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# CONNECTIONS

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RUSSELL'S PARADOX (PART II)

Linton C. Freeman (University of California, Irvine)

Among the classic paradoxes of self reference, several involve set membership. According to Hofstadter (1980, p. 20):

"The most famous is Russell's paradox. Most sets, it would seem, are not members of themselves--for example, the set of walruses is not a walrus, the set containing only Joan of Arc is not Joan of Arc (a set is not a person)--and so on. In this respect, most sets are rather "run-of-the-mill". However, some "self-swallowing" sets *do* contain themselves as members, such as the set of all sets, or the set of all things except Joan of Arc, and so on. Clearly, every set is either run-of-the-mill or self-swallowing, and no set can be both. Now nothing prevents us from inventing R: *the set of all run-of-the-mill sets*. At first, R might seem a rather run-of-the-mill invention--but that opinion must be revised when you ask yourself, "Is R itself a run-of-the-mill set or a self-swallowing set?" You will find that the answer is: "R is neither run-of-the-mill nor self-swallowing, for either choice leads to paradox."

This kind of paradox seems to emerge again and again. In its most recent incarnation, it turns out--still--to be associated with the name Russell. (This fact, itself, raises all sorts of questions for speculation.) Russell Bernard, Peter Killworth and Lee Sailer (Killworth and Bernard, 1976; Bernard and Killworth, 1977; Killworth and Bernard, 1979; Bernard, Killworth and Sailer, 1980) have published a series of papers on the inaccuracy of informants in social networks research.

Russell and his colleagues have come to the conclusion that people are unable (or unwilling) to give accurate reports of the others with whom they interact. People are, it seems, completely intractable in this respect. Whatever the question--however it is put--people both interact with others they don't report and they report interactions with those with whom they don't interact.

This conclusion is embodied in the research papers in which Russell and his colleagues report their interactions with the people who were their subjects. But, indeed, if we believe their conclusion that people err in reporting their interactions, and since Russell et al are people, it is clear that we cannot possibly accept their report of *their* interactions with their subjects. We must, therefore, reject their conclusion.

But if we reject their conclusion, we are free, of course, to accept their interaction report--but that entails their conclusion. This is, of course, a new expression (dare we say reincarnation?) of Russell's paradox.

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## GOEDEL'S SPOOF: A REPLY TO FREEMAN

P.D. KILLWORTH (University of Cambridge) and H. Russell Bernard (University of Florida)

Let P represent "Linton Freeman's opinions regarding our work", and Q represent "false". We shall also use two variables a and b, both left for the moment unspecified, to prove that  $P = Q$ , or "Linton Freeman's opinions are false".

We note

$$a^2 - b^2 = (a - b)(a + b) \quad (1)$$

as an identity, true for all values of a, b. Let us take in particular  $b = a$ , so that (1) reads, for this value of b,

$$a^2 - ab = (a - b)(a + b) \quad (2)$$

or, factoring the left-hand-side,

$$a(a - b) = (a - b)(a + b) \quad (3)$$

Dividing both sides by the common factor  $(a - b)$ , we have

$$a = a + b \quad (4)$$

or, as  $b = a$ ,

$$a = 2a \quad (5)$$

or, dividing by a,

$$1 = 2 \quad (6)$$

Subtraction of 1 from both sides implies

$$0 = 1 \quad (7)$$

and multiplication by  $(P - Q)$  gives

$$0 = P - Q \quad (8)$$

Addition of Q gives

$$Q = P \quad (9)$$

i.e. "Linton Freeman's opinions are false".

Q.E. almost D.

A Structuralist Manifesto!

(contributed by an anonymous fellow with a big black beard)

A specter is haunting sociology: the specter of Category. All the powers of the Old Establishment have united to preserve this specter: Chairmen and Curriculum Committees, Intellectual Anarchists and Mindless Numbercrunchers, Ethno-metho-obscurantists and Born-Again Marxists.

Where the Department which has not bowed down to the whims of its adolescent clientele? Where the Faculty which has not undercut even these standards? Where the Graduate students whose pursuit of science is greater than their pursuit of Dogma? Two consequences result from these facts: (1) curriculum has been frozen or rots, and (2) Sociology cherishes the harmless and irrelevant ... It is time for a Manifesto of the Serious ...

The history of all hitherto existing paradigms is a history of crass struggles ...

(An extract from a preface to a contribution to an authorized version of some sort)