

Collective Intentionality and Social Forms of Communication

A SOCIO-LOGIC OF COMMUNICATION

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International Conference on Interdisciplinary Social Sciences

Tenth International Conference

University of Split

Split, Croatia

11-14 June 2015

Overview

- 1 On socio-logic
- 2 On collective intentionality
- 3 Language in use and social ontology
- 4 Revision of collective intentionality
- 5 Types of authority distribution in communication
- 6 Societal changes as conditions of possibility of revising collective intentionality
- 7 Conclusions

Abstract

This paper defines the relation between social forms of communication (e.g. those defined by the relation of authority or its absence) and the ways of reaching understanding. The working hypothesis is a Habermasian one in the process of revising collective intentionality so to remove disagreement the shift from one social form of communication to another is required. According to this hypothesis the disagreement in attitudes plays the same functional role in social learning as does the error in individual learning, while the shift to a non-authoritative communication form is a condition of possibility of revising collective intentionality. The proposed topic will be investigated using the methods of formal pragmatics and it is, consequently, closely connected to theories in philosophy of language and logic, among which the following stand out as relevant: the illocutionary logic of J. Searle and D. Vanderveken, the normative pragmatics of R. Brandom, and the dynamic epistemic logic of J. van Benthem et al.

- There is a large class of logical phenomena which cannot be understood within “zero-agent logic” and “single-agent logic”.
- Logical notions, such as ‘consequence’, have been defined so far using semantic notions, such as ‘interpretation’, and syntactic notions, such as ‘proof’. These notions are coextensive and, therefore, interchangeable if there is a harmony between logic syntax and semantics, i.e., a logic under consideration is sound and complete.
- The third dimension of logical semiotics has been missing from the picture and will necessarily miss from it if zero-agent and single-agent perspective prevails. Pragmatics, as current research shows, can offer the third way for understanding logical phenomena. Taking the pragmatic standpoint is not just another way of describing and investigating otherwise well-studied phenomena. Rather, the pragmatic standpoint opens up a perspective in which previously unrecognised logical phenomena become visible.
- Since from the pragmatic standpoint at least two actors (agents) are required in the theoretical model, it seems proper to use the term *socio-logic* in order to emphasize the fact that the research focus lies on the logical phenomena occurring in social interaction.

Theory of theory change

- The phenomenon of theory revision is well studied. The AGM theory (Alchourrón, Gärdenfors, Makinson) of theory revision has reached the “textbook level” and thus constitutes a standard part of logical education at the postgraduate level. Nevertheless, the AGM theory (of theory revision) is restricted to the assertive type of sentences, to sets of sentences in the indicative mood or descriptive theories conceived as “abstract objects”, and thus it is a theory of zero-agent logic.
- Revision of collective intentionality is a much more complex phenomenon and, as will be argued here, it cannot be reduced to exclusively logical one but includes social transformations as its proper part.

Collective intentionality

- The social phenomenon of common belief in a communicative group, say a group of philosophers and scientists or actors characterized by a high degree of rationality, is much more complicated. Common belief is not only a general belief, a belief shared by everybody in a communication group, it is also socially reflexive belief where everybody in the group believes of everybody in the group that she shares the same belief and believes of everybody to believe that up to any level of iteration. A remarkable logical phenomenon, extremely complex and yet taken to be self-evident in our everyday thinking.

	<i>i</i> 's beliefs:	<i>j</i> 's beliefs:
0	$B_i\varphi$	$B_j\varphi$
1	$B_iB_i\varphi; B_iB_j\varphi$	$B_jB_i\varphi; B_jB_j\varphi$
2	$B_iB_iB_i\varphi; B_iB_iB_j\varphi; B_iB_jB_i\varphi; B_iB_jB_j\varphi$	$B_jB_iB_i\varphi; B_jB_iB_j\varphi; B_jB_jB_i\varphi; B_jB_jB_j\varphi$
...

Social reflection and collective intentionality

- The property of social reflexivity ($B_j\varphi \rightarrow B_iB_j\varphi$) is an essential property of collective intentionality. Collective intentionality (Searle) together with normativity (Habermas) constitutes the ontology of the social world.
- In this talk the logical phenomenon of revision of collective attitudes will be analysed from the standpoint of the *socio-logic* and it will be argued that the condition of possibility of the revision lies in the transformation of social relations in the communicative group.

The foundations of socio-logic

Expressive conception of language

Illocutionary logic. Searle and Vanderveken have revealed the structure of communicative action (speech-act) as an expression of individual psychological states.



Normative conception of language

Normative pragmatics. Brandom has shown how use of language reshapes the distribution of normative values over communicative acts (linguistic commitments).



Logico-structural conception of language

Dynamic logic. Van Benthem has given the syntax and semantics for the formal language appropriate for the analysis of how language creates social world.



Locutions as modal operators

- The dynamic logic describes effects of a communicative act using the formula

[act] effect.

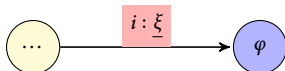
Example (Translation)

After actor i asserts that φ ($i : \underline{\varphi}$) it is forbidden for i to deny that φ ($F_i i : \underline{\neg\varphi}$) translates to

$$[i : \underline{\varphi}]F_i i : \underline{\neg\varphi} \quad (\text{LC})$$

Formula (LC) can be understood as a way of stating the principle of non-contradiction within formal pragmatics; it states the basic principle of non-contradiction from classical logic ($\neg(p \wedge \neg p)$).

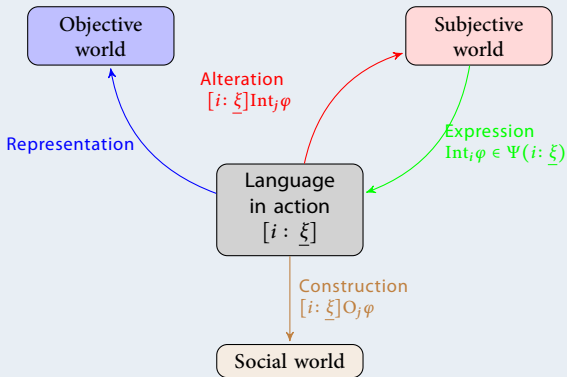
- Arrow diagram where φ may stand for a psychological (individual mental state) or social (collective intentionality, normative reality) effect.



(1)

Locution as expression and action

Habermas ontology and formal pragmatics



The three theories (illocutionary logic, normative pragmatics, dynamic logic) can be connected within the framework of Habermas' ontology.

General communication norm as an illustrative example of ontological commitments of socio-logic

Definition

Let G be a communication group and $i \in G$.

If $\text{Int}_i\varphi \in \Psi(i: \underline{\xi})$, then $[i: \underline{\xi}]\text{O}_j\text{Int}_j\varphi$ for any $j \in G$. (2)

General communication norm as applied to a sender-receiver pair yields the *strong norm of trust*: after the sender's performance of a locution ($i: \underline{\xi}$) that expresses an intentional state ($\text{Int}_i\varphi \in \Psi(i: \underline{\xi})$) having certain type ($\bar{\text{Int}}$) and content (φ), the receiver is obliged (O_j) to have the intentional state of the same type and content ($\text{O}_j\text{Int}_j\varphi$). If the general communication norm holds in a group, then in the group everybody is everybody's communicative authority.

Communicative incoherence

- A logical phenomenon similar to attitude inconsistency at individual level can also be found at the collective level. Let it be called *communicative incoherence*: the term ‘incoherence’ points to the fact that there is a disagreement within the group, the adjective ‘communicative’ shows that the disagreement can be discovered only in communication. Unlike individual states which are introspectively accessible, collective intentionality is transparent only for those intentional states that are produced by language in use.

Definition

Discourse $i : \xi_1 \dots j : \xi_n$ is *communicatively incoherent* iff it makes the same intentional state both permitted and forbidden for the same actor, or, equivalently, iff it makes the same locution both permitted and forbidden for the same actor.¹

¹ $[i : \xi_1] \dots [j : \xi_n](P_k\varphi \wedge F_k\varphi)$ where φ stands for an intentional state or a locution.

Contradiction and destruction

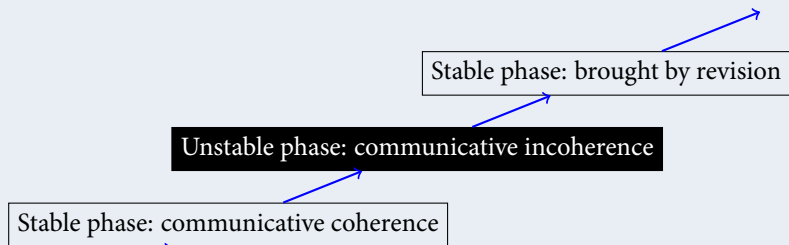
- Contradiction creates destruction according to the principle *ex contradictione quodlibet*. In classical logic the presence of contradictory sentences in the premises destroys the proof by making every sentence provable, their presence in the theory destroys its descriptive power by making no interpretation possible, their presence in the discourse destroys communication by making it impossible to reach understanding.
- According to Tarski's (1930) theory of consequence relation ($Cn : \wp\mathcal{L} \rightarrow \wp\mathcal{L}$) there must exist a sentence whose consequence is the whole of the language (\mathcal{L}). Tarski's Axiom 5 states this property: *there is a sentence x such that $Cn(\{x\}) = \mathcal{L}$.*
- Is it rational to abandon the whole theory once a contradiction has been discovered? Is it rational to end communication when the disagreement of attitudes has been revealed? No, and no.

Reason for revision

- The discovery of contradiction is not a reason for destruction of a theory or a communicative exchange (=language-mediated rational interaction), but a reason for reconstruction.
- A good example of how a contradiction gives a reason for reconstruction (and not for the destruction) is given in AGM concept of revision. Revision is complex and underdetermined theoretical change occurring when a new sentence x cannot be consistently added to a theory A . Revision takes two steps: 1. contraction, which is an under-determined change of A to a contracted theory A^* to which x can be consistently added, and 2. expansion of A^* with x .
- So, the fact that the theory growth leads to contradiction, i.e., $\{p, \neg p\} \subseteq Cn(A \cup \{x\})$ for some p , is not a reason to destroy it, but to revise it. Classical logic was not intended to provide a model of theoretical or normative dynamics: contradiction leads to destruction. Translated to the communicative field: the discovery of a disagreement is not a reason to destroy collective intentionality but to engage in an attempt to reconstruct it.

Instability phase

The state of a communication process enters an unstable phase if communicative coherence (social contradiction, disagreement of attitudes) becomes revealed. Classical logic admits no unstable phase since a contradiction would destroy the process. It is a well-known empirical fact and requirement of rationality that contradiction will not “explode” but it will give reason for a change (a revision or reconstruction of collective intentionality).



...
 Phases of communication process. Note that general norm of cooperative communication need not hold neither in stable nor in unstable phase.

Diversity of normative contexts for language generated collective intentionality

- The generally believed general belief in the principal communication norm observance is just a special case of normative context for construction of collective intentionality. There are other normative contexts as well. It may well be the case, as it is argued here, that a change in normative context is a condition of possibility of creating collective intentionality. If so, the dynamics of social relations a necessary part of the dynamics of collective intentionality.
- This fact gives a prime example of socio-logic phenomena: a societal change is a precondition for a logical phenomenon of revision.

Communicative authority

Definition

Actor i is an epistemic authority for actor j iff actor i 's assertion that it is the case that φ produces the obligation of actor j to believe that it is the case that φ .

$$EA(i, j) \text{ iff } [i: \underline{\cdot\varphi}]O_j B_j \varphi \quad (\text{Epistemic authority relation})$$

Definition

Actor i is a bouletic authority for actor j iff actor i 's request that j see to it that it is the case that φ produces the obligation of actor j to desire to see to it that it is the case that that φ .

$$BA(i, j) \text{ iff } [i: \underline{! j \textit{ stit } \varphi}]O_j D_j j \textit{ stit } \varphi \quad (\text{Bouletic authority relation})$$

Definition

Actor i is a communicative authority for actor j iff actor i 's locution produces the obligation of actor j to have the intentional state expressed by the locution.

$$CA(i, j) \text{ iff } \text{Int}_i \varphi \in \Psi(i: \underline{\xi}) \text{ implies } [i: \underline{\xi}] \text{O}_j \text{Int}_j \varphi$$

(Authority relation generalized)

- The relation of communicative authority is just a restriction of the binding force of the general communication norm to pairs of actors.
- If the general communication norm binds every pair of actors, this type of distribution of communicative authority will be hereafter called α -type of communicative authority configuration.

Communicative equality and non-equality

There are two equality types of communicative authority distribution: (α -type) where communicative authority relation is universal within a group G , $CA = G \times G$ (i.e., general communication norm is generally obeyed); and (β -type) where communicative authority relation is reduced to identity relation, $CA = Id$. The third type (γ -type) is the non-equality type and comprises all transitive and reflexive relations that are neither universal nor restricted to identity relation. A communicative authority relation R belongs to γ -type iff R is transitive and reflexive, $R \neq G \times G$, $R \neq \emptyset$.

Equality with authority (α -type)

$$\forall i \forall j CA(i, j)$$

Equality without authority (β -type)


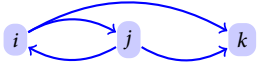
$$\forall i \forall j (i \neq j \rightarrow \neg CA(i, j))$$

Non-equality (γ -type)

$$\exists i \exists j (i \neq j \wedge \neg CA(i, j)) \wedge \exists i \exists j (i \neq j \wedge CA(i, j))$$

Communicative hierarchy

- Communicative inequality (γ -type) comes in a variety of subtypes.

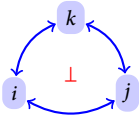
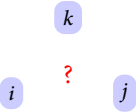
SOME γ -SUBTYPES	
Not connected subtype $\exists i \exists j (\neg CA(i, j) \wedge \neg CA(j, i))$	Not symmetric subtype $\exists i \exists j (CA(i, j) \wedge \neg EA(j, i))$
EXAMPLES	
Not connected but symmetric	Connected but not symmetric
	

- Let us call “hierarchical” those γ -subtypes that are connected but not symmetrical.

Resolving communicative incoherence

- The communicative incoherence is an unstable communication phase, a state of disequilibrium and it gives the reason for an informational process aimed to resolve the imbalance. For example, scientific knowledge is subordinated to the requirement of *intersubjective testability* (H. Feigl) and the discovery of the communicative incoherence shows that the requirement has not been met and, therefore, corrective actions must be taken.
- The resolution of communicative incoherence can have one of the two forms:
 - ① the *conservative form* retains the existing communicative authority relations and assigns the obligation to revise their own intentional states to individual actors,
 - ② the *non-conservative form* transforms communicative authority relations while the revision process occurs at the collective level.

Non-conservative form

<p>General communication norm α-type</p>  <p>Communicative incoherence</p>	\Rightarrow \Rightarrow	<p>Argumentation β-type</p>  <p>Subdetermined process of reaching understanding</p>
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Transition from α - to β -type of communicative authority distribution

As soon as [validity claims]² are problematized and made the object of a justified controversy, interlocutors switch (in however rudimentary a fashion) from communicative action to another form of communication, namely, a practice of argumentation, willing to convince one another of their views as well as to learn from one another.

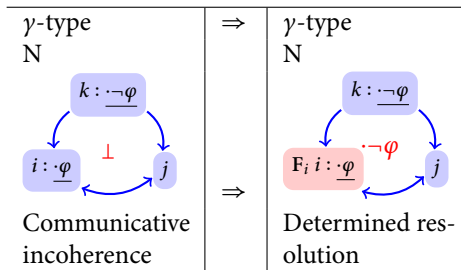


Jürgen Habermas (2003).

Truth and Justification, str. 77, MIT Press.

²Truth, normative rightness, sincerity.

Conservative form of revision



- An actor's refusal to revise her intentional states (or at least to perform only those locutions expressing the revised intentional states) might end in excommunication.

Note.³

³The group of persons in the background shows consternation with Spinoza's refusal of γ -type of reconstructing collective intentionality. The book in Spinoza's hand symbolizes β -type of reconstruction where the referent group is an imagined group of philosophers/scientists.

Non-compliance with conservative type of resolution of communicative incoherence

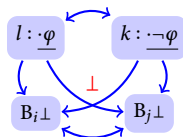


Samuel Hirszenberg (1907) *Excommunicated Spinoza*.

Obstacles to conservative resolution

- The appeal to higher authority cannot provide the solution for certain subtypes of γ -configurations.

Unsolvable disagreement
Conflicting authorities k and l



Conclusions

- The non-conservative resolution of communicative incoherence includes the change in communicative authority relations. Thus, social dynamics is a condition of possibility of logical dynamics in reconstruction of collective intentionality.
- The transition from α -type to β -type configuration is a rational socio-logical revision form. The failure of communication as “informational exchange” is replaced with argumentation, which if successful, restores the collective intentionality and enables the restoration of α -type.
- On the other hand, the conservative resolution of communicative incoherence has many obstacles and cannot be considered adequate for the construction of collective intentionality in the community of scientists and philosophers.
- The communicative authority configuration of the community of scientists and philosophers is not of stable γ -type, but a transformative structure of α - β - α -... transitions.

Appendix: a consequence for the philosophy of science

- The project of finding distinguishing properties of scientific discourse within the syntax and semantics of its language (like the one conducted within the theoretical framework of logical empiricism) is nowadays generally regarded to be unsuccessful.
- According to the analysis presented here it is within the semiotic dimension of pragmatics where the “demarcation line” between science and non-science ought to be sought for.
- It is the type of reconstruction that defines the scientific discourse as the one where the knowledge is built within a non-conservative transformative structure of α - β - α -... types of equality distributions of communicative authority..

Prototype $\mathcal{L}_{\text{effect}}$ dynamic modal language for communication theory

Definition (The prototype language $\mathcal{L}_{\text{effect}}$)

$\mathcal{L}_{\text{world}}$	p is a sentence of propositional logic
$\mathcal{L}_{\text{reality}}$	$\varphi ::= p \mid \neg\varphi \mid (\varphi \wedge \varphi) \mid \diamond\varphi \mid D_i\varphi \mid B_i\varphi \mid i \text{ stit } \varphi \mid O_i\varphi \mid \chi$
$\mathcal{L}_{\text{utterance}}$	$\xi ::= !i \text{ stit } \varphi \mid \cdot\varphi \mid \cdot\varphi \rightarrow !i \text{ stit } \varphi$
$\mathcal{L}_{\text{locution}}$	$\chi ::= i: \underline{\xi}$
$\mathcal{L}_{\text{effect}}$	$\epsilon ::= \varphi \mid [\chi]\epsilon \mid \neg\epsilon \mid (\epsilon \wedge \epsilon) \mid \otimes_i\epsilon \mid \lceil \otimes_i\varphi \rceil \in \Psi(i: \underline{\xi})$

Cf.



Žarnić, B. (2013)

Logical roots of linguistic commitment.

In *Theory of Imperatives from Different Points of View, vol. II*. Eds. A. Brożek, J. Jadacki, and B. Žarnić. Warsaw: Wydawnictwo Naukowe Semper.