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WHAT DO NEGATIVE SENTENCES SAY?

On functions of sentential negation

Whenever a philosopher asks a logician about the meaning of
sentential negation functor, he is the most likely to learn that
the only right answer is delivered by classical propositional lo-
gic. This respectable theory provides very simple and short so-
lution: negation is a truth-function defined by the matrix:

p	not p
1	0
0	1

This answer, which is belived to originate with Peirce, al-
though easily accepted by common sense, can be unsatisfactory for
a philosopher who searches for less laconic interpretations of
negation, and having found any he would wonder why negation
treated as a truth-function is the only one valid in classical lo-
gic. Is the facility of formalization the only reason for that?
The aim of this paper is to show that those reasons are more
important.

The problem concerning proper interpretation of negative sen-
tences (including the role of negation) can be found in early
philosophical thought. The members of the Eleatic School were pro-
bably the first to claim that the absolutely positive being can
be spoken about only in affirmative way. Parmenides, the founder
of the school, emphasized that nothing can be said about not-being,
thereupon negative sentences were belived to have no sense[1]. This

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[1] W. K n e a l e, M. K n e a l e, The Development of Logic,
Oxford 1962, pp. 21 f.; F. C o p l e s t o n, A History of
Philosophy, London 1956, vol. 1, p. 49.

standpoint implies the assignment of destructive role to negation
functor which added to affirmative statement forms a nonsense.

   The conception developed by Sophists is not less paradoxical
then Eleatics. For example, Protagoras, assuming that the reality
is contradictory regarded both negative and affirmative sentences
which state something to be true[2]. When such a point of view is
adhered to, the futility of characterization of negation (and
other sentential connectives) by means of truth-tables seems to be
obvious. Total confusion which reigned in contemporary opinions
on negation manifests itself in the fact that another sophist, Gor-
gias, having ascertained that nothing exists concludes that every
utterance is false, since there is nothing real it can refer to[3].
The conceptions mentioned above failed, since they turned out to
be too wild and erroneous in comparision to intuition connected
with applicability of negation in everyday language.

   The first philosopher to base this problem on more firm ground
was Plato. In the dialogue "Sophist" he rejects the premise of
Parmenides that nothing can be said about not-being. As a matter
of fact Plato didn't work out his own conception, but he rushes
to a provisional statement that not-being exists and there also
exist sensible negative sentences, and thus negation serves just
to state the not-being. Paraphrasing the words of Plato: negati-
ve sentence says about not-being as not being[4].

   Aristotle took up and developed Plato's idea of negative sen-
tence. According to him negative sentences refer to not-being
which is not completely undetermined; it is nonexistence of some-
thing definite. In the opinion of Aristotle what does exist, un-
dergoes changes which generally speaking consist in joining and
separating of elements, qualities and factors. A sentence expres-
ses these unions or lack of them, as it is in the case of negati-
ve sentence[5]. For instance, the sentence "Socrates is not running"
states the absence of connection between a substance i.e. Socrates

   [2] D i o g e n e s   L a e r t i u s, Lives of the Philosophers,
IX, 8, 51; F. C o p l e s t o n, op. cit., p. 93.
   [3] F. C o p l e s t o n, op. cit., p. 93.
   [4] P l a t o, Sophist, 237 ff., 258C ff. 260B ff., 263B ff.
   [5] A r i s t o t l e, Metaphysics, IX, 1051b.

and an activity i.e. a run (let us notice here, that this very ab-
sence does not presume the actual existence of neither Socrates,
nor a run, esp. when the latter is separated off the acting su-
bject). Here the question raises: Do negative sentences in Aris-
totle interpretation speak about the reality, or differently: is
negative situation as real as positive one? Aristotle's answer
seems to be affirmative, namely he claims that contradictory sen-
tences describle opposite situations[6]. So that not only the sen-
tence "Socrates is running" describes certain condition, but so
does the sentence "Socrates is not running". It is so because both
situations represent different states of matter which is for him
certain possibility: something existing – however "potentially"[7].
He also displays new approach to negative sentences, the only one
accepted by most of posterior philosophers. According to this ap-
proach stating negation of sentence stands for stating ist falsity[8].
The apparent advantage of this conception lies in the fact that
is avoids adducing real counterparts of negative sentences like
e.g. Plato's "existing nonentities". Meanwhile it is worth men-
tioning, that the discussed interpretation is not identical with
the interpretation of negation treated as truth-function; the lat-
ter one does not decide on whether negative sentence is about: ne-
gated sentence or reality.

Total dissent in opinions about sentential negation was still
alive in the Middle Ages and after. Nevertheless no new ideas em-
erged for quite a long time. Some, not very remarkable modifica-
tions of ancient conceptions can be found in Kant and Hegel's works.
Kant regarded negative sentences as being deprived of any direct
reference to reality (of course what he means by reality is the
world of appearance since nothing can be said about things in them-
selves). In his opinion the role of negation is merely prophy-
lactic, for negative propositions cannot enrich our knowledge but
they function as a kind of warning against false thinking since
negative proposition states the falsity of the proposition which

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[6] A r i s t o t l e, De Interpretatione, IX, 19a23f., VIII,
18a13f., A r i s t o t l e, Categories, X, 12a35f.
[7] A r i s t o t l e, Metaphysics, IV, 1009a, XII, 1069b, XIV,
1087b.
[8] Ibidem, V, 1017a.

has been negated[9]. Certainly it is the reminiscence of the Aris-
totle's conception mentioned above. Whereas Hegel rejects the
opinion that negative propositions have no objective correlates and,
arguing with Kant, he demands for propositions to enlarge our
knowledge. In abstruse manner typical of him, he seems to assert
that negative and affirmative propositions are both true, as they
describe some not self-contained moments or aspects of reality[10].

In the 20th century philosophy the dispute concerning the
proper understanding of negation becomes more vivid; not only
revive old points of view but new approaches emerges as well.
At the very beginning of the century Bergson analyses the problem
of nothingness and negative sentences. Having assumed that the
character of reality is absolutely positive, he concludes that
negative sentences cannot have any direct link with it. This is
why he puts forward a hypothesis that such a sentence is a "sen-
tence about sentence", namely about sentence which is negated.
In this point he refers to Kant, although in fact it is a re-
ference to Aristotle. Saying "Socrates didn't eat hot dogs", we
only state, according to Bergson, that the sentence "Socrates ate
hot dogs" is false. Therefore every negative sentence is a me-
talinguistic statement or a statement of a "second order" as
Bergson used to call it (exactly one order higher then the order
of negated sentence). Presented approach is combined with two other
practical functions. First, Bergson borrows Kant's opinion that
negative proposition is a warning that negated proposition is false.
Secondly, this proposition expresses a state of certain tension -
by negating something we express (maybe unconsciously) kind of
regret or disappointment that something is gone, or a kind of hope
that it is going to happen. Such a tension between something that
is and something that could be is the manifestation of general
tendency of every active subject to transform the reality[11].

Shortly afterwards appeared the dissertation of German pheno-
menologist, Adolf Reinach, devoted entrirely to the question of

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[9] I. K a n t, Kritik der Reinen Vernunft, Leipzig 1926, B
737.

[10] G. W. H. H e g e l, Wissenschaft der Logik, II Aufl., Leip-
zig 1951, Buch II, I Abt., Kap. II C, Anm. 3.

[11] H. B e r g s o n, L'Evolution creatrice, Genève 1945, p.
278 ff.

negative proposition. The author rejects   the Aristotelian idea
that affirmative and negative propositions   express respectively
connection and disconnection of elements as too artificial and pri-
mitive. Instead he forms a hypothesis that an objective counter-
part of a proposition constitutes so called   state of affairs:
positive or negative. State of affairs is something peculiar and
different from both object and relation. This difference is es-
pecially well observable in the case of negative state. The fact
that Socrates is not running is neither the separation of Socrates
from a run, nor a lack in Socrates himself, nor a relation between
Socrates and a run, but it is a state in which Socrates can find
himself. For every state of affairs there can be indicated another
state which bears a relation of "contradictory incompatibility" to
the initial one. A state occurs if and only if the other doesn't.
Reinach says that negation can be used in sentence to express ne-
gative state of affairs, however it is not its unique role. Its
another function is to express the rejecting act characteristic for
negative propositions, which occurs for instance in the sentence: "It
is not the case that Socrates is running". Reinach warns against
identifying meanings of propositions: "Socrates is not running" and
"It isn't the case that Socrates is running"; the former   states
negative state of affairs, while the latter expresses repudiation
of positive state. Of course one can invent a proposition in which
it is the negative state of affairs which is repudiated e.g.: "It
is not the case that Socrates is not running"; two negations oc-
curing in this sentence play each different roles[12].

    Roman Ingarden argues with Reinach's approach. He accepts the
thesis that negative proposition represents certain state of af-
fairs but he differs in opinion that positive and negative   states
of affairs are existentially on a par. According to him the mode
of existence of negative state of affairs is "weaker"   than that
one of positive state, in fact, it is placed between purely inten-
tional being (of something imagined) and the real   one. Negative
states of affairs are determined on the one hand by positive states
that relly occur and on the other by knowing subject, and what is
more, negative states couldn't exist without knowing subject whose

12 A. R e i n a c h, Zur Theorie des negativen Urteils, [in:]
Gesammelte Schriften, Halle a.d. Saale 1921, Teil 2.

expectations turn out to be different from what he sees; in the
result of such a cognitive disillusionment negative states of af-
fairs are formed eg. when finding empty pocket one realizes that
he has no money. Than positive states of affairs are "read" dire-
ctly out of reality. On the other hand however negative states of
affairs exist "stronger" then mere imagined ones, for they are
facts, although negative. Different ways of recognizing of posi-
tive and negative states of affairs do not compel us to acknowledge
the difference of their existence. They can rather betray specific
susceptibility of knowing subject to positive side of reality. In-
garden employs one argument more to support the thesis of weaker
existence of negative states of affairs: they cannot cause real
effects. He claims that changes of reality are due entirely to
positive states of affairs. This reason seems to be more convin-
cing but it is not unlikely that just that feature of negative
states of affairs makes them hide behind the positive states[13].

Some years after Reinach Ludwig Wittgenstein wrote his "Trac-
tatus logico-philosophicus" where objective counerparts of pro-
positions are also called states of affairs, but this time they
mean something different. Wittgenstein postulates the existence of
perpetual, unchanging and absolutely simple elements called objects
or things. He also assumes that they can form certain configura-
tions, mutually independent as far as their existence is concer-
ned. A possible configuration of objects is a state of affairs. A
proposition representing the existence of single state of affairs
is an elementary proposition; it is true when the appropriate sta-
te of affairs exists and false if not. The negation of an elemen-
tary proposition is a truth-function; its logical value is deter-
mined by the value of the initial proposition so that one can say
that the negation of an elementary proposition represents non-
existence of a given state of affairs. If it is so, the re-
presentation cannot be taken literally, for veracity of a proposi-
tion means only that a given state of affairs does not occur. Here
the question can be asked whether the propositions so interpreted
refer at all to reality, or differently if they describe the
world. Wittgenstein considers the world to be a totality of facts.

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[13] R. I n g a r d e n, Spór o istnienie świata, Warszawa 1961,
t. 2, XII, § 51, pp. 121 ff.

It is a set of all the existing states of affairs. In order to describe it sufficiently it is not enough, as it seems, to state all the true elementary propositions since one more remark should be added, namely that there are no more true elementary propositions. Nevertheless Wittgenstein claims that each sensible proposition is (apparent or latent) the truth-function of some elementary propositions, e.g. proposition "These are all the true elementary propositions" when analysed turns out to be a conjunction of all the false elementary propositions negations. Thus, these negations are as important in the description of the world as elementary propositions alone. Negation provides information about what is not a fact, although what is not a fact doesn't constitute its semantic correlate simply because it does not exist. Wittgenstein, showing that negative propositions are truth-functions and not simple copies of a possible reality, managed to solve long-standing problem concerning veracity of negative propositions which have no real correlates[14]. Thereafter in "Philosophical Investigations" where Wittgenstein seems to break with the opinions expressed in "Tractatus" he treats language as a set of linguistic games. He tentatively outlines various ideas of negative propositions; among the others mentioning its metalinguistic interpretation and those which have the only thing in common with it, i.e. "some excluding negative gesture"[15].

British Analytical Philosophy made programatic studies of functioning of natural language in which negation was one of the touched problems. J. L. Austin, for instance, observes that the concept of negation which functions in natural languages has no concern for truth and falsity, therefore, defining negation as truth-function is not adequate, for negation's basic role is different. According to Austin the act of negation is not builded on the act of affirmation (acceptation of negative fact), but it is an act opposed to it. Negative propositions refer directly to reality as affirmative propositions do; the formers state what it is not like. However it does not imply that negative facts must be ac-

[14] L. W i t t g e n s t e i n, Tractatus Logico-Philosophicus, London 1947, 3 ed., 1.1, 1.12, 2.05-2.063, 4.01, 4.1, 5, 5.2341, 5.3.

[15] L. W i t t g e n s t e i n, Philosophical Investigations, Oxford 1953, part 1, § 136, §§ 548-557.

cepted since negative propositions refer to the same part of ima-
gined reality as do negated propositions; the opposition between
them lies in the difference of attitudes a speaker posseses
while uttering affirmative proposition (affirmation) or nega-
tive one (repudiation). In this point the conception of Austin
resembles that of Reinach but their interpretations of negati-
ve proposition vary: Austin having rejected negative states
of affairs, interprets it as a negative judgement about posi-
tive state of affairs, while Reinach as affirmative one about
negative state[16].

Another representative of British Analytical Philosophy, A. J.
Ayer also analyses the peculiarity of negative statements. Lo-
oking at prevailing division of statements into negatives and
affirmatives, he arrives at paradox: such a differentiation is
in fact arbitrary and cannot be satisfactory justified. Ayer
takes for granted that the criterion of this differentiation
cannot be merely syntactical (e.g. the presence of the word
"not" or its derivatives in the sentence) because what mat-
ters in philosophical study is the difference of meaning and
not of grammatical structures. Still another criterion is de-
livered by the theory defended by Bergson; here negative sen-
tence is treated as a sentence about sentence which is nega-
ted (considered to be false). Unlike Austin, Ayer allows
such an interpretation of negation but he denies that it can
be the basis of differentiating negative and affirmative state-
ments. In his opinion the alike interpretation can charac-
terize affirmative statements, e.g. the sentence "I love Mary"
can be treated as negation of the sentence "I do not love Ma-
ry" and vice versa. (Let us incidentally notice that this
kind of interpretation leads to the conclusion that every sen-
tence constitutes an infinite series of negations, which is
a consequence difficult to accept). The next way of dis-
tinguishing negative statements proposed by Ayer is the
attempt to enumerate all possible types of affirmative sta-
tements and then to determine the set of negative sentences'
as those which have not been specified. The problem that ari--

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[16] J. L. A u s t i n, Philosophical Papers, Oxford 1961, pp.
91, 192.

ses here is opposite to that we have discussed earlier; it aims at description of affirmative sentences. It is generally assumed that affirmative sentences can have subject - predicate form as for example "The rose is red". Ayer sees no reason for excluding the sentence "The rose is not red" from this cathegory. Both predicates (red, not-red) describe to some extent the subject and they do not differ from each other in respect of gender; both correspond to some subrange of the term "colourful". Hence, according to Ayer, also this attempt to draw the line between affirmative and negative statements fails[17]. Taking no account of any possible criticism of his argumentation, let us notice that kind of ontological option can be found in his assumption that the existence of a set of objects having certain attribute is a sufficient condition in order to accept this attribute as positive.

Finally we shall present Martin Heidegger's opinions about negation. In his dissertation "What is Metaphysics?" he brings up the question concerning the fundamental relationship between the logical negation and nothingness. Searching for an answer he reaches the roots of being and states that there exists some primary and rare experience which unveils nothingness. Nothingness doesn't appear as a kind of being nor anything apart but it is a condition which enables a man to encounter being as such. On account of the transcendental character of nothingness, we are not able to say anything about it, and, therefore it cannot be the thing negative sentences refer to, nevertheless it renders negation possible. Negation is an evidence of nothingness, it emerges from nothingness and could not appear without its primary manifestation[18].

The presentation of different conceptions of negation shows that most of them depend on decisions of ontological nature. Citing Heidegger: "The interpretation of nothingness reveals the fundamental way of comprehension of being". In such an environment the in-

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[17] A. J. A y e r, Negation, "The Journal of Philosophy" 1952, vol. 44, No. 26, pp. 797 ff.

[18] M. H e i d e g g e r M. Was ist Metaphysik?, [in:] Wegmarken, Frankfurt a. Main 1967, passim.

terpretation of negation as truth-function may seem modest and
unsufficient. However it has one remarkable feature; it can be
easily assimilated with most of them. The characterization of ne-
gation functor in terms of truth doesn't influence neither the se-
mantical correlate of negative propositions nor the way in which
this correlate exists. Ontologically it is the most neutral con-
ception and it can't be adopted only to extremely nonintuitive
views of Parmenides, Sophists and Hegel. Such a general adaptabi-
lity of the discussed interpretation is the best proof of its
accuracy. Therefore the fact that this interpretation is used to
formalize the notion of negation seems to be well-founded.

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CO MÓWIĄ ZDANIA PRZECZĄCE?

O funkcjach pełnionych przez negację zdaniową

    Klasyczny rachunek zdań w ujęciu semantycznym, uważany niekiedy
za idealizację opisowej części języka naturalnego czy też za te-
orię spójników zdaniowych, traktuje negację jako czystą funkcję
prawdziwościową. Przyzwyczajeni do takiego ujęcia, uważamy je za
adekwatne, ściśle oddające sens, jaki ma ten funktor w zdaniach
opisowych. Tymczasem okazuje się, że w refleksji filozoficznej
przypisywano negacji i inne, bardzo różnorodne role. Na przykła-
dzie tego, co o negacji i zdaniach przeczących mówią: Parmenides,
sofiści, Platon, Arystoteles, a z filozofów nowożytnych i współ-
czesnych Kant, Hegel, Bergson, fenomenologowie Reinach i Ingar-
den, Ludwig Wittgenstein, przedstawiciele brytyjskiej filozofii a-
nalitycznej J. L. Austin i A. J. Ayer czy wreszcie Martin Heideg-
ger, można zauważyć zależność funkcji semantycznych przypisywanych
negacji od takich czy innych rozstrzygnięć ontologicznych dokonywa-
nych przez tych myślicieli. Pamiętając o tym, warto jednak wyróż-
nić interpretację negacji jako funkcji prawdziwościowej - nie dla-
tego, żeby była ona jedynie poprawna, lecz ze względu na to, że
interpretacja taka jako najmniej zaangażowana ontologicznie daje się
uzgodnić z większością innych tu wymienionych. W tym i tylko tym
znaczeniu może ona być uważana za uprzywilejowaną w stosunku do
innych.