive. The *superstructure* is made up of various systems including the legal, the educational, the religious, and it reflects the ideology of the society. In Marx's theory, the superstructure is determined by the base. The means of production are controlled by the ruling class, so the interests of the ruling class are inevitably linked with the superstructure and its ideology. Therefore, because the ruling class has this important influence on production in the Structural Base and consequently on the values in the superstructure, the workers find it difficult to criticize the society. In short, the origins of the ideology are difficult to discern because they are embedded in the working and living patterns of the people. Figure 1 shows a simplified diagram of these relationships.

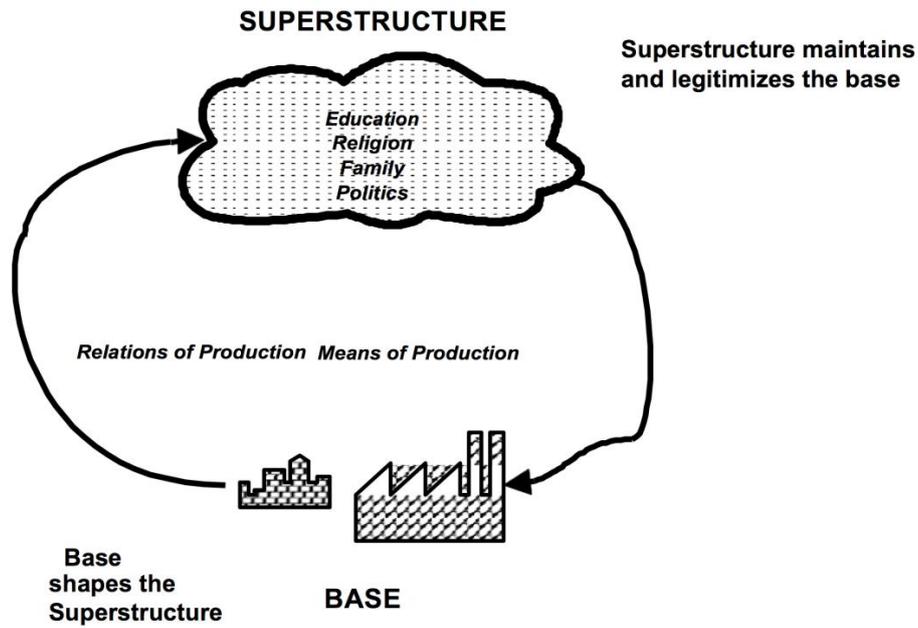


Figure 1. Marx’s theory of superstructure.

It is the separation of the domains of the economy and politics that showed Marx the importance of the liberal capitalist theoretical perspective of that time and the social experiences it engendered. Today, one may say that Capitalism was the system in which Marx was embedded and from which he wanted to distance himself. So, the social class structure is viewed as the economic structural base that determines the social superstructure as described above. However, the separation of the economic and political makes little sense today, and the concept of Capitalism finds varying expressions across cultures in different levels of economic development. This shows how Marxist’s economic determinism is grounded on a static and outdated liberal paradigm [13].

Jameson [14] defined a narrow relationship between the economy and cultural superstructure. He makes a causal connection between art and the circumstances of its creation and reception. In the history of Capitalism, a mutation of cultural forms of expression is observed, as well as of its technological bases, as artifacts adapt to changes in Capitalism during the process of globalization. The aesthetic forms defining postmodernity correspond with the phase of globalization of the market and are, thus, made fashionable by the market (Figure 2).

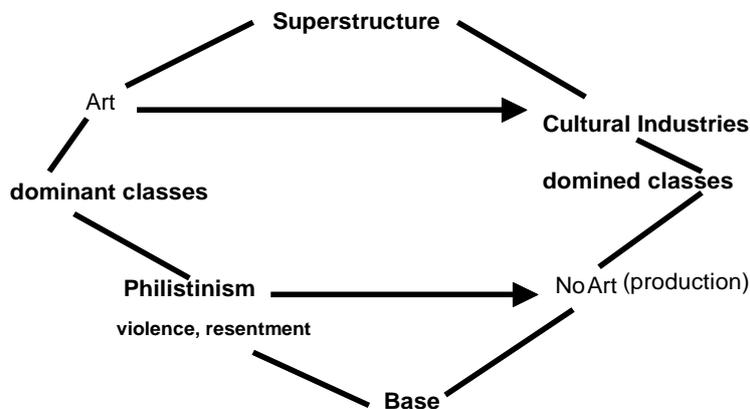


Figure 2. Jameson’s theory of superstructure.

Main Ideal condition: The group of actors should be homogenous for the relationships in Figure 2.

In summary, modeling social systems requires a treatment of ideas in superstructures that influence activities in the Structural Base. In addition, elements in social systems at the individual and social levels vary because of interpretations of cultural duties and obligations. Such variation of interpretation of elements renders the systems impure. This is an important consideration for the mathematical model proposed in the following sections of the paper.

2. Deontical Impure Systems Theory

Deontic Impure Systems as interpreted social systems, with their various structures including normative substructures (e.g., *legal structure*), and the Doxical Space (DS) (e.g., *what is believed to be the case*) as a mental structure operating with its significances or meanings that are both denotative and systemic. Earlier, we proposed a higher level space containing beliefs, ethics, knowledge, relations and science along with alethic concepts such as completeness, necessity and possibility. This *Doxical Space* or belief space is a normative superstructure and includes ways of thinking about the economic and legal normative structures. Two superstructures are involved in this approach to DIS [1–10]:

- (1) A superstructure consisting of concrete, specific and varying beliefs that include: ideologies, values, philosophies, and knowledge systems. We define this as the *Doxical Superstructure* (DS).
- (2) A utopian or ideal superstructure consisting of ideal values and myths, that provides both accounts of them origins and goals of the Structural Base. This superstructure is the *Mythical Superstructure* (MS).

In the mathematical model that follows, it is essential to distinguish between Reality (unknowable and absolute beings) and how we interpret our experience. This distinction is why we have adopted the language of DIS.

3. A Mathematical Approach

3.1. The Structural Base (SB)

If we define \aleph as Reality, with \beth as part of this Reality, so that $\beth \subset \aleph$. If S is an Observing or Observer Subject during a time interval $[t_0, t_f]$, Σ the system's concept, $\Sigma(\beth)$ the conception that \beth is a system (relative beings).

Note 1. In our approach system $\Sigma(\beth)$ is a social system (DIS).

Let r_i^k be a doxical relation belonging to a k sheaf [1–10] of relations ρ_i^k . $\Sigma_D(\beth)$ is considered as a DIS composed of a set of relations $\{r_i^k\}$ that is a subset of the doxical relations that we will represent by $\Sigma_D = (\{r_i^k\}, \wedge)$, with \wedge being the function "and". We define the systemic significance s and there will also be a denotative significance d -s which is what we know of the significance s of an object in Reality that we call an absolute being. We define the set of signifier (signs) of Reality ζ and the set of systemic signifiers ζ_Σ forming a particular CSR, i.e., the signs selected by the Subject to define the boundaries the specific DIS, with the implication that $\zeta_\Sigma \subset \zeta$. If we define $I_\Sigma = \{i_\Sigma\}$ as the set of possible systemic individuals, i.e., every impure object and possible relation included in the boundary of the SB of system Σ . We are going to define some of the deontic properties of the relations of a system.

Definition 1. Two deontic relations (belonging or not to the same sheaf) r_i^k and r_j^k are composable if for some ξ_Σ , r_i^k is in ξ_Σ and also, r_j^k is in ξ_Σ .

Definition 2. The deontic relation r_i^k is simultaneously complete and possible and it fulfills the following conditions:

- (1) r_i^k is a deontic relation iff for some ξ_Σ , r_i^k there is an ξ_Σ .
- (2) If r_i^k is a deontic relation, there is exactly an ξ_Σ .
- (3) If r_i^k and r_j^k are deontic relations, r_i^k is composable with r_j^k iff $\xi_\Sigma^{o_i^k} = \xi_\Sigma^{o_j^k}$.
- (4) The composability is a relation of equivalence in the set of deontic relations of the DIS.

Definition 3. s_Σ is a denotative DIS significance (d-s) iff it is a function defined in ξ so that if $\xi_\Sigma \subset \xi$ then $s_\Sigma(\xi_\Sigma) \subseteq \xi_\Sigma$.

We will call $L_\Sigma = \{r_i^k\}$ the set of all the deontic relations of DIS $\Sigma(\aleph)$. Then:

Definition 4. $\neg s_\Sigma$ is the negation of s_Σ and so that it is the function that maps ξ_Σ to I_Σ .

Property 1. Set $L_\Sigma = \{r_i^k\}$ is a nonempty set of d-significances of deontic relations belonging to SB of a determinate DIS.

Note 2. Deontic relations r_i^k do not have single d-significances, since every object that is related has a set of significances. Further, each multi-relational sheaf [1–10] is a set of denotative systemic significances.

For convenience, we will call $s_\Sigma = \{s_\Sigma\}_{i=1,2,\dots,n}$ the set of d-significances of deontic relations.

Theorem 1. The deontic relation r_i^k has one d-significance of relation in the SB of a determinate DIS Σ , or in the set of systemic signifiers ξ_Σ , in case this significance is one of their members, it is to say r_i^k has s_Σ in ξ_Σ if $s_\Sigma \in r_i^k$.

Proof. Although deontic relations are not themselves systemic individuals, some of them are synonymous with individual sayings in this way: If $i_\Sigma \in I_\Sigma$, then we can define the relation or correlation of an individual i_Σ in the set of systemic signifiers, as s_Σ^C and so that $i_\Sigma^C = \{s_\Sigma; i_\Sigma = s_\Sigma(\xi_\Sigma)\}$. The correlation of i_Σ in ξ_Σ is indeed the set of d-significances that has i_Σ in ξ_Σ . This indicates to us that it is a deontic relation.

Theorem 2. An incomplete deontic relation has no d-significances.

Proof.

Let us hypothesise that an incomplete deontic relation $\{\theta\}$ had one d-significance s_{Σ^*} . Now we hypothesise a complete deontic relation r_i^k with a d-significance s_Σ . We can form the union of both deontic relations (incomplete and complete), therefore forming a new deontic relation $\Lambda = r_i^k \cup \{\theta\}$. This deontic relation has the important characteristic of being simultaneously complete, with d-significance s_Σ and also incomplete because it contains $\{\theta\}$, with d-significance s_{Σ^*} , which is absurd.

3.2. The Doxical Superstructure (IDS)

Due to the complexity of the subject, we will limit the Doxical Superstructure to a subspace that contains the belief systems we call ideologies. This subspace we will call the *Ideological Doxical Superstructure* (IDS). We are inspired by the concept of Meingonian objects [15] to construct a theory of images and projections allowing objects, feelings, thoughts and desires to be considered on an equal footing. We define L_Σ as the set of items in a possible Doxical Superstructure, i.e., all abstract objects and relations belonging to the IDS.

Definition 5. The Doxical Superstructure significance (IDS-significance) called s_Σ^D is the function mapping the set ξ_Σ to a subset of L_Σ .

The concepts or ideas that any subject has of Superstructure elements are IDS-significances. In our approach, these elements will be ideological.

Definition 6. An IDS-significance s_{Σ}^D has in ζ_{Σ} an attribution in respect to the deontic relation r_i^k if $r_i^k \in s_{\Sigma}^D(\zeta_{\Sigma})$.

Sets of propositions on which evaluations are based form the modal base. We define the following modal attributions of IDS-significances or meanings:

(a) **Alethic modalities:**

- (1) Existence: Existence is the function that maps ζ_{Σ} to $\{r_i^k\}$ for some $i_{\Sigma} \in I_{\Sigma}, r_i^k = i_{\Sigma}^C$.
- (2) Completeness: Completeness is the function that maps ζ_{Σ} to $\{r_i^k\}$ for each $s_{\Sigma}, (s_{\Sigma} \in r_i^k) \vee (\neg s_{\Sigma} \in r_i^k)$.
- (3) Possibility: Possibility is the function that maps ζ_{Σ} to $\{r_i^k\}$ for some other ζ_{Σ^*} and some $i_{\Sigma^*} \in I_{\Sigma^*}, r_i^k = i_{\Sigma^*}^C$.
- (4) Necessity: Necessity is the function that maps ζ_{Σ} to $\{r_i^k\}$ so that if r_i^k does not exist in ζ_{Σ} for some $i_{\Sigma} \in I_{\Sigma}, r_i^k \neq i_{\Sigma}^C$, then ζ_{Σ} would not exist.

(b) **Doxical modalities:**

- (1) Permission: Permission is the function that maps ζ_{Σ} to $\{r_i^k\}$ so that if for some $i_{\Sigma} \in I_{\Sigma}$ if $(r_i^k \subseteq I_{\Sigma}) \wedge (r_i^k = i_{\Sigma}^C)$.
- (2) Choice: Choice is the function that maps ζ_{Σ} to $\{r_i^k\}$ so that if for some $i_{\Sigma} \in I_{\Sigma}$ if $r_i^k = i_{\Sigma}^C \wedge r_i^k \neq i_{\Sigma}^C$.
- (3) Obligation: Obligation is the function that maps ζ_{Σ} to $\{r_i^k\}$ so that if for some $i_{\Sigma} \in I_{\Sigma}$, $[CAN(r_i^k = i_{\Sigma}^C) \wedge CAN(r_i^k \neq i_{\Sigma}^C)] \wedge (r_i^k = i_{\Sigma}^C)$.

For actor Subject S, it is not easy to distinguish between d-significances (personal) and IDS-significances (social). The Observer Subject S must choose between one and the other.

Definition 7. For each d-significance s_{Σ} there is a single IDS-significance ε_{Σ} called the Doxical Superstructure Image (IDS-image) of s_{Σ} in IDS and that $\varepsilon_{\Sigma}(\zeta_{\Sigma}) = \{r_i^k; s_{\Sigma} \in r_i^k\}$.

Note 3. The totality of IDS-images reflected in the Ideological Doxical Superstructure (IDS) forms the system of beliefs that is the dominant ideology.

Note 4. The Doxical Superstructure Image formed in the IDS “explains” for the Subject the Structural Base observed in a certain Σ during a determined historical time.

The d-significance and its IDS-image are equivalent, i.e., for ζ_{Σ} and for each relation r_i^k, r_i^k has s_{Σ} in ζ_{Σ} , iff r_i^k has ε_{Σ} in ζ_{Σ} . This entails $s_{\Sigma} \in r_i^k$ iff $r_i^k \in \varepsilon_{\Sigma}(\zeta_{\Sigma})$.

The subject S has or constructs a certain language L containing denotative-SB-predicates (d-predicates) and doxical structural predicates (IDS-predicates) according to the definitions in [9].

Property 2. If P^{DS} express s_D and if P^M express ε_M in L_M , then if v^* names one abstract relation R_i^k , $P^{DS}v^*$ is true iff P^Mv^* is true.

Property 3. If P^d express s_{Σ} and if P^D express ε_{Σ} in L then if π names one deontic relation r_i^k , $P^d\pi$ is true iff $P^D\pi$ is true.

Property 4. In language L if P^D expresses (it names) s_Σ^D and if P^d expresses (it names) $s_\Sigma^{\rightarrow D}$, then if π expresses (it names) an existing deontic relation, then $P^D \pi$ is true iff $P^d \pi$.

Theorem 3. For any d -significance s_Σ , s_Σ will be equal to the SB-projection of the IDS-image of s_Σ , i.e., $s_\Sigma = s_\Sigma^{\rightarrow D}$.

Proof.

Let L be a language with P^d and P^D its d -predicates and IDS-predicates respectively. By Property 3, P^d expresses (it names) $s_\Sigma^{\rightarrow D}$, and by Property 2, P^d , expresses (it names) s_Σ . Then $s_\Sigma^{\rightarrow D}$ expresses (it names) s_Σ .

By Property 2, P^D expresses (it names) ε_Σ and by Property 3, P^D expresses (it names) s_Σ^D , therefore ε_Σ expresses (it names) s_Σ^D and then $s_\Sigma^{\rightarrow D}$ will express (it will name) ε_Σ therefore ε_Σ will express (it will name) P^d that it will express s_Σ by Property 2 as well, then ε_Σ will express s_Σ , then if ε_Σ expresses s_Σ and $s_\Sigma^{\rightarrow D}$ expresses ε_Σ , then $s_\Sigma^{\rightarrow D}$ expresses s_Σ and, of course, $s_\Sigma = s_\Sigma^{\rightarrow D}$.

Theorem 4. For each d -significance s_Σ there is no one IDS-projection ε_{s_Σ} , i.e., $s_\Sigma \neq \varepsilon_{s_\Sigma}$.

Proof.

Just as in Theorem 3.

Definition 8. Essentially an IDS-significance of any one of IDS-significances s_Σ^D is that which is not the IDS-image of the IDS-projection of s_Σ^D .

If an IDS-significance is not essentially the same as a similar IDS-significance, their IDS-projections will not be equivalent. In such a case, we can say that its IDS-projection is solely a non-assumable version. There is non-assumable version of the IDS-projection of the IDS-significances, so that, for a relation:

$$\begin{aligned} & \left(\begin{array}{c} \rightarrow \\ \text{existence, possibility, completeness, ...} \end{array} \right) = s_\Sigma \\ & \left(\begin{array}{c} \rightarrow \\ \text{non - existence, impossibility, incompleteness, ...} \end{array} \right) = s^*_{s_\Sigma} \end{aligned}$$

Definition 9. Semantically, an IDS-significance is the function that maps the set of signifier ξ_Σ of SB of a determinate DIS, to a pair of sets of deontic relations, so that $s_\Sigma^D(\xi_\Sigma) = \{r_i^k\} \cup \{r_j^k\}$, being $\{r_i^k\} \cap \{r_j^k\} = \emptyset$ and so that $v(\{r_i^k\}) = 1 \wedge v(\{r_j^k\}) = 0$.

Definition 10. A complete-IDS-significance of a d -significance s_Σ is the function that maps ξ_Σ to $\{r_i^k; s_\Sigma \in r_i^k\} \cup \{r_i^k; s_\Sigma \notin r_i^k \wedge \neg s_\Sigma \in r_i^k\}$.

4. Conclusions

The ability of human beings to abstract and idealize is a precondition for the existence of belief systems (including ideologies) and one of the sources of the influence of belief in human events. As actually used by humans, beliefs relate to actual (and historical) events and to the social circumstances under which they occur as well as to the realm of the ideal and the general. Ideologies and belief systems in general do have their own inner logics and their own set of statements about

things as they ideally occur. Socially relevant ideologies derive their influence not because they propose admirable ideals, but because they speak to real social conditions. Humans are accustomed to this difficulty and behave simultaneously in terms of both the ideal and the concrete.

This opens the possibility of considering particular ideologies that differ from the total ideology. This distinction between the total ideology and a part of it was one of Mannheim’s contributions to the sociology of knowledge [16]. It fits well with the more modern approach taken in constructivist writings where the individual’s construction of knowledge within a social context is taken as a model for the emergence or development of understanding [17]. Since some conceptions differ fundamentally from the total conception, this theory clearly allows incompatible views. This construction of ideology recognizes that the opponent’s thought does not always need to conform ideologically and that some of his assertions may be valid and true from another perspective. This demands recognizing what a total conception of ideology denies, i.e., universally agreed upon and shared criteria of validity that work across ideological boundaries. This is possible because of differences in the features of the DIS that are prioritized in each adversarial position. Here, an ideological controversy becomes essentially a disagreement on the evaluative level with different premises. Although it may involve disagreements concerning matters of fact, these differences of opinion can be separated from the evaluative controversies and resolved by the accepted rules of scientific procedure. This leaves open the question of what is the source, the mechanism and relative significance of diverse evaluative approaches. However, some components of ideology are matters of faith and not open to the rules of scientific procedure [18].

Describing an ideology concretely (IDS) and the behavior in a society (SB) is not the same thing as describing the *abstract ideal ideological system*. National political conventions seem more like conflict than paragons of democracy in action, and conflicts between church bureaucracy and actions by church activists are often less than charitable. We do recognize the difference between the actual and the ideal and we may apply different standards in different contexts.

How a Subject thinks about the divergence between the ideal and the actual is called the belief distance d_i . A belief distance could also be between what is hoped for and what actually happens. The distances vary depending on the contexts: abstract ideals and concrete manifestations of them; ideal values and how values occur in experience; and goals we had in the past compared with our goals today. If we construct a three-dimensional diagram of superstructure with the Doxical Superstructure as a plane, the idea of belief systems can be applied to the Ist-Mythical Superstructure so it is represented as a warped plane (Figure 3). Changes of form on the plane depend on the (belief) distance between experience and the ideals concerned.

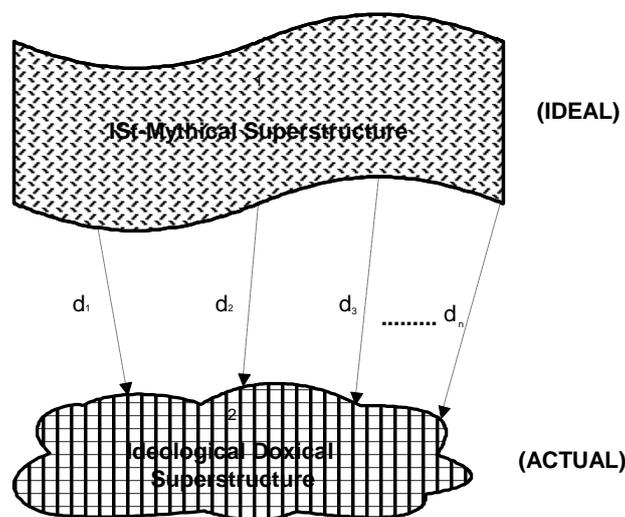


Figure 3. The belief distance.

At the ideal level, an ideology can be understood and discussed in terms of itself; it sets its own context, without which it is not comprehensible. In principle, it is illegitimate to criticize the abstract ideal ideology using any criteria but its own. A hypothesis is true or false without reference to its origin, and a set of beliefs sets the standards by which it must be understood. This argument concerns the *genetic fallacy*, or an *informal logical fallacy*, where a Subject argues that a belief is incorrect, not in its own right, but because of the way it originated or where it originated. Typically this is an attribute of the Subject who originated or presented the belief. There are several different forms of this fallacy, often with their own names, but they tend to follow one of these two general structures:

- (a) Subject A claims that P.
- (b) Subject A is untrustworthy.
- (c) Therefore, P is false.

Or

- (a) Subject A claims that P.
- (b) Subject A is particularly trustworthy.
- (c) Therefore, P is true.

This is a fallacy because the truth or falsity of the claim is not necessarily related to its origin.

Mannheim [16] suggested that the historical and social genesis of an idea is not as irrelevant to its ultimate validity as the genetic fallacy argument claims. The social conditions in which thinking arises effect the content and form peculiar to this perspective to some extent. Noticing one thing means not noticing something else, so each new perspective contains elements that are necessarily hidden to the researcher, who is himself determined by different social conditions. This position is also consistent with a constructivist epistemology that emphasizes the importance of the genetic construction of knowledge [17]. In distinguishing different positions in ideological argument, it becomes important to invite opponents to consider carefully the genesis or origins of their position. In future research a link of the model presented here with the constructivist approach using dynamic models may be useful [19].

However, because of the problems in human communication and because ideologies contain powerful elements of metaphor, the connection between the inner logic of the ideology (*the ideal*) and the real (*Doxical Superstructure and Structural Base*) may be extremely difficult to fathom. The connection is made by apologists. Social diffusion that was disseminated in pulpits or market squares in the past is now disseminated by mass media and the internet. The difficulty may be to create opportunities to discuss, as affirming difference may be more important than understanding difference. The research on modeling opinion distributions by Shang seems useful in shedding light on this issue [20].

There are inevitable parallels between the elements of any abstract ideal ideology and its concrete expressions. For this reason, the abstract ideal ideology may be used to justify a concrete ideology with actual beliefs that seem similar but are actually part of a different system. As we have seen, projections from the Structural Base and their connotations to ideologies that influence social behavior involve both goals and values that may be abstract or concrete. The interplay described here between the initial emergence of an ideology in the individual with the cultural, mythical and social context in which this occurs provides insight into the complexity of the process. It is our hope that the precision offered by the mathematical models may allow insight into ways of modelling different ideologies.

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