

Viewpoints on Corruption What Would Common People Say?

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Abstract

Corruption has been a hazardous problem in public administrations. On the other hand, what the truster know about it, how common people perceive the kind of crime is very much neglected by theoretical investigations. Here we try to build a conjecture as an initial pathway to view corruption as the particular knowledge owned by regular citizen. We begin the investigation from the dominance of public utterances as a source of knowledge. Then metaphor mapping as a method to understand the idea of embodied knowledge is examined to help building our conjecture on the idea of common knowledge about corruption.

Key words: cognitive linguistics, metaphor, Petri net, Belief net, language acquisition.

1. Introduction

Third World countries are in their deepest despair in struggle against corruption, at least as widely believed by common-sensical judgment reflected by many perception indexes. A few sociological approaches have been formulated to heal the transnational disease that seems to be epidemic. But more microscopic view to portray the disease seems to be even less, if not close to zero at all.

Hereby we attempt to portray corruption to its micro-level of description, emphasizing that corruption as a social act is perceived by individual agent. This paper will take a single point of departure: how the common-knowledge of corruption is constructed in cognitive structure of regular citizens.

1.1 Selfishness vs. Rational Morality

Since corruption mostly belongs to sociological debates, at its lowest level of description, we will only recall its philosophical description as an amoral act, nearly no different from other forms of amorality such as street crime, physically-inflicting sexual disorder, even psychopathy. We can clearly find

the concept of amorality from philosophical standpoints dating back to Kantian practical reason as stated by Nichols, using some experiments verified with statistical procedure, arguing that ethics is based on practical reason: that is, that our ethical judgments can be explained in terms of rational standards that apply directly to conduct or to deliberation (Nichols, 2002). On the other hand, at a glance, corruption can also be viewed as a form of innate selfishness brought also by evolutionary evidences of Dawkins' selfish genes (Dawkins, 1976), notifying that the essence of life is selfishness.

Both approaches are in fact supported by the same degree of legitimate evidences. To reconcile the opposition, one might argue that the 'reciprocal altruism' of Tooby and Cosmides' social exchange as demanded by adaptive processes (Tooby, Cosmides, 1997) is the meeting point of these two extremes.

These philosophical and biological standpoints are nevertheless, only suggest that specific and explicit elaboration of insights on corruption is still in a great lack, despite the fact that theoretical investigations of corruptions with more collective nuances gains its earlier advancement.

1.2 Relational Relevance and Higher Cognition

If we put all previous viewpoints together, then corruption can only gain its relational relevance through the so called higher cognition. What we intend to describe as relational relevance is the nature of corruption as an embodied act within particular social ideally considered degraded system consists of multiple agents and social relations that mediate the exchanges. And higher cognition is something we specifically refer to a far-from-unconscious cognitive processes in which abstract operations of human cognition including moral cognition, rationality, and philosophical intuitions reside¹.

The idea of higher cognition to cope with more abstract human cognitive processes is rather an ambitious endeavors of cognitive science, involves many disciplines and synthesis, tends to unify different levels of descriptions that in turn will reflect the complexity of human abstract thinking, and several riotic debates that we do not attempt to grasp in this paper.

But following the concept of rational morality, apart from its philosophical debates between moral realism and moral learning (Rottschaefer, 1999), one clear standpoint that differs corruption from any other kinds of amorality relies on its legal domain. This leads to specific perception and cognitive abstractions governed by an embodiment of individual mental processes within its social systems. We will leave the distinction between corruption and any other crimes to legal arguments. But in turn, legal arguments can provide classifiable properties of corruption as associated with its relational relevance within social system. And finally, out from this relational relevance, we can construct higher cognitive processes governing the act of corruption by each individual.

2. Corruption Defined

As a pervasive one term cognitive scientists tend to relate implicitly to highly-complex and almost unexplainable situations act, Varese (2000) defines corruption as a particular form of social exchange. A corrupt exchange takes place between two actors, the corrupter and an official.

Although the exchange appears to involve only two actors, a third one lurks in the background: the principal. Varese points out that the official is an 'agent' or an assistant employed by a principal in order to implement rules set out by the principal. Typical examples of agents include bureaucrats who oversee the issuing of permits, policemen who patrol across the street, or nutritionists who check the quality of retail dairy products.

The principal is usually thought of as the state administration, which employs individuals to undertake such tasks. The corrupters are members of the public or of another organization who wants to bend in their favor the rules laid out by the principal. This is why, according to Varese, corruption differs from other crimes, such as theft.

¹Publication of a specific research group focusing on higher cognition can be accessed in URL: [[http://ruccs.rutgers.edu/ArchiveFolder/Research Group/research.html](http://ruccs.rutgers.edu/ArchiveFolder/Research%20Group/research.html)]

To avoid an intertwined channel of information as the pathways for the extrinsic materials to give the common-knowledge a possibility to alter, we will limit our proposal to specific channel, that is the news, the official statement of public administrators, and the public opinion, all reflected well in daily newspapers, weekly magazines, and television talkshows.

2.1 Dynamics of Corruption

The dynamics of corruption we mention here refers to the rise and fall of debates and discussions on corruption, one that gets its complex nature regarding the fact that many opinions on corruption are also accompanied by many accusations of corruption in certain countries. This is, we assume, the source of endless debates on corruption throughout the media.

Logically, since corruption is illegal, there is no way to determine which individual is the corrupter. Generally, there would never be a confession from someone who has just bribed a public administrator so he could have special facilities or privileges. There must be an indictment, persecution, trial, et cetera. The detail of these legal processes is no part of our concern. But the press is responsible to make the case of corruption widespread. With the help of media, citizen can grasp the discourse and construct their own abstract thinking on corruption that later can give them a precedence for motoric tendencies associated to dynamics of corruption.

Out of legal definition from Varese, corruption itself is a discourse reflected in news, daily conversations, public opinions published through media, official press release, articles of an act, and many others. Up to this point, we can determine which individuals are dominant in giving the prolific statements related to corruption.

We assume, there are three main roles in the dynamics of corruption based on each relational relevance: the public officers, including bureaucrats, policemen, judges, and several others who will be the first persons obligated to make a public statement whenever an accusation of corruption appears in the media; the corruption commentators including intellectuals, social scientists, informal leaders and several others who have no direct authorities or responsibilities to public administration; and the regular citizens who have the least influence in the formation of corruption discourse and their opinion only manifests in daily conversation.

Instead of describing the interrelations or interdependencies of these three kinds of roles in social system, we will only observe the higher cognition regular citizens specifically have. But since this higher cognition resides within each role's privateness of individual consciousness, the only way to observe its dynamics is only through indirect observation to occurrences and frequencies of relevant corpora found in political debates, law enforcement debates, macroeconomical debates, moral debates that we can easily find daily in opinions in newspapers or television talkshows.

3. Constructing Higher Cognition

Based on relational relevance, then how can corruption discourse give birth to higher cognition, give moral judgment that corruption is something unallowed to do, give an appropriate excuse for one's own individual benefit?

Several frameworks on higher cognition has been recently elaborated by cognitive linguistics, apart from lower cognition debates concerning the structure of consciousness as neurological emergent properties, or the activation of perception or memory. Higher cognition reckons more abstract thinking of human cognition, familiar with the terms 'knowledge', 'intuition', 'concepts', all that fits better in cognitive linguistics than in any other levels of description in cognitive science.

Unlike highly established natural sciences, cognitive linguistics is a field of theories full of assumptions, suggestions and speculative propositions. Hence, rather than performing a single framework, cognitive linguistics may well be described as consisting many ingredients that attempt to cancel each other in certain points. To cope with such theoretical uproar, we will selectively pick relevant framework.

To capture the discourse of corruption and integrate it to abstract knowledge, we will review some bottom-up approaches that is very recently proposed by metaphor-based cognitive linguists including the theories of metaphor mapping (Lakoff, Johnson, 1980) as embodied in sensory-motor controller.

3.1 Review on Symbolic Logic

Recalling the definition from Varese, corruption is an abuse of trust. In other words, a trust as a form of limited common-knowledge is added by an abuse, and an inconsistency hence occurs.

Symbolic (modal) logic as a top-down backbone of artificial intelligence formulates some rigorous rules and notations to cover this issue, primarily based on Kripke semantics of possible worlds, with additional but complicated formulas such as fusion logic, implicit knowledge, or epistemic default logic (Meyer and van der Hoek, 1998).

From the earlier compendium of van der Hoek on incoherent knowledge that we regard as a systematic symbolic representation of such abuse, we can formally construct an incoherence of knowledge reflected in the daily talks of common people.

Consider these following statements from the so-called graded-normality:

1. Corruption is normally exposed.
2. Corruption is normally illegal.
3. Small bribery is a corruption.
4. Small bribery is not exposed.

Although we expect that small bribery (giving little amount of money to policemen to avoid traffic violation punishment or to officers who is in charge to give permits) to be normally illegal, we do not expect that small bribery is exposed, then it is no use to avoid small bribery since based on our previous knowledge, corruption gives us harm if it is exposed.

In the traditional representationalism in building AI, this so-called graded-normality has been well represented in Standard Deontic Logic that gives space to moral dilemmas to be expressed in rigorous logic, but still, the axiomatic stance giving the validity of corruption properties is out of context of representationalism. We can expect a change on common-knowledge such as 'small bribery is exposed' or on the contrary, 'corruption is normally unexposed'. Both changes are easy to find in daily conversation. And if many viewpoints of corruption is built upon the same top-down approach as normally codified by formal law, the viewpoint of corruption will eventually be easy to fall down into ubiquitous incoherencies.

What governs such change is what many cognitive scientists intend to construct by the use of bottom-up approach. The effort seems at a glance to be a brute force because there is no direct and straightforward logic but merely probabilistic learning, regardless the fact that it accommodates as many changes as expected to appear.

On the other hand, this top-down approach intentionally ignores the origins of primitive atoms it represents. The expressions like 'normally', 'possibly', or 'necessarily' that are familiar in semantic analysis of symbolic logic is found to be axiomatic. Moreover, common-knowledge is rather difficult to statically grasp or portray even by cold-blooded linguists.

3.2 Cognitive Linguistics

A bottom-up approach is required to complement symbolic processing. Unfortunately, metaphor-based bottom-up approach usually considers only the probabilistic learning that can be a starting point to describe the semantic learning of human reasoning. This approach is much helpful to understand how a machine (or an infant or a non-expert) learn to validate a metaphorical statement based on literal ones.

Our pathways to make a review of the structure of higher cognition are much in resonance with symbolic connectionism that is still in its very early development. Other candidates that is still struggling to achieve its more rigorous formalization is what usually called conceptual blending (Fauconnier, Turner, 1996), one that deeply rooted from literature and poetics.

Using the theoretical pieces left, it is possible to provide a framework to give the hard answers for concrete questions such as 'how can a corrupter feel, think of, and do like that', given a particular condition, later reflected by what a corruption commentator would write down on media, and in turn giving the shape of what kind of opinion citizens would claim, usually believed to be encoded by many perception indexes.

The observables would be clear and simple: some accused public administrators' statements as the corrupter's knowledge, public opinions as commentator's knowledge, and the daily moral judgment as regular citizen's knowledge that provides an empirical standpoint for prior distribution required by probabilistic learning model. In the future, relative perception indexes of citizens' knowledge in many countries with different language seem to be promising to give a hint to measure the permissiveness or hardship of citizen concerning the act of corruption.

We can examine previous attempts in metaphoric reasoning about an action from Narayanan (1999). The point of Narayanan is understanding the semantic processes of a given newspaper stories as a strict analogy with embodied movement performed by a motor control in spatial movement called x-schema, formalized through a primitive model named Petri nets. At first glance, this approach captures our intension to explain the structure of common-knowledge in a limited context.

Sneaking behind Narayanan's theoretical building-blocks, we can mention earlier works of Lakoff and Johnson on metaphor, noting that a metaphor is primarily built upon primary metaphor of spatial relations (LIFE IS A JOURNEY as ACTION IS A MOTION), and highly-abstract thinking can be represented as recurring patterns of experience called image-schema. This insight can give a foundation to observe relevant statements appear in the media and reveal its effects having perceived by commentators that in turn will give the shape of citizens' knowledge on corruption. This step would be far outreaching concerning the fact that there are many serious attempt of the politicians giving statements to 'hide' in vagueness (Felkins, 2002) of language.

Finally, we can make a conjecture on the structure of corruption as a knowledge of regular citizens, much similar to the reasoning about an event or action as the works of Narayanan intended to explain. This finding will give more insights to the structure of moral judgment in daily conversation to find the underlying explanation of folk theories.

3.3 Preliminary Results

The works of Narayanan is supported by Bayesian learning as a continuation of previous works of Jurafsky (1996), Resnik (1993), and the development of language acquisition named L0 (Feldman, et. al., 1996) that is primarily built to confer spatial coordination.

The scheme provided by such learning requires lexical, thematic, and syntactic supports that have been elaborated well in English. To study the discourse of corruption in order to understand the semantic understanding among citizens, a prior probability must be measured from corpora written in local language.

These preliminary measurements are required to build a metaphor map that supports a computational model capable to reason about:

1. independent causal models of the source (embodied) and target (abstract process) domain as shown in Table 1.
2. systematic metaphoric mappings that opportunistically project concepts from the source to the target domains that must satisfy following properties:
 - a. cross-domain mappings are many-to-many, irreflexive and transitive
 - b. mapping is context-sensitive
 - c. conventional metaphors are objects able to be converted into hierarchical dominance.

Causal models mentioned above refer to belief revisions due to database updates as a result of, say, a law-breaking or law-enforcement exposed in the media. The updating can be expressed by Belief nets that allow the existence of conditional probabilities.

Table 1
Metaphor Mapping from Corruption Domain to Motion Domain

ACTION	MOTION
CLEAN GOVERNMENT	DESTINATION
CURRENT STATE	CURRENT LOCATION
LEGAL ACTIONS	A PATH
ALTERNATE LEGAL ACTIONS	ALTERNATE PATHS
ATOMIC ACTIONS	STEPS
FAILURE OF PLAN	FALL
IMPLEMENT ACTION	MOVE FORWARD
UNDO ACTION	MOVE BACKWARD
AMOUNT OF PROGRESS	DISTANCE TRAVELED
LACK OF PROGRESS	LACK OF MOVEMENT
DIFFICULTY	OBSTACLE, BURDEN

Unlike the L_0 system that attempts to build syntactic validity from scratch, Narayanan's x-schema moves to upper level of description, without being bothered by syntactic selection, and hence do not capture a real connectionism. Either good or bad, Narayanan's approach can be very useful if the context shrinks to very limited discourse like corruption.

4. Metaphor Map for Event Reasoning

Following the previous work of Lakoff and Johnson on spatial coordination, Narayanan continued with more technical approach using a sensory-motor controller so-called **x-schema** (executable schema), based on the architecture supplied by the theory of Petri net, a 4-tuple representing places, transitions, input arcs and output arcs (Sivanandan, 1999).

The Petri nets are elementary building-blocks to construct an executable schema, or simply x-schema, one that is able to represent controllers of primitive sensory-motoric activities. These primitive activities can be extended to more complicated architecture to represent more complex control system that has ability to anticipate various terrains if applied to spatial coordination.

Using the metaphoric mapping suggested by Lakoff and later hypothesized by NTL school of thought² that also gave birth to L_0 acquisition system, Narayanan goes further by constructing the so called f-struct, feature-value pairs as a joint parameters holding the world state, motivations and intentions of the controller.

With f-struct as an embodied domain, different domain such as corruption can be mapped to the same event reasoning, assuming that abstract thoughts consist of metaphorical expressions is primarily constructed by semantic primitives such as perceptions, actions or forces. A metaphor mapping with specific requirements is shown in Table 1.

Additionally, a discourse binding belief net is added to the system, related to each domain, and designed to give additional information such as type hierarchies that is obtained by parsing or training on databases.

The entire learning process of the system is held by conditional probabilities of Belief net (Huang, Darwiche, 1994) that is updated in many parts of the system after one time-slice. The updating with new evidences is impressively observed in I/O behavior of the system that represents an act of interpretation. Novel metaphor is even possible to occur whenever a novel expression is actually rooted back in the source domain.

² NTL school of thought of cognitive science has three main hypotheses: 1) Many basic concepts are directly embodied in perception, motor control, emotions, and social cognition. 2) Specific perception, action, and force-dynamic abstractions of embodied concepts serve as semantic primitives of abstract concepts. Abstract concepts may also derive their meaning through metaphorical and other mappings from embodied concepts. 3) Structured Connectionism provides the right framework to investigate these issues in detail. Publications of this group can be accessed in URL: <http://www.icsi.berkeley.edu/NTL/index.html>

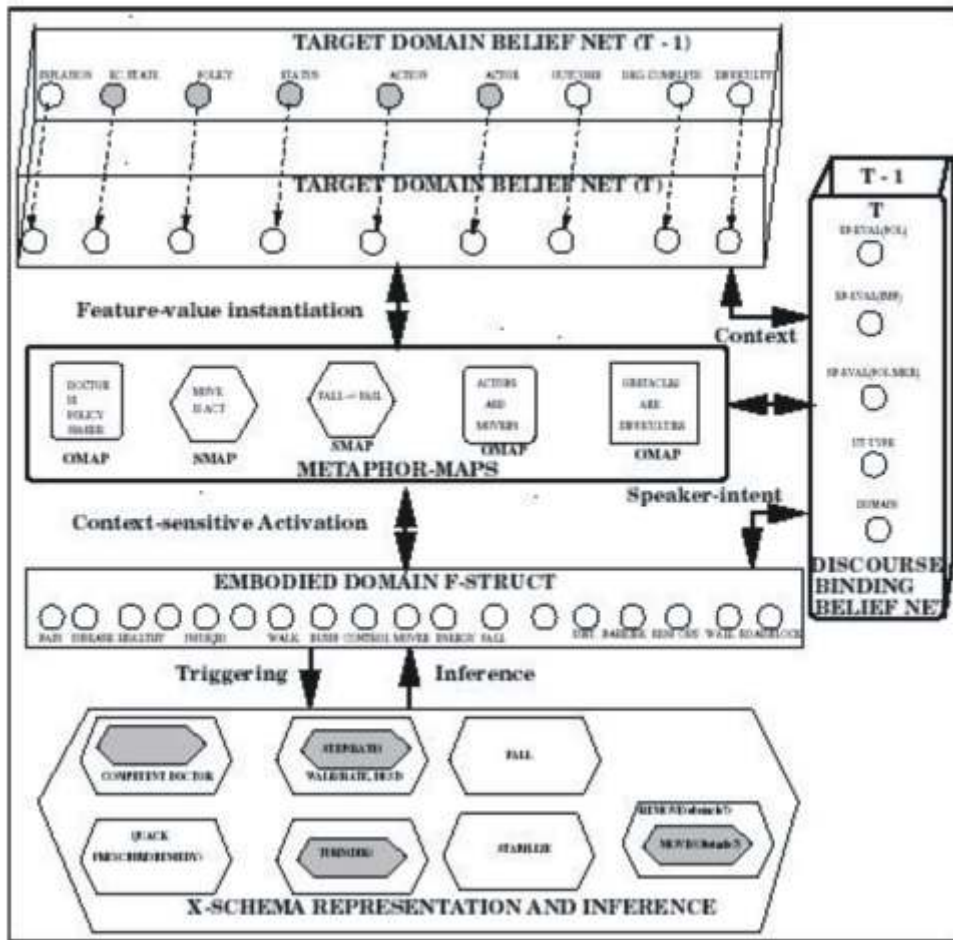


Figure 1 Complete Picture of Embodied Cognition (Narayanan, 1997)

A complete pseudo-code governing the entire system at its highest level of control representing a cognitive reasoning of human is shown as follows:

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-----
top_level_control()
static:
    target (target_net), discourse(discourse_net),
    metaphor-maps (M), x-schemas(X), f-struct(F)
local variables:
    last_time_index (t - 1)
loop
    %wait for input and process the
    %appropriate %cases
    if input(I) is read
    then interpret_input(I)
    if get_mpe(network) is read
    then mpe(network)
    if get_threshold(network, maxt, thresh) is read
    then threshold(network, maxt, thresh)
    %if there is an input f-struct
    %the process it
    %if an explanation is requested
    %return MPE assignment to the Belief
    %network
    %if a thresholded update for a few time
    %steps is requested
    %return all values above Thresh in
    %Network %up to time maxt
-----

```

which requires more primitive statements. Updating is embodied in target domain networks and later returning the highest posterior trajectory. More detail of this computational framework can be found in (Narayanan, 1997).

Given a particular article from New York Times that appeared in August 1995 as follows:

In 1991, in response to World Bank pressure, India boldly set out on a path of liberalization. The government loosened its strangle-hold on business, and removed obstacles to international trade. While great strides were made in the first few years, the Government is currently stumbling in its efforts to implement the liberalization plan.

While the prior and posterior f-struct is presented in Table 2 and 3.

Tabel 2
input is f-structs

<i>feature</i>	<i>value</i>
event	stumble
domain	economic policy
economic policy	liberalization
aspect	present-progress

Table 3
output is f-structs

<i>feature</i>	<i>value</i>
event	stumble
domain	economic policy
economic policy	liberalization
aspect	present-progress
	context
	ongoing plan ^ difficulty
	suspended (0.8)
	outcome
	fail (0.7)
	goal
	free-trade ^ deregulation

If we implement this framework to local language such as Indonesian, then, given an article from Kompas (Sinaga, 2003) appeared in September 2003 as follows:

Kita semua hampir sepakat, masalah korupsi, kolusi dan nepotisme masih mengakar secara dalam pada interaksi ekonomi, politik, maupun hukum Indonesia.
[We are close to agree that the problem of corruption, collusion and nepotism is still deeply rooted in Indonesian economic, political, and legal interactions.]

Then similar input f-struct can be generated as follows:

Tabel 4
input is f-structs

<i>feature</i>	<i>Value</i>
event	<i>mengakar (rooted)</i>
domain	Indonesia
Indonesia	<i>korupsi (corruption)</i>
aspect	present-progress

Following the basic model of Narayanan, because of the lack of parsing³ to determine the specific communicative intent or speaker-evaluation, and of difference of language capturing different metaphor maps⁴, then a formal model to reveal the cognitive structure of corruption in Indonesian is left for further works.

5. Discussion

Our conjecture on the possibilities of understanding the cognitive processes surrounding the discourse of corruption can give a better picture to explain the knowledge of citizens about corruption,

³Based on natural language processing, parsing can be described as an algorithm as a procedure that searches through various ways of combining grammatical rules to find a combination that generates a tree that could be the structure of the input sentence. Cf. Allen (1995)

⁴There are at least 200 primitive embodied metaphors that are registered in [<http://cogsci.berkeley.edu/metaphors/>].

how moral judgement maintains its dynamics from the individual viewpoint, and how far corruption is permitted or prohibited.

Nevertheless, the approach of Narayanan is lack of biological or more specifically, neurological evidence. More essential problem is that the model consists of finding the correct number of senses for each verb, as well as mapping on not only the correct features to those verbs, but also the correct distribution of weights (Dick, 1998). This is also a critical problem of the hypotheses on embodied knowledge of NTL school of thought. One defending argument might be the extremely different empirical background between the abstract domain and the source domain, that is captured by the same embodiment.

In addition, the rate of higher cognition is also unclear, since the measurement is mainly based upon the acquisition of novel metaphors that in some cases, very dependent to external interference.

6. Conclusion

In very simple description given by Dick (1998), Narayanan's metaphoric processing goes like this:

1. children label experience,
2. acquisition of motor schemas precedes their labeling,
3. an informant provides the necessary verb in the correct context, and
4. children learn words without negative evidence and through fast mapping.

And taking the general model to limited scope such as corruption would be less risky. A result of constructing such model to understand the common-citizens' thoughts on corruption, as we believed, is wider and rich in giving many counter-intuitive problems found in folk theories such as why corruption is epidemic and only contributing very little to the common people's main opinion, despite the intense and perpetual warning of commentators' opinion against corruption.

Along with the advance in further research, we believe that this construction at least will be able to give another explanation on moral judgement against corruption, making another scenario for the existence of Kantian morality.

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