UNIVERSALITY OF REASON AND RELATIVITY OF CULTURE
AS IT APPEARED IN LOGIC AND LANGUAGE

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The belief that all people were essentially the same and distinct from other creatures because of their reason has dominated western thought until the present day.   Its sources are Aristotle's biological classification of man as genus, animal; difference, rational: the Christian, Manic Lean, Platonic, split between body and soul and Stoicism's view that reason and humanity are universal. In the scientific Renaissance Descartes' criteria for the recognition of men as distinct from machines or animals are the creative use of language in communication and the use of reason to modify their actions. This is still an expression of the Ancient view. In the Discourse on Method (1637), he says:

> Here I paused to show that if there were any machines
> which had the organs and appearance of a monkey or of
> some other unreasoning animal, we would have no way of
> telling that it was not of the same nature as these ani-
> mals. But if there were a machine which has such a re-
> semblance to our bodies, and imitated our actions as
> far as is morally possible, there would always be two
> absolutely certain methods of recognizing that it was
> still not truly a man. The first is that it could never
> use words or other signs for the purpose of communicating
> its thoughts to others, as we do. It is indeed conceiv-
> able that a machine could be so made that it would utter
> words, and even words appropriate to physical acts which
> cause some change in its organs; as, for example, if it
> was touched in some spot that it would ask what you
> wanted to say to it; if in another, that it would cry
> that it was hurt, and so on for similar things. But it
> could never modify its phrases to (57) reply to the
> sense of whatever was said in its presence, as even the
> most stupid men can do. The second method of recogni-
> tion is that, although such machines could do many things
> as well as, or perhaps even better than, men, they would
> infallibly fail in certain others, by which we would
> discover that they did not act by understanding, but
> only by the disposition of their organs. For while rea-
> son is a universal instrument which can be used in all
> sorts of situations, the organs have to be arranged in
> a particular way for each particular action. From this
> it follows that it is morally impossible that there
> should be enough different devices in a machine to make
> it behave in all the occurrences of life as our reason
> makes us behave.

By these two methods we can also recognize the difference
between man and animals. For it is a very remarkable
thing that there are no men, not even the insane, so dull
and stupid that they cannot put words together in a man-
ner to convey their thoughts. On the contrary, there is
no other animal, however perfect and fortunately situ-
ated it may be, that can do the same. And this is not
because they lack the organs, for we see that magpies and
parrots can pronounce words as well as we can, and never-
theless cannot speak as we do, that is, in showing that
they think what they are saying. On the other hand, even
those men born deaf and dumb, lacking the organs which
others make use of in (58) speaking, and at least as badly
off as the animals in this respect, usually invent for
themselves some signs by which they make themselves under-
stood by those who are with them enough to learn their
language. And this proves not merely that animals have
less reason than man, but that they have none at all, for
we see that very little is needed in order to talk.
Furthermore, we notice variations among animals of the
same species, just as among men, and that some are easier
to train than others. It is therefore unbelievable that
a monkey or a parrot which was one of the best of its
species should not be the equal in this matter of one of
the most stupid children, or at least of a child of in-
firm mind, if their soul were not of a wholly different
nature from ours.[1]

The Biblical story of the Tower of Babel was responsible for the
additional belief in the West that there had originally been one common
language of all men, possibly akin to Hebrew or Egyptian.

The search for or a reconstruction of a universal language formed
in accordance with common reason and capable of expressing all concepts
was begun many times by western scholars. Raymond Lull (1235-1315), in
his Ars Magna, hoped to use a computer constructed to produce all the
mathematically possible combinations of concepts.[2]

Leibniz studied Lull and wrote a paper, Ars Combinatoria (of the
Art of Combination) in 1666 in which he also numbers concepts with the
idea of showing all complex concepts to be combinations of others and
to give each complex of concepts a specific number so that the struc-
ture of mathematics could be used to compare complexes of concepts, show
which ones are the same and how they are related. For example, I might
say, "it is a case of 3.2.10", and you, "It is 4.8.11", and I would
then say, "Oh! I see you are one up on me". The often quoted passage
from Leibniz runs thus:

Then, in the case of a difference of opinion, no dis-
cussion between two philosophers will be any longer
necessary, as (it is not) between two calculators. It

would be enough for them to take pen in hand, get them-
selves to the abacus, and (if it so pleases, at the in-
vitation of a friend) say to one another: Calculemos!
[Let us calculate!].[3]

There are two limitations to Leibniz's logical program. First, it
assumes the truth of universal sameness of reason and secondly it is ap-
plicable only to vacuous assertions of identity. The terms of Leibniz's
logic are conceptual. They are the meanings in people's minds. What
we call intentional as opposed to extensional in which terms refer to
publicly agreed upon groups of individuals.[4] Therefore in numbering
concepts there is no way of knowing that the same concepts receive the
same number. Since the concepts are in different people's minds and
there is no way of comparing them within one mind. The Universal Logic
of Combinations assumes the universality of similar minds. Secondly,
truths of reason are limited to assertions of identity. There is no
way of asserting truth or probability of matters of fact. Leibniz makes
the distinction very clear in the Monadology (1714), section 33-35:

There are also two kinds of Truths: Those of Reasoning
and those of Fact. Truths of reasoning are necessary,
and their opposite is impossible. Truths of Fact are
contingent and their opposite is possible. When a truth
is necessary, the reason can be found by analysis in re-
solving it into simpler ideas and into simple truths
until we reach those that are primary.

It is thus that with mathematicians the speculative
theorems and the practical canons are reduced by ana-
lysis to Definitions, Axioms, and Postulates.

There are finally simple ideas of which no definition
can be given. There are also the axioms and postulates
or, in a word, the primary principles which cannot be
proved and, indeed, have no need of proof. There are
identical propositions whose opposites are contradic-
tory.[5]

Leibniz, in an often quoted letter of 1714, proscribes the scope
of his logical program as follows:

If I had been less distracted or if I had been younger
or assisted by young men in a position to help me, I
would have hoped to give a kind of spécleuse générale
[generalized algebra] in which all truths of reason
would be reduced to a calculus. This would be at the
same time a sort of universal speech or writing, but
infinitely different from all those proposed hitherto;
for the characters, and the words themselves, would be

governed by Reason; and errors, with the exception of
those of fact, could only be mistakes in calculation.
It would be very difficult to create or invent this
language or characteristic, but very easy to learn it
without the aid of a dictionary.[6]

So for both Lull and Leibniz there are a fixed set of common con-
cepts to be shuffled by logic apparatus and for Leibniz the only judge-
ment that can be made by reason is the truth of the assertion of identity
among some of them. With Leibniz universal Logic is already empty of
content and the meeting of minds an assumption or belief external to
logic.

With increased contact with other languages and other cultures in
Africa, the New World, and Southeast Asia there was growing interest in
finding common characteristics and rational structure in existing langu-
ages, possibly with the hope of restoring people to a condition prior
to the Tower of Babel. Leibniz, as were many others, was fascinated by
Chinese but rejects it as being too idiocyncratic and inflexible to be
a universal language.[7] Joseph Priestly takes a similar view of Chinese
in his A Course of Lectures on the Theory of Language and Universal
Grammar, 1762. Priestly, while going along with the Tower of Babel the-
ory of one original language, believes that the present diversity of
languages is necessary for the expressing of growing acquaintance with
the world, different climates, and different ways of living.[8]

Following this change of view a host of writers forming part of the
Romantic reaction to the Age of Enlightenment will express the view that
language is dependent on the culture, the social circumstances, the
needs and the will of the people. For example, Lord Monboddo devoted
Chapter 14 of Book One of his book, Of The Origin and Progress of Langu-
age, 1773, to the proposition "that articulation is not natural to man",
but is a laboriously acquired skill (as in thinking, Chapter 4, "that
man does not by nature form ideas") and all of Book II to the view that
language is dependent on culture. The title of Book II is "that the
political state was necessary for the invention of Language—that such
a state is not natural to man, any more than language, to which it gave
birth".[9] By the latter part of the 18th century, language is portrayed
as being rooted in emotion rather than reason, as being an organic
whole rather than a mechanism with isolatable parts and as being in an
organic relationship with national character and that its growth and
development is organic as is the state. Thus primacy of emotion, with
organic metaphor and nationalism, that characterizes Romanticism, is
carried over to the philosophy of language.[10] Only Immanuel Kant will
try to enumerate all the formal principles of reason, to give them more
content than the law of identity and to claim to have found their roots
in the forms of logical judgements. But even the effect of Kant's work
will be to provide another formulation of the problem of the universal-
ity of reason.[11]

After the development of the view that language is dependent on
culture in the 18th century comes the view that thought is dependent on
language. Wilhelm von Humboldt and Friedrich Nietszche (especially, in
Human-an-too-Human, 1878) putting forth this view are now considered to
be the forerunners of the Whorf-Sapir-Quine hypothesis of the 20th cen-
tury which is that people's most basic philosophical assumptions may be
dependent on the structure of their language and that the structure of
languages may vary considerably among cultures.[12] Language as having
independent organic development is an additional assumption. With this
there is a complete reversal in the logical priorities of culture, langu-
age and thought of 200 years before and the possibility great diversity
in human reason rather than its assumed unity. Von Humboldt's expres-
sion of this view is as follows:

Every language sets certain limits to the spirit of
those who speak it; it assumes a certain direction
and, by doing so, excludes many others. (VII, 621)

Thinking is not merely dependent on language in gen-
eral but, up to a certain degree, on each specific
language. People have wished, to be sure, to replace
the words of various languages by universally valid
signs, as lines, numbers, and algebraic symbols serve
in mathematics. But only a tiny part of that which
is thinkable can be designated that way, because such
symbols by their very nature fit only those concepts
which can be produced by mere synthetic construction
or are otherwise formed by rationality alone. But
where the raw materials of inner perception and sen-
sation are to be imprinted with conceptualization,
everything depends on the individual way of looking
at things of an individual human being whose language
is an inseparable part of him. All attempts to can-
cel out the unique signs for eye and ear and replace
them with a few general ones are but methods of ab-
breviated translation. It would be folly and delu-
sion to imagine that such methods might transport
one beyond the circumscribed limits of one's own
language—not to mention all language. Of course
a central point at which language might meet may be
sought for, and even found, and it is necessary when
doing comparative studies of language (grammatical
as well as lexical) to keep one's eye directed toward
such a center. For...there is a number of things
which can be determined and defined a priori and
hence separated from all conditionalities of a given
language. But on the other hand, there is a far
greater number of concepts, and grammatical pecular-
ities as well, which are woven so indissolubly into
the individuality of their language that they can
neither be held by a thread of inner perception as

hovering above all languages, nor translated from one language into another. A most significant part of the content of each language stands in a relation of such undoubted dependency on it that its specific utterance cannot be a matter of no consequence. (IV, 21 ff.)[13]

Despite this relativistic view of language and culture in the 19th century there is one assumption which holds in place the view that people are similar everywhere and have universal reason in common. That is that all people are a special creation of God and that they occupy the pinnacle of a complete chain of specially created creatures from the lowest to the highest. Therefore man is still an essentially different creature from the rest of the animals and reason is that essential difference. However, the theory behind this view gives rise to a problem in discerning the distinction between man and the new lower creature. The theory is that God, being infinitely creative, will produce a creature with as near infinite variation as possible; therefore, these creatures will not only be as various as is possible but there will be creatures of every possible degree of variation. The search for the missing-link is an 18th century biological quest, not a 19th century one. So, while man is distinct and occupies the pinnacle of the scale of Nature, his distinctness will be as little as possible from the creature just below him. Thus Lord Monboddo, viewing humanity rather broadly, considered Ouran Outangs to be of the same species as man and who needed only training to attain the use of language and reason.[14] Others might well and did exclude any group of people from being men at all on the grounds that only Aristocratic, Victorian Englishmen were reasonable and therefore were men. The final political significance of the doctrine of the great chain of being was to assert a separateness of true humanity while as a result of a full creation make it nearly impossible to establish any scientific criteria for the distinction. The gradual ascent to man appeared to be continuous.

Darwinism, which was built on the foundations of this theological biology was required in order to dislodge the view of universal human reason and replace it with the real possibility of conceptual relativity. First Darwinism concluded that not only did man appear continuous with the rest of creation, he was continuous.[19] There was nowhere to draw the line between people and animals. But that is not enough to dislodge a direct line of evolution to a species characteristic of reason. Secondly, all features of man are to be viewed as variable and selected to fit a particular environment, including reason. With this assumption the radical consequence of the Whorf-Sapir-Quine hypothesis becomes possible.[16] However, that consequence was slow to be drawn even in evolutionary biology. Unilinear cultural evolution hung on in Anthropology until the twentieth century. Biology, Anthropology, and Social Theory all had difficulty in throwing off the unilinear, ascending scale with its implicit value ladenness that was an assumption of 18th century philosophical thought. Cultural relativism in Anthropology is the result, in a large part, of the influence of Sapir and Franz Boas, both influenced by Humboldt.[17]

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Just before the publication of Darwin's Origin of the Species in 1859, there began the revival of foundational studies in logic and mathematics which has continued to the present in the elaboration of mathematical logic. These studies by the founders of mathematical logic were unaffected by the new speculations on language and society. George Boole writes on the first page of his book, entitled An Investigation of the Laws of Thought, On Which are Founded the Mathematical Theories of Logic and Probability, 1854,

The design of the following treatise is to investigate the fundamental laws of those operations of the mind by which reasoning is performed; to give expression to them in the symbolic language of a calculus, and upon this foundation to establish the science of logic and construct its methods; to make that method itself the basis of a general method for application of the mathematical doctrine of probabilities; and finally, to collect from the various elements of truth brought to view in the course of these inquiries some probable intimations concerning the nature and constitution of the human mind.[18]

And Frege, in Foundations of Mathematics, 1882,

My intention was not to represent an abstract logic in formula (not like Boole), but to express a content through written signs in a more precise and clear way than it is possible to do through words. In fact, what I wanted to create was not a mere Calculus Rationcinator, but a Lingua Characterica in Leibniz's sense.[19]

And finally Peano who spoke several languages, tried to promulgate his own universal language, Interlingua, and used it in his publications. In the preface to his Formulaire de Mathematique, 1901,

Mathematical logic studies the properties of logical operations and relations, which it denotes by symbols. A few of the principles of this science are to be found in general logic (see Aristotle). Its true founder is Leibniz...[20]

But the original defect arises immediately for an attempt to continue Leibniz's program. That is, to attain universality is to insure vacuity. In Frege, terms admitted into the logical apparatus must have a reference and a truth-value. Any statements containing terms without reference will be arbitrarily assigned the value, false. Russell handles the problem of statements containing referenceless terms by analyzing them so that a referenceless term is isolated in a statement which asserts the existence of a referent and then is assigned the value:

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false. These methods arbitrarily restrict logic to a known domain out-side of which all propositions are false. The referents are assumed to be objective and capable of being agreed upon by all people but, if the logical apparatus is used on terms which refer to subjective states which exist for one person but not for another, statements including those claims have a different truths value for the different people.[21]

Since Frege and Russell, the development of what is called free logic legitimizes this possible relativity of existence. Free logic requires the explicit assertion of the existence of the referents of singu-lar terms, so that the truth or falsity of statements concerning what there is are not decided by the approach of logic itself but are agreed upon by people using the apparatus and are introduced into logic from a commonly held world view. The logical apparatus does not confer exis-tence automatically on all individuals.

Another modification of logic are the many-valued logics first de-veloped by Lukasiewiez in the 1920's. Logics which offer values other than true or false, such as truth valueless, undefined or meaningless, make room for propositions outside a commonly held world view rather than arbitrarily legislate truth or falsity for all propositions.[22]

The development of these alternative or so-called "deviant" logics show that the assumptions of a universal religion, universal reason, universally similarity in people are finally being made fully conscious and claims of biologically, culturally, psychologically, experiential similarities and differences can be weighed on their own merits without the importation of unexamined assumptions or false prestige of residual prejudices of the past.[23]

FOOTNOTES

1. Descartes, Rene, _Discourse on Method_. New York: The Library of Liberal Arts, 1956, pp. 36-37. NOTE: John Wallis, 1616-1703. En-glish Mathematician worked out sign language for deaf and dumb and de-ciphered Royalist code in 1642. Monboddo Book I, p. 178, and Encyclo-pedia Britanica, 9th ed., "Wallis").

2. Styazhkin, N. I., _History of Mathematical Logic From Leibniz to Peano_. Cambridge, Mass.: The M.I.T. Press, 1969, pp. 67-68.

3. Bochenski, I.M., _A History of Formal Logic_. New York: Chelsea Publishing Company, 1970, p. 275.

4. Ishiguro, Hidé, _Leibniz's Philosophy of Logic and Language_. Ithaca, N.Y.: Cornell University Press, 1972, pp. 17-51.

5. Leibniz, Gottfried. _Leibniz: The Monadology and Other Philo-sophical Writings_. Trans. by Robert Latta. London: Oxford University Press, 1898, pp. 235-237.

6. Kneebone, G.T., _Mathematical Logic and the Foundation of Mathe-matics_. London: D. Van Nostrand Co., 1963, pp. 151-152.

7. Parkinson, G.H.R., _Leibniz: Logical Papers_. Oxford Clarendon Press, 1966, p. 11.

8. Lach, Donald F., "Leibniz and China", _Journal of the History of Ideas_, 1945, 6, pp. 436-455.

9. Priestly, Joseph, _A Course of Lectures on the Theory of Langu-age and Universal Grammar_, 1762. Menston, England: The Scolar Press Limited, 1970, pp. 288-292. (English Linguistics, 1500-1800, a collec-tion of Facsimile Reprints selected and edited by R.C. Alston, no. 235)

10. Burnet, James, _Of the Origin and Progress of Language_, Vol. 1-1773. Menston, England: The Scolar Press Limited, 1967. (English Linguistics, 1500-1800, a collection of facsimile reprints selected and edited by R.C. Alston, no. 48)

11. Brown, Roger Langham, _Wilhelm von Humboldt's Conception of Lin-guistic Relativity_. Mouton & Co., 1967, pp. 18-19.

12. Smith, Norman Kemp (trans.), Immanuel Kant's _Critique of Pure Reason_. London: MacMillan & Co., Ltd., 1963, pp. 104-120.

13. Humboldt, Wilhelm von, _An Anthology of the Writings of Wilhelm von Humboldt. Humanist Without Portfolio_. Trans. by Marianne Cowan. Detroit: Wayne State University Press, 1963, pp. 245-246. (VII, 621 is to _Einleitung in das gesamte spach studium_. 1810-11 Introduction to general linguistics. IV, 2 I ff is to _Über das Vergleichende Sprach-studium in Beziehung auf die Veoschiedenen Epochen der Sprachentwickung_, 1820. On comparative linguistics with special reference to the various periods of linguistic development.)

14. Burnet, James, _op. cit._, pp. 173-178. (NOTE: Monboddo was dis-turbed by the reports of an ape living in Versailles that did not learn French; it, however, absorbed some of the culture and died of alcohol-ism.) Book I, pp. 175-176 (Julien O. De La Mettrie believed that he could teach apes to speak using the system of Amman for teaching the deaf and dumb in _Man, a Machine_; 1748; Open Court Pub.; La Salle, Ill.; pp. 100-104.

15. NOTE: precursors of this view are in Kant, De Maillet, Goethe, Schelling. See Gertrude Himmel Farb, _Darwin and The Darwinian Revolu-tion_, p. 169. New York: Norton, 1959.

16. NOTE: Nietsche, however, saw equality the conformity imposed on individual thought by culture, language and Darwinian selection.

17. Harris, Marvin. The Rise of Anthropological Theory. New York: Thomas Y. Crowell Co., 1968, chapters 4-8.

18. Boole, George. An Investigation of the Law of Thought on which are founded the Mathematical Theories of Logic and Probabilities. New York: Dover Publications, Inc., p. 1.

19. Van Heijenoort, Hean. ed. Frege and Godel. Two fundamental texts in Mathematical Logic. Cambridge, Mass.: Harvard University Press, 1970, p. 2.

20. Kneebone, op. cit., p. 151.

21. NOTE: The development of logic in the 19th century took no account of the great changes in ethical and social assumptions, or it could be read as the early beginning of stagnation or creative decline. Throughout history advancement in logic occurs when creativity in other areas of thought ossifies into uniformity or opposing schools. And logic actually deteriorates during periods of creative ferment. See Bochenski, pp. 10-12, for Chronology. (One wonders about the great logical advances of the 20th century.)

22. NOTE: Both free logics and three valued logics can trace their development back to Alexius Meinong and philosophical psychology. Meinong was a student of Franz Brentano in Vienna. His first work was a two volume study of Hume 1877. He set up the first experimental psychology laboratory in Austria at Graz 1894. Meinong catalogued the contents of the mind and their kinds of being. His work led to logical problems which Russell dealt with in a heavy-handed fashion in six papers and reviews written between 1897 and 1907. Free Logic is one of the more recent alternative approaches to Russell's. Meinong was also a colleague and co-worker with Kazimierz Twardowski who returned to Poland to encourage logical and analytical philosophy there. Lukasiewiez was one of Twardowski's students and he developed three-valued logic in the 1920's as an alternative to the determinism implied by two-valued logic. Thus logic, as the legislator of reason and what is thinkable, also lent its support to the Philosophy of determinism. Thus logic, as the legislator of reason and what is thinkable, also lent its support to the Philosophy of determinism.   This logic can still be characterized as the logic of Calvinism, Puritanism and The Political conservatism of Frege's Lutheranism and Russell's Cambridge. Its romantic alternative comes from Vienna and Poland and its late development and the domination of Frege's and Russell's logical methods is partially explained by the first and second world wars. See Grossman, Reinhardt, Meinong appendix II Routledge and Kega Paul 1974 & "Meinong". Article in Encyclopedia and Philosophy ed. Paul Edwards. Collier Marmillan.

23. See my paper "On the Logic of Cross-Cultural Talk".