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Logical Consequence Operators and Etatism

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Abstract:
In the paper, there is presented the theory of logical consequence operators indexed with taboo functions. It describes the mechanisms of logical inference in the environment of forbidden sentences. This kind of processes take place in ideological discourses within which their participants create various narrative worlds (mental worlds). A peculiar feature of ideological discourses is their association with taboo structures of deduction which penalize speech acts. The development of discourse involves, among others, transforming its deduction structure towards the proliferation of consequence operators and modifying penalty functions. The presented theory enables to define various processes of these transformations in the precise way. It may be used in analyses of conflicts between competing elm experts acting within a discourse.
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Each discourse is governed by an inferential mechanism enabling its deductive processing. A peculiar feature of all ideological discourses is that their participants in the processes of developing various narratives form statements banned from different points of view. For example, within religious discourse, atheists utter blasphemous statements from the point of view of followers of specific religions, and theists formulate sentences judged by atheists as insulting human reason. Both sides of the ideological war accuse each other of offending acts, while prohibiting the opposite party from expressing certain sentences classified as blasphemy, offense or hate speech. Even logically correct inference acts are often stigmatized in the ideological exchange by the value of blasphemy or offense, which makes them unacceptable to the parties of the conflict.

The article presents the theory of operators of logical consequence indexed by taboo functions. It will be shown that every discourse in any phase of its development is correlated with a certain logical structure consisting of an open set of discourse sentences, a set of taboo functions and a set of operators of logical consequence indexed by taboo functions. This structure determines the mechanism of deductive processing of sentences produced within a given discourse by its participants. A characteristic feature of these deduction processes is that the same rules of inference are valid in certain narrative contexts of a given discourse and lose their logical validity in other narrative contexts. The presented theory of logical consequence which is a generalization of

Tarski's theory, explains the phenomenon of the lability of deduction rules in content processing, in particular within ideological discourses.

On the basis of the presented theory, it is possible to construct idealization models of various developmental stages of the discourse: its etatization, totalitarization, terrorization, de-etatization (liberalization) and its full liberalization phase. The phase of discourse etatization consists in the growth of consequence operators indexed by taboo functions in its logical structure, while the de-etatization phase is an inverse process which culminates in correlating the discourse with a structure comprising exactly one operator of logical consequence called the liberal consequence operator that satisfies the standard conditions for consequence operators specified in Tarski's general axioms. From this point of view, the classical logic, determined by the consequence operator which meets Tarski's conditions, appears as an "oasis of freedom in deduction processes", while the other taboo-indexed operators contribute to the dissemination of penalizing activities of discourse participants. Transformations of various taboo structures of deduction in the course of the historical development of discourse are enabled by penalty functions correlated with corresponding taboo functions. Their mode of action determines, among others, such phenomena as totalitarization and terrorization of discourse.

1. The Phenomenon of Lability of Inference Rules in Discourse Development Actions

Some participants in the discourse recognize the logical correctness of certain inferences, although they assess them as unacceptable at the same time. Here is an example of such inference:

(1) *Jesus Christ is God, therefore Jesus Christ is a cheater or God.*

Some students who have mastered the competence of proving on the basis of classical propositional calculus, state that (i) the presented inference is logically correct and that (ii) the premise is true, and yet (iii) they do not accept the conclusion. However, the same students are able to recognize the correctness and the conclusion of another inference:

(2) *Hitler was the leader of Germany, so Hitler was a bandit or leader of Germany.*

Both inferences fall under the same correct rule of inference of the classical propositional calculus, namely the rule of introducing a disjunction. The presented example shows the lability of inference rules in discourse development actions, which means that in some contexts some discourse participants accept the correctness of inferences carried out in accordance with the correct rules of a given logic, and in other contexts they do not accept the correctness of inferences implemented according to the same rule, although they accept the premises for such unacceptable inferences.

Another manifestation of the lability of inference rules can be observed in relation to the ways of using, for example, Modus Ponens. Some people who efficiently use classical propositional calculus do not want to accept the following inference:

(3) *If the Buddha is God, then Buddhists are stupid. The Buddha is God. So Buddhists are stupid.*

In the case of inference (3), some language users do not want to accept the conclusion due to the rejection of the first premise. In addition, they declare on this basis that all reasoning is logically invalid. However, the same people are willing to accept the logical validity of another inference, even though they recognize the falseness of the second premise:

(4) *If Satan exists, then Satanists are stupid. Satan exists. So Satanists are stupid.*

The above-described facts can be explained by adopting the following two hypotheses:

(1) If the person O conducts inference on the basis of a classical propositional calculus, in which the premises or the conclusion contain an offensive (prohibited, blasphemous, taboo-breaking) sentence, then in the mind of the person O the mechanism blocking the inference is activated, by which (i) O rejects a correctly inferred conclusion on the basis of accepted premise or (ii) O rejects the logical validity of the inference.

(2) If the person O conducts inference on the basis of a classical propositional calculus, in which the premises or the conclusion do not contain a sentence offensive to him, then in the mind of the person O the mechanism preventing the inference is not activated, as a result of which the person O (i) accepts a correctly inferred conclusion from accepted premises and (ii) accepts the logical validity of the inference.

The lability of inference rules consists in that they are judged to be valid in some contexts but invalid in other contexts of the same discourse. This means that the deduction rules acquire their logical validity due to specific properties of the contexts in which they are applied. Such a property is the stigma of being forbidden, offensive or blasphemous in a given context. The comprehension of the inferential context by the participant of the discourse through the stigma of the ban in the inferences presented to him activates a mental mechanism blocking the process of context processing according to a given rule, which in turn triggers the act of rejecting the conclusion regardless of the acceptance or rejection of premises, or triggers the act of assessing the inference as incorrect. If the participant in the discourse does not capture the inferential context through the stigma of the ban in the inference presented to him, then, on the basis of his logical competence, he (she) accepts the derived conclusion or accepts the inference.

Does the presented mechanism blocking deductive processes in the minds of discourse participants have a logical character in the sense that it can be described by a specific structure of deduction? To perform deductive processing of formulas belonging to discourse *D*, the mind must associate a set *D* with a specific operator of logical consequence C_i. Let *CN* be any set of logical consequence operators. The deduction structures are understood as systems of the form*:* $<D, CN>$. These deduction structures, which are associated with scientific discourses, have the form: $<D, \{C_i\}>$. In this case, the *CN* is a one-element set. For example, the deduction structure for Peano's arithmetic is a system of the form: $<J\ (PA), \{C_{KL}\}>$, where *J (PA)* is the set of all formulas written in the *PA* language, and C_{KL} is the operator of the consequence of classical logic.

The hypotheses presented above suggest, however, that the structures of deduction associated by the mind carrying out inference actions within a given discourse in the context of offensive, blasphemous or forbidden sentences are systems with at least two different logical consequence operators, i.e. systems of the shape: $<D, \{C_i, C_k\}>$. The operator C_i is responsible for the deduction processes carried out by the mind within a discourse *D* in a situation where the mind does not capture the inferential context with the stigma of language taboo. The operator C_k, in turn, cancels the logical validity of inference established by C_i and carried out in contexts with the stigma of the ban (taboo). Metaphorically speaking, the C_k detautologizes some inferences that are tautological from the point of view of C_i.

The described situation can be generalized in such a way that in the deduction structure there are many consequence operators that detautologize some tautological inferences established by other consequence operators. For example, one thing offends a follower of Judaism in statements of a Catholic believer, another thing offends an adherent of Islam in statements of an Old Testament follower, and yet another thing can be a language taboo from the point of view of an atheist Bolshevik in the statements of an Islamist, Catholic or a follower of Judaism. The following reasoning may be, for instance, rejected by some Catholics and fully accepted by Islamists:

(5) *If God is great, he punishes the death of blasphemers. God is great. So God punishes the death of blasphemers.*

Many Catholics (personalists) do not have to recognize (5) as correct reasoning because of its offensive nature. According to (5), God kills people. In turn, some atheists can agree with the Islamist and recognize the logical validity of the presented inference only because it is a substitution of the Modus Ponens scheme.

The theory of operators of logical consequences indexed with taboo functions[1] constructed in the article is a tool that allows to explain the mechanism of detautologizing inferences that are logically valid from the point of view of certain logical consequence operators and at the same time invalid from the point of view of other competing logical consequence operators.

2. Theory of Logical Consequence Operators Indexed with Taboo Functions

The subject of the study of the theory of logical consequence operators indexed with taboo functions is a structure in the form (hereinafter called the structure of deduction with taboo functions): $<D, CN, T>$, where $<D, CN>$ is the logical structure of deduction of discourse D understood as a set of its formulas, and T is any set of taboo functions. Thus, $<D, CN, T>$ structures are an extension of deduction structures of the shape: $<D, CN>$. The domain of each taboo function associated with discourse D is exactly one object, which is the set of all formulas of D. Taboo functions can be understood as representations of various institutions of "elm experts" operating within a given discourse.[2] One of the roles of these experts is to control the deduction processes carried out by participants in a given discourse. Within a given discourse, there can be many experts competing with each other or fighting each other, thus designating different operators of logical consequence. Taboo functions and consequence operators indexed with these functions therefore satisfy three general conditions:

A1 $(\forall i)(i \in T \rightarrow i \subset \{D\} \times 2^D)$
A2 $(\forall i)(i \in T \wedge C_i \in CN \rightarrow C_i \subset 2^D \times 2^D)$
A3 $(\forall i, k)[i \in T \wedge k \in T \wedge C_i \in CN \wedge C_k \in CN \rightarrow (i \neq k \equiv C_i \neq C_k)]$

According to A1, each taboo function i maps the set of all discourse D formulas into a subset constituting the language taboo of discourse D according to function i. In turn, according to A2, consequence operators indexed with taboo functions map subsets of set D into subsets of set D. In addition, under A3, the two taboo functions are different when the consequence operators indexed by these functions are also different. This axiom sets the correlation between each taboo function and its corresponding unique logical consequence operator. From the axiom A3, one can conclude that if the set of taboo functions associated with discourse D is one-element, then the set of operators of the consequences CN is also one-element.

T1 $(\forall i, k) (i \in T \wedge k \in T \rightarrow i = k) \rightarrow (\forall i, k)(C_i \in CN \wedge C_k \in CN \rightarrow C_i = C_k)$

Let's adopt the following language conventions:

(i) Variables: i, j, k, l run a set of T taboo functions associated with discourse D in its specific development phase;
(ii) Variables: $C_1, ..., C_i, C_j, C_k$ run a set of consequence operators indexed with functions from the set T;
(iii) Variables: $X, Y, Z, X_1, ..., X_n$ run a power set 2^D;
(iv) Variables: $\alpha, \beta, \gamma, \delta$ run a set of formulas D.
(v) $\aleph$ is a force of countably infinite set and $Card$ is a cardinality function.

Other axioms of the constructed theory are as follows:

A4 $(\forall i)(\forall \alpha)\{i \in T \rightarrow [\alpha \in i(D) \equiv \sim(\exists X) \alpha \in C_i(X)]\}$

A5 $(\forall i)(\forall k)(\forall X)[i \in T \wedge k \in T \rightarrow C_i(X - (i(D) \cup k(D)) = C_k(X - (i(D) \cup k(D))]$
A6 $(\forall i)\{i \in T \rightarrow [X \subset i(D) \rightarrow C_i(X) \subset C_i(\varnothing)]\}$
A7 $(\forall i, k)\{i \in T \wedge k \in T \rightarrow [i(D) \subset k(D) \rightarrow (\forall X)(C_k(X) \subset C_i(X)]\}$
A8 $(\forall i)(\forall X)[i \in T \rightarrow X - i(D) \subset C_i(X - i(D))]$
A9 $(\forall i)(\forall X)[i \in T \rightarrow C_i C_i(X) \subset C_i(X)]$
A10 $(\forall i)(\forall X)(\forall Y)\{i \in T \rightarrow [X \subset Y \rightarrow C_i(X) \subset C_i(Y)]\}$
A11 $(\forall i)(\forall \alpha)(\forall X)\{i \in T \rightarrow [\alpha \in C_i(X) \rightarrow (\exists Y)(Y \subset X \wedge Card(Y) < \aleph \wedge \alpha \in C_i(Y)]\}$,

Axiom A4 states that if a given formula is banned from the point of view of any taboo function belonging to the class *T* (if it belongs to any language taboo), i.e. belonging to the value of any taboo function, then there is no set of formulas in *D* from which the given formula would be derivable according to the operator of the consequence indexed by a given taboo function. In addition, according to A4, if a formula has the property that there is no set of formulas from which it is inferable according to the operator of the consequence indexed by a given taboo function, then this formula belongs to the set of banned formulas designated by a given taboo function. Hence, axiom A4 expresses a property which can be named the principle of inferential sterility of formulas belonging to any taboo from the point of view of a given taboo function. The same formula, sterile from the point of view of a given taboo function, does not have to be sterile inferentially from the point of view of another taboo function associated with discourse *D*. In light of the axiom A5, two consequence operators indexed with any taboo indexes, acting on any set of formulas disjoint with the set of formulas banned according to one or the other taboo index, return the same set. In other words, any two consequence operators indexed by different taboo functions behave logically the same, acting on sets of formulas not banned from the point of view of the sum of the values of these two taboo functions. A6 expresses that any subset of a given set of banned formulas has the property that the set of formulas derived from it, according to the operator of the consequence indexed by the taboo function that creates a given set of banned formulas, is included in the set of formulas derived according to this operator from the empty set. If the set of consequences of an empty set is an empty set, then no formula is derived from any set of banned formulas. Axiom A7 states that if the set of banned formulas designated by a given taboo function is included in the set of banned formulas designated by the second taboo function (the first taboo function is weaker than the second, stronger taboo function), then the set of formulas derived according to the operator of the consequence indexed by the second taboo function (stronger) from a given set of formulas is contained in a set of formulas derived from the same set of formulas according to the consequence operator indexed by the first taboo function (weaker). In other words, the weaker the taboo function is, the stronger the inferential force of the consequence operator indexed by a given taboo function is, and vice versa, the stronger the taboo function is, the weaker the inferential force of the consequence operator indexed by a given function is. According to A8, any set of formulas minus the formulas belonging to the set of banned formulas, designated by a given taboo function, is included in the set of consequences indexed by this function of a given set of formulas minus banned formulas. In other words, only these formulas are inferable from themselves according to the consequence operator indexed by a given taboo function, which do not belong to the set of banned formulas designated by this taboo function. Other axioms: A9, A10, A11 impose on any consequence operators indexed by taboo functions such properties as: idempotence, monotonicity, and finiteness.

The presented axiom system is a generalization of Tarski's logical consequence theory. If an axiom of the form: (TA) $(\forall i)\ i(D) = \varnothing$, is attached to the presented axiomatics, then A8 reduces itself to the formula: $(\forall i)(\forall X)\ [i \in T \rightarrow X \subset C_i(X)]$. Hence, the formulas: (TA), A9, A10 and A11 constitute conditions for the operator of logical consequence in the Tarskian sense.

The following taboo function can be defined:

(DF **I**) $\boldsymbol{I}(D) = \varnothing$

l can be understood as a liberal taboo function, because it assigns an empty set of banned formulas to discourse D. The consequence operator indexed by this function can be called the liberal consequence operator. This operator satisfies the following conditions:

(T2) $(\forall X)[\mathbf{l} \in T \rightarrow X \subset C_{\mathbf{l}}(X)]$
(T3) $(\forall X)[\mathbf{l} \in T \rightarrow C_{\mathbf{l}} C_{\mathbf{l}}(X) \subset C_{\mathbf{l}}(X)]$
(T4) $(\forall X)(\forall Y)\{\mathbf{l} \in T \rightarrow [X \subset Y \rightarrow C_l(X) \subset C_l(Y)]\}$

The liberal consequence operator behaves logically in the same way as any standard consequence operator in the Tarskian sense.

Consequence operators indexed by taboo functions form a class of etatist consequence operators when their indexes are taboo functions that take values that are not an empty set.

(DF ET) $(\forall i)(C_i \in ETAT \equiv i(D) \neq \varnothing)$

The relationships between the liberal consequence operator and etatist consequence operators are expressed in the following statements:

(T5) $(\forall i)\{C_i \in ETAT \wedge i \in T \wedge \mathbf{l} \in T \rightarrow (\exists \alpha)(\exists X)[\alpha \in C_{\mathbf{l}}(X) \wedge \sim(\alpha \in C_i(X))]\}$
(T6) $(\forall i)(\forall X)[C_i \in ETAT \wedge i \in T \wedge X \cap i(D) = \varnothing \wedge \mathbf{l} \in T \rightarrow C_i(X) = C_{\mathbf{l}}(X)]$

According to (T5), for each etatist consequence operator there are such formulas and such sets of formulas that a given formula belongs to the liberal consequence of a given set of formulas, but does not belong to the etatist consequence of the same set of formulas. (T6) states that every consequence operator acting on any set of formulas in which there are no formulas banned from the point of view of the consequence operator's taboo index, is indistinguishable from the operator of liberal consequence acting on the same set of formulas. Both statements show that etatist deduction differs from liberal deduction within a given discourse only in the range of banned formulas designated by the taboo function associated with a given consequence operator.

On the basis of A5, it can be proved that any etatist consequence operator determines the same logic (the set of logical theses) as the operator of liberal consequence.

(T7) $(\forall i)[i \in T \wedge \mathbf{l} \in T \rightarrow C_i(\varnothing) = C_{\mathbf{l}}(\varnothing)]$

In addition, any two consequence operators do not differ from each other in their action on an empty set:

(T8) $(\forall i)(\forall k)[i \in T \wedge k \in T \rightarrow C_i(\varnothing) = C_k(\varnothing)]$

Two different etatist consequence operators differ from each other, operating in the areas of banned formulas established by taboo functions constituting their indexes.

(T9) $(\forall i)(\forall k)(\forall \alpha)[i \in T \wedge k \in T \wedge \alpha \in i(D) \wedge \sim(\alpha \in k(D)) \rightarrow (\exists X)(\alpha \in C_k(X) \wedge \sim(\alpha \in C_i(X))]$

According to the hypothesis set out in the first part of the work, performative stigmatization of some sentences generated in the process of developing discourse with the property of offense, blasphemy or the prohibition activates mechanisms blocking processes of inference with the use of banned sentences. The operator of liberal consequence determines, therefore, a mental mechanism that triggers the deductive processing of discourse in situations where the participant does not recognize the premises or conclusions having the stigma of banned formulas established by any taboo function. However, when the mind captures premises and conclusions through the stigma of

banned sentences established by any taboo function, then the corresponding etatist consequence operator indexed by the appropriate taboo function starts to work in the mind.

If the logic used by the participants of the discourse in its processing outside the context of sentences belonging to a particular language taboo is classical logic, then the consequence operator establishing this logic is a liberal operator. However, if the mental deduction processes carried out within a given discourse encounter "reefs" in the form of premises or conclusions belonging to a particular language taboo, then the operator of classical consequence is transformed into the appropriate operator of etatist consequence, which behaves the same as the first one in the environment of sentences not tabooed. This transformation of the classical consequence operator into etatist consequence operator is determined by the deduction structure associated with the given discourse at a particular stage of its development.

Another important consequence operator that may appear in the deduction structure of a given discourse with a language taboo is the operator of the total taboo. Its definition is as follows:

(DF $\boldsymbol{t}$) $\boldsymbol{t}(D) = D$

The following theorems characterizing the inferential properties of the consequence operator indexed by the total taboo function $\boldsymbol{t}$ can be proved:

(T10) $\boldsymbol{t} \in T \rightarrow (\forall X)\, C_{\boldsymbol{t}}(X) = \varnothing$
(T11) $\boldsymbol{t} \in T \ \wedge \ \boldsymbol{l} \in T \rightarrow C_{\boldsymbol{l}}(\varnothing) = \varnothing$
(T12) $\boldsymbol{t} \in T \rightarrow (\forall i)(\, i \in T \rightarrow C_i(\varnothing) = \varnothing\,)$

According to (T10), if the total taboo function belongs to the deduction structure of a given discourse with language taboo, then the set of consequences of the operator, indexed by the total taboo function, acting on any set of formulas is an empty set. On a total taboo, discourse participants can only remain silent. According to (T11) and (T12), the introduction of the total taboo function into the deduction structure of a given discourse destroys its tautological nature. This conclusion is intuitively obvious. From the point of view of the total taboo function, any statement is a breaking of the language taboo. Therefore, if experts prohibiting the formulation of any sentences within a discourse are associated with its deductive structure, then such experts invalidate the universal validity of any inferences, which consequently leads to the disappearance of tautologicity, since tautologicity is to establish logical validity seen from the point of view of each consequence operator associated with a given discourse in a given phase of its development.

3. Discourse Deduction Structures with Taboo

Different types of deduction structures with taboo can be distinguished due to their metalogical properties. In addition, one can speak of the development of a given discourse due to the transformation of its deduction structures. Thus, each discourse can be attributed to some history of its deductive transformations, distinguishing in it certain specific processes of transformation of its taboo deductive structures.

The elementary deduction structures with taboo are those that are formatted with one consequence operator and one taboo function, which is not a total taboo.

(DF. EL) $< D, CN, T> \in EL \equiv (\exists i)(CN = \{C_i\} \ \wedge \ T = \{i\} \wedge i \neq \boldsymbol{t}\,)$

Standard elementary structures can be distinguished among the structures belonging to set *EL*:

(DF. ST-EL) $< D, CN, T> \in ST\text{-}EL \equiv (CN = \{C_{\boldsymbol{l}}\} \ \wedge \ T = \{\boldsymbol{l}\}\,)$

Standard-elementary deduction structures with taboo are composed solely of the operator of liberal consequence and of the function of liberal taboo whose value is the empty set. Tarski's general theory of logical consequence just describes *ST-EL* structures. The taboo in these structures is not a carrier of any "modulation" in the deduction processes implemented with the help of the operator of liberal consequence. Such standard-elementary deduction structure is associated with Peano's arithmetic.[3]

Each elementary structure of deduction develops in the process of prefabrication of a given discourse by proliferating the contents of *CN* and *T* sets. The final phase of such a process of developing a given discourse may be a situation in which the sum of the values of the family of all taboo functions is identical to the set *D*. These are the maximal deduction structures in the sense that any reasoning within such a discourse will appear to be prohibited from the point of view of one of the taboo functions and the corresponding operator of consequence.

(DF. MAX) $< D, CN, T> \in MAX \equiv (\forall \alpha)[\alpha \in D \rightarrow (\exists i)(i \in T \wedge \alpha \in i(D))]$

If a *MAX*-type structure is associated with a given discourse, anything that can be said in this discourse will offend someone (the acolyte of some taboo function). It is obvious that every deduction structure with taboo, to which the total taboo function belongs, is a structure of the type: *MAX*.

(T13) $\boldsymbol{t} \in T \rightarrow < D, CN, T> \in MAX$

In the maximal structures of deduction associated with discourse *D*, consequence operators do not determine a set of logical theses and tautologies. The following theorem can be proved:

(T14) $< D, CN, T> \in MAX \rightarrow (\forall i)(C_i \in CN \wedge i \in T \rightarrow C_i(\varnothing) = \varnothing)$

In the discourse associated with the *MAX* deduction structure, any reasoning that is logically valid from a certain point of view is invalid from some other point of view.

(T15) $< D, CN, T> \in MAX \rightarrow (\forall i)(\forall X, \alpha)[C_i \in CN \wedge i \in T \wedge \alpha \in C_i(X) \rightarrow (\exists k)(C_k \in CN \wedge k \in T \wedge \sim(\alpha \in C_k(X)))]$

Therefore, if there are inferences within a given discourse that are correct from every point of view, then such discourse is not the maximal, which means that formulas that are non-banned on the basis of any taboo function can be formulated within this discourse.

Some discourse deduction structures may have a mechanism that blocks their evolution towards achieving the maximal discourse phase. This mechanism is described by the following axiom:

(B) $(\forall i)(\boldsymbol{l} \in T \wedge i \in T \wedge C_{\boldsymbol{l}}(\varnothing) \neq \varnothing \rightarrow C_{\boldsymbol{l}}(\varnothing) \cap i(D) = \varnothing)$

According to (B), no taboo function in the deduction structure of a given discourse stigmatizes the logical theses established by the liberal consequence operator. Thus, if the set of logical theses set by the liberal consequence operator of a given structure is not the empty set, then according to A5, each consequence operator of a given deduction structure determines a non-empty set of logical theses identical to the set of logical theses established by the operator of the liberal consequence. Thus, if there is no liberal consequence operator in the deduction structure of a given discourse, then it is impossible to introduce into this structure the mechanism described by (B) which blocks its development towards the structure of maximal deduction. For maximal deduction structures associated with the discourse at a particular stage of its development, there are no criteria for logical correctness of inference that would be jointly accepted by all elm experts. In the discourse that has

reached such a phase of its deductive development, no joint discussion is possible in which representatives of each of the elm experts associated with the given discourse may participate. In such a discourse development phase, every inference raises objections from some point of view.

Any discourse in a particular phase of its development, which is associated with the structure of deduction maximal and elementary simultaneously, cannot be subject to deductive development. This kind of discourse can be called dead. It seems that this situation occurs when in a given communication community there is a strongly penalized order of silence on a given topic. In North Korea, sentences about Kim Jong-Un's disease are not spoken in public space. The operators of logical consequence constituting discourses, which are elementary and maximal simultaneously, can be described as consequence operators of silence, because they completely block deduction processes in a given discourse. Encoding them in the minds of participants in the processes of public transmission of content fulfills the function of eliminating a given domain of discourse from cultural space.[4] Empirical data, however, point to the existence of a mechanism for the elimination of silence operators from deduction structures of discourses and, consequently, to the existence of a mechanism for transforming the deduction structure which is both elementary and maximal, into a non-maximal structure.[5]

There may hold various relationships between logical consequence operators in a given deduction structure $<D, CN, T>$, such as: conflict, subordination. The two consequence operators remain in relation of conflict to each other when the product of the values of the taboo functions constituting their indexes is an empty set.

(DF C) $(\forall i, k)[C_i \text{ conflict } C_k \equiv (i \neq \mathbf{l} \vee k \neq \mathbf{l}) \wedge i(D) \cap k(D) = \varnothing]$

According to (DF C), two operators C_i and C_k remain in the relation of conflict if and only if what is banned from the point of view of operator C_i is not banned from the point of view of operator C_k. The following theorem can easily be proved:

(T16) $(\forall i, k)\{i \in T \wedge k \in T \rightarrow [C_i \text{ conflict } C_k \rightarrow (\exists \alpha, X)(\alpha \in C_i(X) \wedge \sim (\alpha \in C_k(X))) \vee (\exists \alpha, X)(\sim (\alpha \in C_i(X)) \wedge \alpha \in C_k(X))]\}$

According to (T16), if two consequence operators remain in the relation of conflict, there is such inference within discourse D that it is correct from the point of view of the first operator and incorrect from the point of view of the second operator, or there is such inference that is incorrect from the point of view of view of the first operator and correct from the point of view of the second operator.

There are confrontational deduction structures among deduction structures containing taboos.

(DF CONF) $< D, CN, T> \in CONF \equiv [\sim \mathbf{t} \in T \wedge (\exists i, k)(C_i \in CN \wedge C_k \in CN \wedge i \in T \wedge k \in T \wedge i \neq k \wedge C_i \text{ conflict } C_k)]$

In *CONF* deduction structures, there are at least two consequence operators that are in conflict with each other. From (T16) follows the theorem that in the *CONF* type deduction structure there are inferences that are correct from the point of view of one consequence operator and at the same time incorrect from the point of view of another consequence operator.

(T17) $< D, CN, T> \in CONF \rightarrow (\exists i, k) (\exists \alpha, X) [C_i \in CN \wedge C_k \in CN \wedge i \in T \wedge k \in T \wedge i \neq k \wedge \sim (\alpha \in C_i(X)) \wedge \alpha \in C_k(X)]$

If the deduction structure includes a liberal consequence operator and some etatist consequence operator, then this deduction structure is of the *CONF* type.

(T18) $\boldsymbol{l} \in T \wedge (\exists k)(k \in T \wedge C_k \in ETAT \wedge C_k \in CN) \rightarrow < D, CN, T> \in CONF$

In the confrontational deduction structures associated with a given discourse, there is always a dispute between competing experts in that there are inferences for the first of them that are correct from the point of view of his consequence operator and incorrect from the point of view of the consequence operator of second experts, and vice versa. Both sides of the conflict attack each other due to breaking the language taboos, because the areas of these taboos established by elm experts represented by the appropriate taboo functions are disjoint.

Between the taboo functions and respectively between the corresponding consequence operators there can hold a relation of taboo extension and respectively the relation of dominance (subordination) of one operator over another.

(DF EXT) $(\forall i, k)[\, i \; ext \; k \equiv i(D) \subset k(D) \wedge i \neq k]$

The taboo function *k* is an extension of the taboo function *i* if and only if the value of function *i* is contained in the value of *k* and both functions are different. It is obvious that the total taboo function is an extension of all non-total taboo functions, and that each etatist taboo function is an extension of the liberal taboo function.

(T19) $(\forall i)(\, i \neq \boldsymbol{t} \rightarrow i \; ext \; \boldsymbol{t})$
(T20) $(\forall i)(i \neq \boldsymbol{l} \rightarrow \boldsymbol{l} \; ext \; i)$

In discourse development practices, the taboo extension process is often started. The set of banned sentences is, for example, expanded with new sentences by introducing additional bans on speaking on specific topics within the domain of discourse. The tightening of political censorship is a paradigmatic example of this process. The final point of this process is the introduction of the total taboo function into the deduction structure of discourse in this last stage of its development, which manifests itself in the effort of political authorities to erase a given discourse from the public space of discourses[6].

The consequence operator C_i dominates the consequence operator C_k if and only if the taboo index of the first operator is an extension of the taboo index of the second operator.

(DF dom) $(\forall i, k)(C_i \; dom \; C_k \equiv k \; ext \; i)$

It is easy to see that every etatist consequence operator dominates the liberal consequence operator.

(T21) $(\forall i)(\, C_i \in ETAT \rightarrow C_i \; dom \; C_{\boldsymbol{l}})$

One can distinguish the deduction structures associated with some discourses in certain development phases, in which all consequence operators are dominated by some consequence operator, which is not a consequence operator indexed by the total taboo function.

(DF DOM) $< D, CN, T> \in DOM \equiv (\exists i)[\, i \neq \boldsymbol{t} \wedge i \in T \wedge C_i \in CN \wedge (\forall k)(\, k \in T \wedge C_k \in CN \wedge k \neq i \rightarrow C_i \; dom \; C_k)]$

Some discourses may develop deductively in such a way that the proliferation processes of consequence operators, which generate conflicts in discourse practices, may culminate in a phase in which all etatist consequence operators are dominated by one operator. As a result of such a process, different areas of different taboos are subordinated as fragments to one language taboo correlated with the dominant operator of consequence in a given deduction structure in its specific phase of development. In other words, all sentences that are banned from different taboo points of

view, at some stage in the development of the deduction structure of a given discourse, can become banned from exactly one taboo point of view.

The above-presented definitions of types of discourse deduction structures with taboo, types of taboo functions, types of consequence operators and relationships between taboo functions and between consequence operators indexed with these functions allow the construction of various idealization models of the deductive development of any discourse. In the initial phase of discourse formation, it is usually correlated with the standard, elementary structure of deduction *ST-EL*, in which elm experts do not establish any areas of discourse taboo. If, as a result of discourse development, its participants begin to produce sentences whose content somehow violates the interests of some group of discourse producers, then elm experts defending a given interest establish language taboos within the given discourse.[7] This kind of action triggers various reactions in the form of establishing other taboos. As a result of their proliferation, conflicts arise, and the space of a given discourse becomes more and more susceptible to control practices implemented from various taboo points of view. This phase of the deductive development of discourse can be called its etatization. The final moment in the development of this phase is the constitution of the maximal taboo structure of deduction. If a *MAX*-type structure is associated with a given discourse in some development phase, then the deductive processing of the given discourse is no longer controlled by tautological criteria. Then any inference within such a discourse is always invalid from the point of view of some taboos. In order for discourse to develop further, struggle mechanisms between elm experts representing specific taboo functions and corresponding logical consequence operators indexed by these functions must be activated. As a result of this struggle, the structure of discourse deduction simultaneously de-etatizes (some taboo functions and the consequence operators correlated with them are eliminated from the structure of deduction) and transforms into a structure with the dominant consequence operator. When, as a result of fights between elm experts, the function of the liberal taboo is eliminated from the deduction structure of a given discourse and, as a result of this process, the operator of the liberal consequence is deactivated, then the deduction structure of the given discourse is transformed into a slave structure because it possesses no elm experts coordinated with a liberal consequence operator who could battle all etatist taboo functions. Within such discourse, the processes of free processing of discourse sentences (content) cease to take place. It is then impossible to process such discourse only on the basis of formal and logical criteria of correctness.

The total taboo function and the corresponding consequence operator, introduced into the deduction structure of a given discourse, allow discourse annihilation. It seems that the total taboo function may appear in the deductive structure of discourse at every stage of its deductive development. The appearance of this function in the deduction structure of discourse with taboo, however, does not mean that annihilation of discourse will prove effective.

The transformation of taboo structures of deduction of a given discourse during its development is determined by out-of-logical factors. The most important of these seems to be the factor of penalty. With each deduction structure $<D, CN, T>$ there is a correlated set of penalization functions that establishes penalties of a certain intensity for breaking various taboos of discourse established by elm experts.

4. Penalty Functions in Deduction Structures of Discourses

Along with the establishment of the taboo functions, elm experts establish conventions for punishing discourse participants for committing acts of breaking language taboos. Thus, with each taboo function and the corresponding operator of consequence, the penalty function is correlated, assigning sentences, sets of sentences and inferences that break the taboo value in the form of a specific intensity of punishment. These intensities create a linear order from minor penalties to final (maximal) penalties. The latter manifest themselves by physical elimination (and even killing) of a taboo-breaking participant from the discourse. For example, for publicly calling Stalin or Hitler a criminal threatened the death penalty (shooting, sending to a gulag or to a concentration camp) in

the Soviet Union and Nazi Germany. Public positive utterances on the subject of Jews during World War II were also severely penalized in almost all countries conquered by the Nazis. In the twentieth century, Khomeini imposed a fatwa on Salman Rushdi for writing the novel *Satanic Verses*. In Poland, Kazimierz Łyszczyński was killed by decapitation, with the consent of King Jan III Sobieski, for calling God a chimeric being in the treatise *De non existentia dei* [9, pp. 126-127; 5]. From the point of view of any taboo function, the intensity of penalties for breaking a taboo are differentiated on the basis of the utterance of such or other sentences or carrying out such or other inferences. It seems that the statement "John Paul II was a sinner" is penalized by Catholic elm experts with less intensity than the statement "John Paul II was a friend of pedophiles". It can be assumed for the purpose of idealization that acts of uttering sentences or making inferences that break certain language taboos are penalized with a constant intensity constituting the resultant of all the intensities of penalties imposed on participants of the discourse who break this taboo established by the given taboo function.[8]

Let *PEN* be a set of all penalty functions coordinated with corresponding taboo functions. Let p_i, p_k, ..., p_j be the variables ranging the set of penalization functions, where *i*, *j*, *k* represent the corresponding taboo functions. Arguments of any penalty function p_i are formulas belonging to *i(D*), sets of formulas contained in *i(D)*, and inferences infected with the given taboo function *i* belonging to the set $2^D \times D$, constituted from at least one sentence belonging to *i(D)*. *K* is a linearly ordered set of intensities of penalties, where *0* is no penalty, and *1* is the maximum penalty (in the form of annihilation of a taboo breaking discourse participant). Between *0* and *1*, all rational numbers are the intensities of some indirect penalties. The variables running the set of these values are: v, v_1, ..., v_h. The definition of set of inferences infected with the taboo function *i* is as follows:

(DF Infec) $(\forall X, \alpha)[<X, \alpha> \in Infec_i \equiv X \cap i(D) \neq \varnothing \ \vee \ \alpha \in i(D)]$

In order for the inference to be infected with the taboo function *i*, the set of its arguments *X* must contain at least one sentence banned by this taboo function or the conclusion must belong to the set of formulas *i(D)*.

Each penalty function therefore meets the following condition:

(PEN1) $(\forall p_i)(p_i \in PEN \ \wedge \ i \neq \boldsymbol{l} \ \rightarrow p_i \subset [i(D) \cup 2^{i(D)} \cup Infec_i] \times K$

The structure of the form <*D, CN, T, PEN*> can be called the penalizing-taboo structure of deduction of discourse *D*. It can be assumed for the purposes of idealization that every penalty function from the structure <*D, CN, T, PEN*> is a constant function.

(PEN2) $(\forall i, p_i)[i \in T \ \wedge \ p_i \in PEN \rightarrow (\forall x)(x \in i(D) \cup 2^{i(D)} \cup Infec_i \ \rightarrow p_i(x) = constant)]$

Since the condition (PEN1) is not specified for the liberal taboo function, an axiom can be adopted, according to which the penalty function indexed by the liberal taboo function returns a minimum value for each formula or each set of formulas or each inference.

(PEN3) $\boldsymbol{l} \in T \rightarrow \ (\forall x)\, p_{\boldsymbol{l}}(x) = 0$

Each etatist taboo function is correlated with the corresponding penalty function, which assigns their arguments a penalty value greater than 0.

(PEN4) $(\forall i, p_i)[i \in T \wedge \ i(D) \cap D \neq \varnothing \ \wedge \ p_i \in PEN \ \rightarrow \ (\forall x)(x \in i(D) \cup \ 2^{i(D)} \cup \ Infec_i \ \rightarrow p_i(x) > 0)]$

Since all penalty functions are fixed functions, one can define a function *P* that assigns to each taboo index the value of penalty intensity, which penalty functions, correlated with a given taboo function, assign to all their arguments.

(DF P) $(\forall i)\{i \in T \rightarrow [\, P(i) = v \equiv (\forall x)(\, x \in i(D) \cup 2^{i(D)} \cup Infec_i \rightarrow p_i(x) = v\,)]\}$

If there is a penalty function correlated with the total taboo index ***t*** in the penalizing-taboo structure of deduction of a given discourse, it is natural to assume that *P* function takes values from argument ***t*** higher than those for which *P* function takes from arguments different from ***t***.

(PEN5) $\boldsymbol{t} \in T \rightarrow (\forall i)(i \in T \wedge i \neq \boldsymbol{t} \rightarrow P(\boldsymbol{t}) > P(i))$

Due to how the *P* function works on taboo functions occurring in deduction structures of the form *<D, CN, T, PEN>*, one can distinguish their various types. In addition, as the discourse develops, the values of the *P* function from different taboo functions may change. This means that the intensity of punishment practices for breaking different language taboos in the processes of developing a given discourse may weaken or increase.

Totalitarian structures of deduction of discourses in their specific developmental phases are characterized by the fact that among the taboo functions there are those to which the function *P* assigns the maximum value (exclusion from a discourse of a participant who breaks certain language taboos).

(DF TOT) $\langle D, CN, T, PEN\rangle \in TOT \equiv (\exists i)(\, i \in T \wedge P(i) = 1)$

If, in the totalitarian structure of deduction, the taboo function for which the function *P* takes the value *1*, is an extension of all taboo functions, then such a structure characterizes discourses in the development phase of the dominance of one totalitarian elm expert. It seems that the Leninist-Marxist discourse during Stalinism was in this phase. This property of totalitarian deduction structures can be described as the totalitarian monopoly of an expert institution for punishing, for example, the death of discourse participants breaking any linguistic taboos.

(DF M-TOT) $\langle D, CN, T, PEN\rangle \in M\text{-}TOT \equiv (\exists i)[i \in T \wedge P(i) = 1 \wedge (\forall k)(k \in T \wedge k \neq i \rightarrow k \; ext\; i)]$

Penalties imposed on participants in the discourse may be characterized by such intensity that evokes a sense of severity. This feeling manifests itself in the state of alienation of discourse participants punished in this way for breaking a language taboo in a given discourse. The experience of such alienation causes reflexes of escape from a given space of discourse among its participants.[9] Let ***a*** be the smallest value of the intensity of the punishment causing a state of alienation from discourse. If there are elm experts in the structure of discourse who establish taboo functions that generate a relationship of conflict between the operators of consequences indexed with these taboo functions, and the function *P* assigns them a value of intensity of punishment causing a state of alienation from discourse, then such a structure of deduction can be called revolutionary. In such a discourse development phase, elm experts attack each other with severe punishments that cause a sense of alienation among discourse producers. In extreme cases, experts can kill each other.

(DF REV) $\langle D, CN, T, PEN\rangle \in REV \equiv (\exists I, k)(\, i \in T \wedge k \in T \wedge C_i \in CN \wedge C_k \in CN \wedge C_i \; conflict \; C_k \wedge P(i) \geq \boldsymbol{a} \wedge P(k) \geq \boldsymbol{a}\,)$

It seems that religious discourse during the French Revolution correlated with such a revolutionary structure of deduction. Jacobins, girondists, royalists and others killed each other in defense of their

beliefs and views expressed publicly. Parties to the conflict during this revolution established their taboos in religious discourse, the breaking of which resulted in death by guillotine or assassination.[10] The intensity of the mood of the revolutionary structure of deduction, correlated with a given discourse in a particular phase of its development, increases with the proliferation of consequence operators that are in conflict with each other, and with the increase in the values of *P* function whose arguments are taboo functions occurring in the deductive structure of the developing discourse. The culmination of the development process of the revolutionary structure of deduction is the phase in which it takes the form of a terrorist structure of deduction. In such a structure of discourse deduction, all parties to the discourse attempt to kill each other.

(DF TERR) $<D, CN, T, PEN> \in TERR \equiv <D, CN, T, PEN> \in REV \wedge (\forall i, k)(i \neq k \wedge i \in T \wedge k \in T \wedge C_i \in CN \wedge C_k \in CN \rightarrow C_i \text{ conflict } C_k \wedge P(i) = 1 \wedge P(k) = 1)$

Some specific processes of discourse development can be distinguished:

(i) In the initial phase, the standard elementary structure *ST-EL* correlates with the discourse. The deduction processes in this phase are governed by some operator of liberal consistency, defining specific logic (in particular, classical logic). Then, the *ST-EL* structure, which is a fragment of the structure $<D, CN, T, PEN>$, where $PEN = \{p_I\}$ and, as a consequence, $P(\boldsymbol{I}) = 0$, undergoes proliferation processes, as a result of which subsequent deduction structures with etatist operators appear. Along with the constitution of such deduction structures in the space of a given discourse, elm experts assign, by virtue of the *P* function, taboos functions in these structures to values less than $\boldsymbol{a}$. These processes lead to the constitution of the *CONF* type deduction structures associated with the given discourse. Disputes and conflicts within the *D* discourse cause, as a result of a process of escalation, the transformation of penalizing taboo structures of deduction into revolutionary type structures *REV*, which can transform into *TERR* type structures. The final process is the appearance in the space of a given discourse of totalitarian monopolistic structures *M-TOT*. The transformation of *TERR*-type structures into *M-TOT*-type structures is a characteristic feature of the discourse development phase, which can be described as its terrorization. A good example of this process is the situation in Cambodia during the reign of Pol Pot. Any deduction regarding politics, social or religious matters was banned, and breaking the bans resulted in death.

(ii) When the discourse finds itself in a phase in which it is associated with some type of *MAX* deduction structure, it is susceptible to processes of de-etatization, i.e. reduction of etatist consequence operators within such a structure. Along with this process of de-etatization, depenalization processes may take place, i.e. decreasing the value of the *P* function of the arguments that are taboo functions. It is not uncommon to see the disappearance of etatist consequence operators indexed by taboo functions to which the P function assigns penalty intensity values close to zero in the structure of a given discourse at a particular stage of its development. The culmination of such a process is the constitution of a standard, elementary structure of deduction for a given discourse.

(iii) Some discourses from the initial phase, when the *ST-EL* deduction structure is correlated with them, develop so that their initial deduction structure transforms into an *M-TOT* structure with exactly one taboo function, which is a total taboo function. When the standard, elementary deduction structure of discourse in its initial phase transforms into the structure $<D, CN, T, PEN>$, where $T = \{\boldsymbol{t}\}$ and $P(\boldsymbol{t}) = 1$, it means that elm experts attempt to annihilate a given discourse in its bud (due to the extreme threat to their interest caused by the development of a given discourse).

The sketched theory allows for formal modeling of various discourse development processes. However, it needs its supplement in the form of a theory describing the functions of mutual transformation of penalizing taboo deduction structures.

5. Final Notes

The above-presented theory of consequence operators indexed by taboo functions requires its development towards the theory of transformation of deduction structures that are associated with discourse during its development. Within the discourse, various narratives are created on a given topic. Through semantic relations, they are tools for creating various narrative worlds (mental worlds). The deduction processes implemented by discourse participants are not only the processes of transforming discourse sentences. They are also processes of transforming various contents in the narrative worlds of a given discourse. Elm experts who impose taboos on discourse establish sets of sentences banned in various narrative worlds of the space of a given discourse. At the same time, through semantic relations, they point to those fragments of these worlds that for some pragmatic reasons (interests) should not be developed in the processes of their prefabrication or even should disappear from them. The transformation of discourse deduction structures is the process of transforming the logical architecture of the discourse space into another architecture. The theory of such transformations will be a description of just such possible logical and architectonic changes of the structures of discourse space.

The scope of application of the presented theory is wide. The central field of theory application are the processes of transformation of ideological, political, religious and even legal discourses. For cases of such discourses (ideological struggles at the beginning of Christianity, Cathar genocide, fascism in the humanist discourse, communist discourse) the analytical application of the theory is seen as obvious. Such examples can undoubtedly be multiplied. The presented theory can also be used in the analysis of the history of scientific narratives. Its conceptual tools could be used in research on scientific revolutions. All these applications would reveal a new field of research. In the theory of discourse, first of all, attempts are made to explain how the content, grammatical forms and illocutionary forces of speech acts influence the phenomenon of power in political, social, gender and other perspectives. Discourse researchers, however, do not notice the fact that the styles of logical processing of these contents are also a factor influencing the production of discourse for various interests in manifesting power and forcing obedience.

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The article was written as part of project No. 2016/21 / B / HS1 / 00821 financed by the National Science Center. The source of inspiration for the presented concept is the book by A. Schumann *Talmudic Logic*, in which the author (Jan Woleński's follower) formulates a postulate to examine the impact of methods of logical information processing on totalitarian social practices. He states: '/…/ in the totalitarian thought we detect the priority of confirmation (modus ponens) and deductive syllogism, this priority undoubtedly speaks of appropriate prereflexive presuppositions. Nonrandomly, in totalitarian cultures schemata of confirmation and deductive syllogisms are preferred, because in these cultures thinking is totalitarian and holistic. For instance, in the Soviet Union of Stalin's epoch the following modus ponens was often used: /…/' [8, p. 157]. Schumann's arguments in favor of the proposed research paradigm are very weak. However, the postulate to study logical mechanisms of information processing in the context of generating totalitarian practices should be considered innovative. In the light of this approach, the mental structures responsible for our totalitarian thinking are logical. Schuman believes that mental deduction processes, governed by classical logic, generate totalitarian attitudes. The conclusion of my work is antagonistic to Schumann's position. The classical operator of logical consequence turns out to be in its character a liberal operator, not an etatist one. Etatism is understood in the article as a category referring to an ideological attitude that generates meta-behaviors aimed at controlling and eliminating other behaviors from public space that violate some vision of the world. According to this explication, etatism is the opposite of liberalism understood as an attitude of refraining from controlling and eliminating other behaviors from public space.

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Notes

1. Language taboo is the subject of linguistic and ethnolinguistic research. Researchers distinguish language taboos from cultural taboos. The latter are understood as a set of socially established prohibitions on certain actions in relation to specific objects, situations or facts. They can manifest themselves in cultural spaces of various types: religious, magical or political [7, pp. 31-34]. Language taboos, however, are usually understood as a set of prohibitions on the use of certain expressions and on speaking on specific topics in a given community [10, pp. 24-25]. The violation of prohibitions that make up language taboos, as in the case of cultural taboos, is punished with various penalties.
2. Inspired by Putnam's concept, Fodor introduced the notion of experts to the language of semantics. According to Fodor, experts are the guardians of meanings of terms by setting the conditions for the truth of thoughts expressed with their help [1, pp. 33-39). According to Putnam, there are experts in every language community who know the meaning of certain terms, so that other language users can use them efficiently without knowing the meaning of these terms [6, pp. 112-115]. I will refer to Fodor's experts as elm experts in this paper. This concept can be extended by giving them an additional role, namely, setting logical inference norms and hermeneutic norms for a given discourse along with establishing a specific language taboo and rules for penalizing taboo breaking practices. The guards of the Soviet revolution, namely NKVD officers and members of the central committee of the Bolshevik party, are a good example of elm experts. Lenin called them the vanguard of the proletariat, devoid of the so-called false consciousness. Another equally good example of elm experts are the Guardians of the Iranian Revolution. The intellectual leaders of various ideological movements, often referred to by their followers as gurus, are actually fulfilling the missions of elm experts within their discourses. Popes, prophets, missionaries, holly-men and sorcerers typically function in their ideological communities as elm experts setting up various taboos.
3. It seems that in relation to arithmetic theories regarding numbers other than natural numbers, e.g. rational, real or even imaginary numbers, one can speak of a language taboo. In the languages of such theories, grammatically correct formulas devoid of mathematical meaning can be constructed. For example, in rational number arithmetic, the formula: $1/0 = 0$ is not false, but rather devoid of arithmetic sense because there are no fractions whose denominator is the number 0. In various arithmetic theories, the so-called indicators of meaningfulness of defined formulas are given in

conditional definitions. For example, in the definition of decimal logarithm such a clause is used. It is the formula: x> 0. The definition takes the shape: $(\forall x)[x > 0 \rightarrow (y = \log(x) \equiv 10^y = x)]$. Although the expression "y = log(-6)" is correct from the point of view of the syntax of the real numbers arithmetic, it is meaningless. Such formulas may just be tabooed. Some logicians try to show that mathematical deduction realized in the environment of such formulas must be based on an adequate logic of nonsense [2].

4. Pedophilia among Catholic priests or the financial activities of Saint Mother Teresa of Calcutta for many years were subjects to the so-called conspiracy of silence in the cultural space.

5. The topic, which was silent in public space at the price of losing life, often returns after some time to the public agenda. Stalin's crimes were the subject of silence during his reign. Khrushchev broke this collusion of silence with his famous paper during the 20th Congress of the soviet communist party.

6. After Germany invaded the Soviet Union during World War II, the discourse on the Molotov-Ribbentrop Pact was subjected to such an operation. Expressing any sentences on this subject was prohibited in the USSR and threatened with penalty in the form of the death sentence or exile to the Gulag. Similar practices were initiated in relation to the Katyń discourse in Poland during the Stalinist period.

7. For example, in the early stages of the formation of the Christian discourse, various doctrines appeared that were stigmatized with the marker of heresy by some producers of this discourse. A model example is the doctrine of Arius, according to which Jesus Christ is not God the Father. In the 4th century, "Nice elm experts" condemned Arianism for questioning the dogma of the Trinity. In this way, a taboo was established, breaking of which resulted in being burned at the stake several hundred years later. Questioning the dogma of the Trinity harmed the interests of Christian hierarchs advocating the unity of the Roman Empire (on disputes with Arianism within the early Christian discourse, see [3, pp. 171-190]).

8. Breaking Islamic taboos today is punished more heavily than breaking Catholic taboos. Participants of religious discourse who break Islamic taboos are most often threatened with killing, as evidenced by the massacre at the editorial staff of the satirical weekly Charlie Hebdo in Paris in 2015. The punishment for participants of religious discourse for breaking Catholic taboos are usually public stigmatization of such people, carried out by Catholic elm experts. The death penalty for questioning Christ's sanctity or for caricaturizing him is absent currently, whereas attempts to kill infidels for their blasphemy against Allah are a systematic phenomenon.

9. The notion of alienation of a discourse participant should be understood similarly to the category of alienation of labor in L. Nowak's philosophy of non-Marxian historical materialism. According to this philosopher, there is a certain value of the level of alienation of labor (called the value of outclassing) at which the ability of direct producers to resist the owners of means of production disappears. A similar situation can be found in the case of activity in the field of discourse production. The imposing of severe punishments for breaking language taboo by the elm experts on non-expert discourse participants leads to escapist actions in relation to a given discourse among the punished, and for retaliation among experts remaining in conflict with the former (see on the topic of labor alienation, [4, pp. 31-33])

10. The advocate of the revolution, Jean-Paul Marat was stabbed by an adversary of violence, while King Louis XVI was guillotined. Marat demanded death for the king.