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*On Well-Formed
Logical & Psychological Questions*

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Summary

Two branches of Erotetic Logic (the logic of questions) are identified in the Introduction : Logical Question Theory (LQT) and Psychological Question Theory (PQT). The components of *well formed questions* are depicted for each of them, via schemas displaying their structural arrangements.

PART I deals with well-formed logical question statements. Criteria for a *well-formed question* (WFQ) and *ill-formed question* (IFQ) are established. The classification of IFQ's , as a function of improper relationships between their components in the schemas, is initiated, with indications of the manner in which this may be systematically completed.

PART II introduces the theory of psychological questions. Herein one can do no more than touch on a vast and fascinating subject. An attempt is made to present a convincing case for its importance to the scientific foundations of personal and social psychology. Indeed, to study the psychological question is to study anxiety, doubt, hope and expectation.

I. Introduction

We are interested in the formal structure of question statements apart from their meaning and grammatical correctness. For example, the statement “ *Are all bojums gnerx?*” is treated as a well-formed question, although the noun ‘boojum’ and the adjective ‘gnerx’ are meaningless. Well-formed questions are assumed to have answers. In this case, the answer will be ‘Yes’ or ‘No’ , depending on the definitions of ‘boojum’ and ‘gnerx’ , or the null answers: “ The word ‘boojum’ is undefined. “ , or, “The word ‘gnerx’ is undefined”, etc.

Likewise the statement “ Is you okay?” is grammatically incorrect, but we will not be concerned with this species of faulty construction. However, a statement such as “Does this question have an answer?” is flawed by virtue of its logical structure. This is the kind of impropriety that we will be investigating in logical question theory. Likewise, questions such as the (spoken) phrase “Are you deaf?” will be treated in psychological question theory.

The collection S of all logical question statements will be taken to be the union of:

- (i) The set A of all well-formed question statements
- (ii) The set B of all grammatically correct ill-formed question statements.
- (iii) The set C of all grammatically correct question statements which may be considered either WFQ or IFQ depending on the context, and the relationship of interrogator and respondent, etc. . This set is quite important in the psychological theory.

Definitions

We distinguish between the semantic question Q , and the grammatical question $Q[U]$:

*** “ Q ” will stand for the *semantic content* of the question statement. This is what the question *means* , and can be identified with “the question” itself as a entity in thought.

*** “ $[Q]_U$ ” stands for the verbal or semiotic *actualization* of Q at a *specific moment in time* : temporal order is fundamental to the structure of a question. $[Q]_U$ includes such things as language, medium, context, etc. $[Q]_U$ may also be called the grammatical question. Confusion between Q and $[Q]_U$ in the application of the word ‘question’ is the source of many pseudo-paradoxes. For example: “Does this question have 10 letters?” refers to the grammatical question and has answer “No” , but “Does this question mean anything?” refers to the semantic question, and does not have any answer.

When the word “question” is used without qualification, it will always mean a *well-formed question* , or WFQ . The term IFQ is only used *if its statement has the grammatical form of a question* . An IFQ is not a question, it is a certain formal structure without meaning .

Q and $[Q]_U$ are combine in *Phase I* ,the *inquiry* , *request* , or *initiation phase* of the interrogation process.

***The *interrogator* , the person asking the question will be given the label “ Γ ”. In PQT , a “need to know” is ascribed to Γ .

*** “ D ” will represent the *domain of inquiry* , also known as *the topic* or *the subject* . D , its *observables* , and the states of those observables, form the matter being investigated in the posing of the question.

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*** " X " stands for the collection of *observables* of D. These are qualities or attributes which ,the interrogator believes, exist in the subject : color, size, joy, weight, truth, loyalty

***The *choice set* , " C " is the set of *all possible states* of the members of X. For example, if D is a warm, visible object, so that X includes temperature and color, then C include all the numerical values of the colors and temperatures that D may assume. If D is a traffic light , X may include "color" and "intensity" (including " 0 intensity" for the case when the light is turned off). The choice set for color then includes the 3 options 'red', 'green' and 'yellow' and 'black' .

The question "*What is the color of that traffic light now?*" would be made by someone who believes that traffic lights have colors, and expects that the answer will be one or more elements of the choice set, red, green yellow and black .

For each observable σ of D which is in X, there is a corresponding term ϕ_{σ} in C called the null state and which corresponds to the answer " σ is not an observable of D. " Thus , the question "*What is the opinion of that traffic light now?*" would be answered with "*Traffic lights don't have opinions.*"

Null states in the answers to question statements play an important role in the sciences. For example , the question: "*How much phlogiston is consumed in the burning of a pound of tallow?* " did not cease to be a well-formed question after the 18th century, although Lavoisier demonstrated that there is no phlogiston. However, today's correct answer is the null statement: "*Phlogiston doesn't exist.* "

*** " Ω " is the *respondent* : the person or entity to whom the question is addressed. In the logical theory Ω is of minor importance. All logical questions are , in some sense, being addressed to the universe at large, some abstract domain of Truth where all the answers

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are. Of course, even in the logical theory, a question can have several answers, as one can see in the remarks about phlogiston stated in the preceding paragraph. However, in the logical theory, one can define a 'unique' answer to any well-formed logical question as the union of all correct ones. In the psychological theory, since the freedom of the respondent, his knowledge and intentions, as well as the difficulty of finding the answer are important issues, it is not always possible to produce such a union, even in theory.

*** " Σ " is the *answer*, the vector of specifications in C of all members of X at the moment of the inquiry.

*** " E " is the *explication*. The full response to an IFQ has to include, in addition to the simple statement, "*That is an IFQ*", the classification of all the false relationships between the components of the question schema. The explication, E , of an IFQ is the correlative of the answer, Σ , of a WFQ.

Obviously, the explication of any WFQ σ is simply: " σ is a WFQ". One does not have to explain why it is well formed. However, an IFQ can be ill-formed in many different ways. To use an analogy: middle C is but a single note on the piano, but there are many ways in which a note isn't middle C. If a piano teacher asks a student to play middle C, and she does so, the teacher need only say "That's right"; but if she plays another note, the teacher may say, "No, that's C#", or "That's c, but it's in the wrong octave.", and so on.

Question Theory Postulates :

(i) *All* WFQ questions, and *only* WFQ questions, have answers.

(ii) *All* grammatically correct question statements have explications.

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We avoid the grey area of the “undecidable questions” of modern logic . Most of the question forms we will be dealing with will be ones for which the choice set is well-defined, and specified in advance.

Examples :

The statement : “*Does this question have an answer?*” is an IFQ . The explication is that the question statement itself is the domain of inquiry, which is improper.

However, the statement : “ *Does this statement have an explication?* ” is a WFQ ! Answer, “Yes”. Explication: “The statement is a WFQ that asks an IFQ, a question about itself.”

Consider next : “*How many answers does this question have?*” If one replies “None ” , and treats that as the “answer”, then it would seem to have at least one answer. If therefore the respondent says “One”, the interrogator may ask : “What is it?” and so forth. The correct procedure is the following: this statement doesn’t have any answers because it is an IFQ. *The reply “None.” is not an answer, it is part of the explication.* To call “ None ” an answer , is like saying that : “*What is the answer to ‘ The moon is bright.’ ?*” has an answer .

The remaining components of the question schema are primarily of interest to the psychological theory, though they are also relevant to the logical theory

*** “ R ” is the *investigation* : the method , algorithm, calculation , or research used in the act of determining Σ from the choice set.

*** “ W ” stands for the *cost* : This is a measure of the amount of effort, or projected effort, that must be invested in calculating Σ from the information given in D, X and C, and (sometimes) the syntactic form of Q[U]

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The *transmission* , " Φ " , is relevant to the psychological theory. In responding to any question, whether well-formed or ill-formed, the respondent retains the freedom to react in a great many ways. His actual reaction that is to say, the transmission , is a function of the way the question is presented to him, and the context in which it is asked.

The combination of elements Ω , R, W, Σ , E, and Φ will be referred to as "Phase II" or the "resolution" of the inquiry. The complete set of all the elements listed, in their proper schematic relationship, constitutes the schema of the well-formed question.

Our diagrams may, from time to time, be decorated from a supply of diacritical marks :

(i) *The "Now" predicate " $\{!$ " . The statement " $\{!$ K" means that "The entity K exists at the present instant." , or " The statement K is being made in the present."*

(ii) *The expression " $@_t$ K" : this signifies that " The idea expressed by the statement K is time independent. " It can also signify that K's occurrence is in the past : if Π is the class of all past events, then the statement " $K \in P$ " is outside of time: if it is true it will always be true. Therefore $K \in P \rightarrow @_t K$*

(iii) : *The "future time" predicate , " $>_t$ " : this is a binary relation. The expression " $A >_t B$ " means " A occurs after B " . It states nothing about the absolute dating of either of them.*

(iv) The Categories of Personhood:

"1p" signifies the 1st Person ,or self: "I" , "We" , etc.

"2 p" signifies the 2nd person, " You " (Singular or Plural);
the "personal Other"

"3p" signifies the 3rd Person , " It, He, She, They" ;
the "impersonal Other ".

II . Well - Formed Questions : Schematic Formats

(1) The Logical Theory:

Phase I : The "Inquiry"

$$\Gamma: \begin{array}{|c|} \hline [Q] \\ \hline \downarrow \\ \hline [D] \\ \hline \downarrow \\ \hline [X] \\ \hline \downarrow \\ \hline [C] \\ \hline \end{array} \rightarrow Q[U] \longrightarrow \Omega$$

The semantic content , Q, is translated by the interrogator , Γ , into the question statement, $Q[U]$. consisting of domain of inquiry \mathcal{D} , observables X and choice set of states, C . This is then sent to the respondent , Ω .

Phase II: The "Response"

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In the psychological theory , in addition to computing the answer, (or explication), the respondent calculates the amount of effort (W) it will cost him to find the answer, and bases his willingness to transmit an answer Σ (explication E), on the results of this calculation. The transmission Φ is a function of many factors, including the level of trust or distrust between respondent and interrogator, the state of mind of the respondent and, above all, the freedom of the respondent in constructing the transmission.

In any well-formed question one always has
Phase II >_t Cross-over Phase >_t Phase I

Any temporal dislocation of this sequence produces an IFQ.

III . Logical Question Theory

Well-Formed and Ill-Formed Questions

Well-Formed Questions are question statements with the following structure:

I. : The components of the question: $\Gamma, \Omega, D, X, C, R, W, \Sigma, E, \Phi$ are well-defined and free of internal contradictions.

I: The choice set, C , in particular, contains two or more alternative states for each observable of X , (in addition to ϕ_C , the "void" state. See page 4 .)

II. $[Q]U$ is grammatically correct. (*Clearly, there are grammatically proper questions which are not well-formed, e.g. " Does this question have an answer?" , etc.)*

III. Each component stands in a proper set theoretic relationship to all others.

IV. The question does not call into question the existence of its syntactic components (*e.g. : "Does this question have a subject?"*)

V. The temporal relations are given by : $\{!\} \Gamma, \{!\} \Omega, @t D, X, C$, and Phase II $>t$ Phase I :

(i) The interrogator and the respondent are assumed to exist in the present tense.

(ii) The domain of inquiry the set of observables and the set of states are outside of the time frame of the question .

(iii) The resolution of the question is in the future relative to the statement of the inquiry.

(V) The categories of personhood follow that of the standard question dynamic, which is :

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(i) During the inquiry, (Phase I) , the interrogator speaks in the first person, while the respondent listens in the second person.

(ii) During the response , (Phase II) , the respondent replies in the first person, while the interrogator listens in the second person.

(iii) The domain of inquiry, the 'common ground' of both interrogator and respondent, is always in the impersonal, or third person.

Analysis:

Condition II will not concern us here. Let us look at III : In a proper question statement, the collection of states ought to correlate with those that are actually present in the observables in X. The question : "*Is today's date green or blue?*" is not well-formed. Nor is the following, which also sets up a contradictory relationship between the domain of inquiry and its observables: "*Is today's appetite warm or gruff?*"

However, confusion between states and observables is sometimes unavoidable. The classical example is found in the ancient quarrel between Empedocles and Democritus over the primary versus the accidental qualities of matter . What we now call the phases of matter (solid, liquid, gaseous, disequilibrium) were, in the Middle Ages, deemed the primary elements of earth, water, air and fire.

In the early part of the 19th century, when John Dalton's theories gained universal acceptance, the burden of explaining all transitory appearances fell to the resurrected atoms of Democritus and Lucretius. The question "*What are the proportions of water, earth and air in iron?*" became meaningless, while the question "*At what temperature does iron assume its liquid , solid, and gaseous phases ?*" became meaningful.

By the end of the century, the atoms themselves had lost their primacy, decomposing into proton, neutron, electron, mediated by electrical and other forces . Today considerable confusion reigns over

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the “primacy” of fields versus particles, symmetry principles, strings, etc .

Quantum Theory turned the whole debate on its head by according relative authenticity to waves or particles, depending on the context.

For the limited purposes of this paper we will only be looking at a restricted range of domains of inquiry, those in which the distinctions between subjects, their observables, and the states of same, are unproblematic. Quantum theory, superposition of states, Schrödinger Cats , etc., are beyond the scope of this discourse . In this simplified world ‘atomic gases’ is a clear notion, while ‘gaseous atoms’ are meaningless;

‘ 10 ounces in a pint’ is quite sensible, though false, while ‘4 pints in an ounce’ , is meaningless .

This does not mean that a state may not become, in its turn, an observable with its own collection of states. Indeed, the hierarchic chain of decomposition can continue for indefinitely many stages.

Thus, in considering some body of water, we can ask: “Is it in the icy, liquid, steamy or vaporous state?” Or we can even ask “ Is it disintegrating, under hydrolysis, into hydrogen and oxygen.” Having ascertained that it is the liquid state, we can then inquire about its temperature. However, to reverse any link in the chain is to generate an IFQ. For example:

“ How much H₂O is there in 75 degrees Centigrade?”

“ How much liquid is there in H₂O ?”

“ Is this liquid in the chemical or temperature phase?” etc. These violate the ordered relationships within the universe or discourse,

Likewise, a well-formed question must clearly have $C \supset \Sigma$: the choice set must contain the answer. It is self-evident also that one must

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have $Q \supset D$, the question contains its domain of inquiry: many classical IFQ are based on an improper relationship between Q and D .

Examples:

?" What is this question about?"

?" Is this question about baseball scores?" , etc.

In general, any question statement which includes itself in its domain of inquiry, is an IFQ. This is akin to the proscription in set theory of sets which contain themselves.

Examples:

?" Am I asking this question?" ,

?" Is this a well-formed question?" , or simply ,

?"Is this a question?" , etc. (Explication "No".)

The relationship between the essential components of a well-formed question must therefore look like this:

$$\forall Q_{[U]} \{Q_{[U]} \text{ is WFQ} \Rightarrow Q \supset D \supset X \supset C \supset \Sigma\}$$

A well-formed question Q includes a domain of inquiry , D , possessing a set of attributes ,or observables X , with a choice set of states C from which the respondent is being directed to make a selection, Σ . (If the choice set contains only one (non-vacuous) state for each observable, then Q is a rhetorical question, which is not logically nor grammatically improper, but may also be classified as an IFQ .)

The answer does not contain the choice set. The choice set should not include the observables. The observables should not include the subject of which they are the attributes. The domain of inquiry should not include the question itself.

Observe that the question " How many letters does this sentence have?" is a WFQ , with answer "35" (including the question mark) . This

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is because it is actually a kind of shorthand for “*How many letters are in the sequence* , “*How many letters does this sentence have?* “ ?

Self-Referencing

Well-Formed Questions cannot doubt the existence of their own components. For example, one must consider these questions IFQ :

α_1 : “Do I exist?” If he is able to ask the question the interrogator is assumed to exist. Note that it is the *question* that is improper: its statement does not implies the existence of the interrogator.

α_2 : “ Does this question exist?” A question statement can predicate neither its existence or its non-existence

α_3 : “ Do you exist?” This IFQ exists in many classic forms, among which we have “ Are you asleep?” “Can you hear me?” “Will you answer this question?”, etc. Although the choice set, “Yes”, “No” is implicit in the form of the question, the response “No”, is unavailable to the respondent. When the form of the question eliminates the alternatives in the choice set, one must consider the question an IFQ in the logical theory, though it does have some utility in the psychological theory, as we shall see.

This IFQ exists in many variants, such as “ Is there a respondent?” “Does this question have an answer?” “ How might you answer this question?” . Here we see that the question is contained within the question statement. Being an IFQ it has no answer. The statement “ It has no answer because it is an IFQ”, is not an answer, but an explication.

α_4 : “ Does this question have a domain of inquiry ?” , etc.

α_5 : “ Which is the correct answer: ‘hot’, ‘cold’, or ‘indifferent’? “

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In the absence of context, one is being asked to select the state of a non-existent observable.

Temporal improprieties.

Relative to the temporal frame of the question , interrogator and the respondent are always assumed to be speaking or listening at a present instant. This is true both at the moment of the inquiry and the moment of the response. One sees right away that these questions are all IFQ:

β_1 : " Was I asking this question yesterday?"

This is either an IFQ (A question being asked now is not one being asked yesterday), or it means " Did I make the statement , ' Was I asking this question yesterday?' , yesterday?" which makes β_1 an ungrammatical form of a WFQ.

β_2 : "Will I be asking you this question tomorrow?"

β_3 : "Was this an interesting question?"

β_4 : "Will this be an interesting question?"

β_5 : " Am I asking you this question now?"

This question statement is temporally proper. However, since β_5 is its own domain of inquiry, it is an IFQ for another reason. In fact β_5 is borderline; one might simply consider it a rhetorical question; or one may say that, since it is not a proper question, the response is simply " You are asking me an IFQ. "

γ_1 : "Did you answer this question yesterday?"

γ_2 : "Will you answer this question yesterday?" , which may perhaps be considered more ungrammatical than improper.

A classical example of an IFQ that revolves around a temporal inconsistency is present in the following exchange:

I asks question Q: " Can I ask you a question?"

R: "Yes."

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I: " I just did. " (Question Q)

As with all questions, Q is in the present tense . However, the question which the interrogator wants permission to ask is in the future relative to Q . Therefore, the question he just asked is not the same as the one he says he wants to ask. There are thus two questions implied in Q , distinct by virtue of their temporal modalities .

Observations on the Domain of Inquiry

I. The Stability Principle

It is automatically assumed, in the posing of a question, that the domain of inquiry, although it may well be 'temporal' in some exterior sense, undergoes no alteration in the period covering the two phases of inquiry and response. This important principle will be called "*The principle of the stability of the domain of inquiry .*"

When someone is asked a question such as "What's the outdoor temperature ?" both the interrogator and the respondent recognize that temperature changes from one instant to the next, that it will change even in the time interval in which the inquiry is made. They both know that, given the delays in the process of walking outdoors, reading the temperature, returning inside and relating the answer, that the temperature stated by the respondent will not be the same as the one on the thermometer at that moment.

However to the extent that the question is deemed a reasonable one, it is assumed by both parties that there will be so little variation in the temperature, that the answer will be correct within an acceptable margin of error. The domain will undergo no *significant* change during the process of interrogation.

It follows that any question which is so structured that its domain of inquiry is intrinsically unstable must be an IFQ.

Example:

Taking a leaf from the desk of logician and popularizer Raymond Smullyan, we propose an island, Dis, holding 4 different kinds of resident: knights, knaves, jesters and monks.

Knights always tell the truth. Knaves always lie. Jesters tell the truth, unless they are called upon to denigrate themselves, in which case they will tell lies which flatter themselves. Monks may well lie about some things, but they can always be depended upon to give an accurate appraisal of their own character.

All four groups are asked the same question:

"If you were a jester, and I asked you the question 'Would you ever tell a lie?', how would you answer it?"

A knight may say "No", because, being a truth-teller himself, he thinks that a jester's vanity would be offended by being thought a liar. A knave may say "Yes", because he would lie about the answer he thinks a jester would give.

However, if a jester esteems knights, he may well decide to say "No", so that you will think him a knight. However, if he esteems monks above knights, he may say, "Yes", so that you will think he does not lie about his character. It depends on his early education.

A monk, however, would never want to give the impression that he is not what he is, and he may say, "The response of a jester is an unstable domain, and therefore the question is an IFQ."

We have here an example of a very unstable domain, "the response of a jester from Dis".

We may also analyze this situation as follows. The domain D of this question includes: (1) The set of all true propositions (2) The set of all false propositions (3) The set of all vain claims, and (4) The set of all humble claims.

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Since there is no way to know, without further investigation, what this domain is, we must say that the question is improper because the domain is unstable.

More on temporally unstable domains

Three ways by which the domain of inquiry may be temporally unstable include:

u_1 : The question is phrased in such a manner that, within its context, the domain, its observables and/or crucial elements of its choice set *will cease to exist* within the time interval needed to uncover the answer to S.

u_2 : The question is phrased in such a manner that one or more of the alternatives in the choice set *cannot be answered in a finite length of time*.

u_3 : The answer, Σ , of the question *itself alters the domain of inquiry* in such a way that Σ ceases to be correct or relevant at the moment of its delivery.

Examples:

u_1 :

(i) Question: *"What is the outdoor temperature at this moment in Los Angeles?"*

In context, the respondent is in a cabin in the woods, without access to any form of telecommunications. Nor does he have a car; it will require two days for him to walk out of the woods to call up a meteorologist to get the answer.

(ii) The date is April 1, 1999. Question: *"What is the population of Kosovo?"*

(a) Kosovo's residents are being systematically expelled from the province by the Yugoslav army.

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(b) Being a war zone, no census takers are anywhere to be found. Nor are they being allowed in

(c) Even under the assumption that a census could be conducted, it would take at least a month, within which time the population will have changed by as much as a million persons, give or take a few hundred thousand.

(iii) Special Relativity abounds in paradoxes rooted in the temporal instability of the domain of inquiry. A question which might have been thought reasonable before 1905 , *“Did the supernova explode before or after the passage of the comet?”* is now seen to be an IFQ.

u₂ :

(i) Question : *“Does the proton decay?”*

It is a fact that many years of ingenious, expensive and laborious experimentation have been , and are being invested in the answer to this question. To date there is no evidence for proton decay.

This does not mean that the answer is *“No”* . A tiny dataset indicating the existence of protons in decaying states, once experimental errors are weeded out, suffice for a *“Yes”* answer. *“No”* is *in fact not in the choice set* , (unless one admits eternity as a legitimate time interval for experimental research) . The real choice set contains an infinite number of statements of the form:

...There was no evidence of proton decay on June 22, 1999
 ... “ “ “ “ “ “ “ “ June 23, 1999
 ... “ “ “ “ “ “ “ “ June 24, 1999

 ... “ “ “ “ “ “ “ “ day x ,

month , year z

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With a choice set of "Yes/No" the question is ill-formed owing to the temporal instability of the domain of inquiry.

However, it is possible to recast this question as a WFQ, indeed as a prototype of all scientific questions dependent upon inductive observations and methods:

Has 25 years of research turned up any evidence for proton decay?

This form of the question admits the simple "Yes/No" choice set.

U₃ :

(i) Wotan asks Mime a question. If the answer is wrong, Mime loses his head. If it is right, Wotan is bound by the Vahallan code of honor,

(for what it's worth.) to spare his life. The question is

"Will your head be on your shoulders after you answer this question?"

(a) If Mime answers "Yes", Wotan can either allow him to keep his head, or strike it off. Either way he has followed the rules .

(b) If Mime answers "No", Wotan has a dilemma. He cannot allow him to keep his head, which makes "No" a wrong answer, which must be punished by having his head cut off! But if the head is cut off, then the answer was correct, and Wotan promised not to cut off Mime's head in such a situation.

The temporal instability of the domain of inquiry has led to a logical paradox.

(ii) "Why won't you talk to me?" If the respondent explains his silence, the very answer alters the domain of inquiry from "silent person" to "talking person". There are many familiar variants of this, including the celebrated question " Are you asleep?"

(iii) " Are you a liar?" This question may be considered from many logical aspects. From the viewpoint of the stability of the domain

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of inquiry it has many interesting features. Imagine that the respondent is a liar but for some reason answers "Yes" . This is a truthful answer, except that it is no longer true of the person giving the answer. *What is happening here, is that the person to whom the question is addressed is not the same as the person who is giving the answer.* Between the posing and the response to the question, the identity of the respondent has undergone a change.

If the domain is stable, then both truth-teller and liar will respond "No". But for an ill-formed question there is nothing preventing the answer from changing the domain of inquiry. Once again, the question can be recast into several proper forms. One of these is:

" Were you a liar before this question is being posed? " One might object to the structure of this question on the grounds that its statement is included in the inquiry; however if we specify that the domain of inquiry is limited to the character of the respondent then it can be considered a WFQ. The form of the statement allows a person who has lied all his life but suddenly decided to tell the truth to say "Yes" . Notice that, (in the absence of time travel!) a domain of inquiry that is cast in the past tense is always stable.

The Principle of the Common Ground

The domain of inquiry, D , is assumed to be the common property of both interrogator and respondent. If this is not the case, the question dynamic is aborted and never gets past Phase I. Questions cannot be asked in Swahili to persons who only speak English. There is little to be gained in asking you a question about Alexander Grothendieck if you've never heard of him. All of this is self-evident. The situation becomes interesting when people believe there is a common ground in certain domain of inquiry, although they are in fact talking about different

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things. A word such as "freedom" for example means so many things to people, that a question such as "What is the freest society on earth?" must be treated as an IFQ, in the sense that it is impossible by any means to establish an unimpeachable domain of inquiry.

Thus, a well-formed domain of inquiry D is required to be :

- (i) a common ground between interrogator and respondent, and:
- (ii) stable over the period of time required for the full cycle of the question dynamic.

The cross-over of persons

When the focus of activity jumps from Phase I, the inquiry made by Γ , to Phase II, the process of investigation and response carried out by Ω , there is a corresponding transposition of roles between 1st and 2nd persons. This will be referred to as *the cross-over of persons*, or simply *the cross-over*. The conflict between Γ 's recognition of his state of ignorance, combined with an intention to dispel it, sets up a tension, instability, or disequilibrium, (whose psychological equivalent may be called "anxiety"), which is eventually resolved by the activity of the respondent, Ω . Thus there are 3 dynamical principles at work in the standard well-formed question :

- (i) The principle of the *stability of the domain*, D .
- (ii) The principle of the instability of the *epistemological state of the interrogator Γ* , owing to the conflict between his state of ignorance and the intention of eliminating same.
- (iii) The principle of the *resolution of the inquiry*, through the work and communication of the respondent, Ω . Through the resolution of the tension set up by the question dynamic, the interrogator's mind ascends to a more complete state of knowledge, a higher level of homeostasis.

Incorrect relationships between these operative principles govern the construction of many ill-formed questions. Most leading questions are of this form:

(i) "What is the age of a 5-year old child?" (Redundant: C contains X)

(ii) "Am I making this statement?" (The answer is obviously contained in the form of the question; there is no question dynamic.)

(iii) "When did you stop beating your wife?" (Once again, the choice set is based on a false premise: Phase II cannot be initiated.)

(iv) "Does a bear shit in the woods?" (No comment)

Leading questions are commonplace in jurisprudence, which seems to have cornered a virtual monopoly over this rhetorical gimmick. Such questions are improper because there is no tension to be resolved in the question dynamic set up between Phases I and II.

The author maintains that the study of Erotetic Logic should be a prerequisite to every law curriculum.

Classification of Ill-Formed Questions

In classifying IFQ's, one first examines each structural component in turn for internal inconsistencies. For example, consider: "*How many corners does a round polygon have?*" Although its domain of inquiry, D, is self-contradictory, one might classify it as a WFQ if the choice set includes the answer: "There are no round polygons." On the other hand, a question such as "Does a square have 6 or 8 corners?" has an improper choice set and is definitely an IFQ. (Once again, the inclusion of the responses "Neither", or "A square has 4 corners" into the choice set may make it a WFQ. The issue revolves around whether the choice set is defined by the interrogator or the respondent. It sometimes happens in a courtroom that a witness will be asked to give a "Yes" or "No" answer

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to a question that does not admit one, but which can be clarified by some kind of explanation. If the judge allows the explanation, the question may be considered proper in some sense; but if he insists on a “yes” or “no” response, then it is definitely an IFQ and cannot be answered, only explicated.)

After examining each component in turn, one then looks at pairs of components to see if, within the form of the question dynamic, they are related in some illogical, improper or meaningless fashion. This inspection may also be extended to groups of components.

There are, in addition, temporal improprieties like putting the interrogator into the future relative to the respondent, improprieties of personhood, (addressing the respondent as “it” or the interrogator as “you”), answering one’s own question in the casting of it’s statement, and so on.

The structural components of the logical question schema as listed on page 11 are : Q , [Q]U , Γ , Ω , D , X , C , R , W , Σ , E , Φ .

Errors in [Q]U are primarily grammatical. E refers to the explication , which is substituted for the “answer” to an ill-formed question. Although “ill-formed explications” may be of interest, we will not consider them here. This leaves 10 structural components that can be combined in pairs in $10 \times \frac{9}{2} = 45$ ways. Since the letter “Q” refers to the question as a whole, defects in other structural components can be subsumed under improper relationships relative to Q.

There is not enough room in this paper to provide examples and analyses in all 45 species of IFQ statements. Through the presentation of a dozen of the most important among them, we attempt to indicate how a comprehensive description of all IFQ’s might be carried out.

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In the following list, a notation such as [D, Σ] indicates that we are talking about the category of IFQ's in which, for example, the answer and the domain of definition are incorrectly related.

The punctuation mark “?” to the left indicates an ill-formed question statement. A “!” to the left indicates the explication.

The Species of Impropriety [Q,Q]

Self-referencing questions and the logical paradoxes that arise from them. Here is a typical example: Let Ξ be the class of all IFQ's . Consider the IFQ:

? “ *Is this statement a member of Ξ ?* ”

! The choice set is Yes/No, and it is obviously an IFQ . Therefore it is in Ξ and the answer is “Yes”. However, merely by virtue of having an answer it is well-formed , which means that it is not in Ξ . Therefore the answer should be “No”. At the same time, there is no way it can be a WFQ, since its domain of inquiry includes itself.

Conclusion : Ξ is not well-defined, and joins such objects as sets that contain themselves, the set of all sets that do not contain themselves, and so on.

(Since the set of all IFQ is not well-defined, the species of impropriety must be limited to those entities E for which the question “ Is E an IFQ ? ” is decidable !)

[Q,D]

The question relates incorrectly to its domain of inquiry

(A) :

? “ *What kind of question is this?* ”

! An ill-formed question. Q is contained in D.

(B):

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? "Is this statement an IFQ?"

! The *explication*, not the *answer*, is "Yes". The full explication however, does not refer to the choice set of the statement, but provides a description of its syntactic structure: "This statement is an IFQ because it is contained in its own domain of inquiry."

Another example in this species is the familiar

(C):

? "Does this question have an answer?"

! If it were a question it would have an answer. However the above statement is an IFQ for several reasons:

(i) It is contained in its own domain of inquiry

(ii) It's choice set demands a selection between opposing predicates of a void object.

(D):

? "Is this a question?"

! Here the problem appears to be in the choice set. The alternatives Yes/No are not both freely available. Since the answer "No" entails a logical paradox, the answer "Yes" is also incorrect. The statement "That is not a question." is therefore not an answer but an explication.

(E):

? "What is the domain of inquiry of this question?"

! This IFQ is of interest because one of its many improprieties revolves about a violation of the principle of the stability of the domain of inquiry.

The stability principle assumes many guises, not only temporal. When a cosmologist asks "What is the nature of the space we live in?" he knows that he may be spending the rest of his life clarifying not only the content but the meaning of this question.

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However, he feels he already knows enough about this subject to assert that an object known as "physical space" will not change, (into "time", or "color", or "justice", etc.) over the period in which it is being investigated. What changes he does encounter will not be called changes in the object but in his knowledge of it. He may speak of " a deeper understanding of space; or "new insights into the nature of space", etc.

Relative to the time frame of the question , the domain of inquiry always remains outside of time .

[C, Σ]

Confabulation of the answer with the choice set.

Examples are :

? " *Is the answer to this question pink or red?*"

? " *How many participles are there in the answer to this question?*"

? " *If a is an integer between 1 and 5, what is it?*"

! This may be either an IFQ or a WFQ depending on context.

One possible reply is "There is insufficient information." , or an explication of the form " The question reveals that the interrogator is unaware of the properties of the integers. " Once again, the choice set of the interrogator may not be that of the respondent. However, casting the question statement in the form " *If a is one of the three integers between 1 and 5, which one is it?*" is unequivocally an IFQ by virtue of a self-contradictory choice set.

Since questions based on lack of information are fundamental to the sciences, one must allow , within the category of well-formed questions, those in which the choice set may not yet be fully determined in Phase I of the question dynamic, but becomes so during the process of Phase II.

? " *What is a question?*"

! This is an IFQ , because if one doesn't know what a question is, one can hardly ask one! However, it has the *explication* :

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"The subject matter of Question Theory." (!)

? "What is the age of the person in this logarithm?"

! This is an WFQ when one allows the null response in the choice set:

"The set of persons inside logarithms is void."

[D ,R]

The domain of inquiry (D) is such that the process of finding the answer (R) is inconceivable, cannot terminate, or is contradicted by the content of D, etc.

A:

? "Are you a liar?"

!The answer 'No' gives no information. The answer "Yes" is meaningless.

B:

? "Do undetectable entities exist?"

! Granted that "existence" and "detectability" are different predicates, both 'Yes' and "No' answers are meaningless. There are of course many subtleties in the above statement, so that it might be considered a WFQ or IFQ depending on one's philosophical predilections. Quantum theorists continue to be divided on the existence of the 'path of the quantum', although it is *theoretically* impossible to detect such as entity. Indeed, there are arguments proving the non-detectability of the path of the electron *from* the existence of that path.

Similar difficulties arise in modern mathematical logic, and even in number theory. For example, the above IFQ can be specialized to:

C:

? "Do non-computable numbers exist?"

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! For most mathematicians the answer is 'Yes', however there are many who feel that a number is only detected when it is computed, in which case this question becomes, again, meaningless. This is indeed the Intuitionist position.

Mathematicians in general want non-computable numbers to exist because they want the number system, or number line, to be continuous. Still, there is no independent evidence to support the belief that number, or anything in the world around us, is continuous.

[Q, Γ]

The interrogator is placed in a false relation to his own question

A:

? *"Am I asking this question?"*

! Obviously an IFQ. Note that the related form " Am I making this statement?" is a WFQ, although one could argue that since the answer is contained in the form, it answers its own inquiry. However the original form of the statement doubts the existence of the interrogator.

B:

? *"Doesn't my making this statement prove that I have to exist?"*

! An IFQ variant of the *Cogito ergo sum* pitfall of Descartes.

C:

? *" Do I understand what I'm saying?"*

! Obviously an IFQ in this form. However, modified to "Am I listening, (hearing, paying attention) to what I'm saying ?", this new statement might be considered a WFQ. The phenomenon of tongue-brain dislocation is so universal that it's expression in this form cannot be dismissed.

D:

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?"Who's asking this question?"

E:

?" If somebody else were to make this statement, would it be well-formed?"

F:

? " Is this question being asked by someone else?"

G:

Here is an interesting WFQ which straddles the concerns of both Logical Question Theory and Psychological Question Theory :

? " Is the fact that I am expressing this statement one of my characteristics?"

The interrogator, in LQT is assumed to be without characteristics. Yet he must have at least one characteristic, that of being the entity which fabricates the question statement and which, in theory, wants to receive its answer. The proper form for this statement in LQT is

? " Is the utterance of this question a characteristic of its interrogator?" , then we obviously have an IFQ, since the existence of interrogator is now made to depend upon the existence of the question. However, put into the form,

? " Is the fact that Jack Jones, age 25 , is making this statement on January 25, 1976, an event in his life?" ,

one might conclude that it is a WFQ.

In any case, the 'existence' of the interrogator in Logical Question Theory is a matter of considerable philosophical subtlety . Questions, apart from their empty grammatical forms, do not exist in a universe without conscious, or even self-conscious minds. "Red apples" exist all over the world; "Red apples?" exist nowhere but in thought.

[D, Γ] :

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Improper relationships between the respondent and the domain of inquiry.

A:

?"Are you the domain of inquiry of this question?"

! IFQ, because it is the question itself which is the domain of inquiry. One sees that this is so in general by rephrasing the statement to something like

?" Is yon churl sitting on the rock over there the topic under discussion in this question?" , or even

? " Is the domain of inquiry of this question the domain of inquiry of this question? "

! It would be, if we were dealing with a question!

Another familiar IFQ in this category is:

B:

? "Can you hear me?"

! Note that this IFQ is commonly employed whenever someone steps up to a microphone in a large auditorium and says something like

*" Can you all hear me?" or, "Can anyone hear me?" . Silence is not an answer, and "No" is self-contradictory. In the next section, on Psychological Question Theory, we will discuss several IFQ's that are legitimate in various social contexts. Observe that *the form of the question statement itself* is being used to obtain information, so that one might say that an IFQ on the primary level becomes a WFQ on the meta-level.*

Finally, let us look at the statement:

C:

?"Is this question unintelligible?"

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! This is an IFQ, no matter what meaning is given to the term 'unintelligible':

(i) C is incapable of being understood in some abstract sense

(ii) C is incapable of being understood by this particular respondent

(iii) C is an IFQ .

A question can be well-formed yet unintelligible; but this one happens to be self-referencing .

[Σ ,C] :

The answer does not relate properly to the choice set of possible answers.

A:

?" How many answers does this question have?"

! If it has none, then the number of answers is "Zero", which might mean that it has one answer! This party joke is based on a confusion established between the "answer to a question", and the "answer to a non-question." Note that the domain of inquiry consists of all possible answers to a self-referencing question, So this is an IFQ and the statement "*There is no answer.*" is clearly an explication.

[Γ , D] :

Confusion of the interrogator with the domain of inquiry:

A:

? "Am I the subject of this question?"

B:

? "What reason could I possibly have for asking you this question?"

! "*To illuminate certain aspects of the theory of questions!*"

(This is, of course, an explication.)

C:

? " *Can I choose to not ask you this question?*"

! This statement is perhaps better explicated through Knot Theory!

A Note On Explications

Since IFQ's are, in some sense "meaningless", it would seem the response, "K is an IFQ.", to the expression of any IFQ, K, would be sufficient. However a full explication identifies the source of the fault places it in its proper category with a statement like " K is an IFQ because...."

Every IFQ has its own structure, its own architecture, Describing an IFQ is akin to the diagnosis of a disease. This is of particular relevance in Psychological Question Theory, where logically inconsistent question statements are often valid by virtue of their instrumentality in human relations.

Compare this procedure to the possible answers to a WFQ question such "What is space?" An "answer" of the form, "*Space is one of the members of the class of 6 entities : 'space', 'time', 'matter', 'claustrophobia', 'horse feathers', 'windmills'* ." is clearly unacceptable to most people. One might even suggest that this is an " ill-formed answer", in that it merely restates the term while saying nothing about it. Such "answers" are on a par with answers of the form : " 'Space' is the subject of the question you've just asked."

Likewise a response such as "K is an IFQ" , without further qualification, is also unsatisfactory.

99 . Psychological Question Theory

When Oedipus asks Creon upon his return from visiting the Oracle at Delphi, "What message from the gods?" the tone of extreme urgency in his voice is combined with a fear, which turns out to be more than justified, as to the real significance of the answer. Here is the complete passage: (*Sophocles, The Theban Plays, pg. 6, Oedipus the King, translated by David Grene, Alfred A. Knopf, Everyman's Library, 1994*)

Oedipus: ... Lord Creon, my good brother, what is the word you bring us from the God?

Creon: A good word, -
 for things hard to bear themselves
 if in the final issue all is well
 I count good fortune.

Oedipus: What do you mean?
 What you have said so far
 leaves me uncertain whether to trust or fear.

From thereon in, the tension tightens and the anxiety mounts, while the elucidation of the answer follows the lines of the 3 critical questions of all detective fiction:

- (1) Who killed Laius?
- (2) Where he is to be found?
- (3) How do we bring the murderer to justice? The cruel irony

of the answers to these has some bearing on the concerns of the psychological theory of questions. Respectively, the answers are :

- (1) The interrogator himself.
- (2) Wherever the question is being asked.

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(3) The interrogator is also the person charged with the administration of justice: judge and the criminal are one and the same.

That is to say, the interrogator is himself the domain of inquiry, but he doesn't know it.

Psychological Question Theory differs from Logical Question Theory to the extent that the interrogator Γ has a stake in the outcome. The respondent Ω may also have a vested interest in the kind of answer he wants to deliver. However, the primary concern of PQT is the interrogator's *need to know* the answer to the question. This need can vary from the relief of boredom to idle curiosity to stark desperation. In every case an underlying emotion of anxiety accompanies the anticipation of the answer.

The focus of PQT is shifted away from the abstract request for information to the anxieties between interrogator, respondent, the situation in which they find themselves, and the answer being sought. Under these new conditions, the categorization of a grammatical question statement as a WFQ or IFQ is determined by a different set of criteria.

The *transmission* Φ , an entity that is totally absent from the purely logical analysis of a question statement, has an important role in the psychological theory. Sometimes this will even overshadow the answer or the explication. There are 3 major considerations distinguishing PQT from LQT:

(i) *The interrogator's need to know.*

(ii) *The calculation, sometimes on-going, by the respondent, of the amount of work, W , that may be involved in finding the answer to the question.* This may lead to a decision to give only a partial answer, to demand some kind of payment for the answer or a refusal to give an answer. In LQT, W is replaced by R , the process for finding the answer,

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and is deemed significant only when R is infinite, or when it is logically impossible to perform it. That is to say, only when the structure of the question makes it formally impossible to derive the answer, is the question statement deemed an IFQ, (of the [R.Q] species) .

(iii) *The freedom of the respondent.* This enables him to ‘transmit’ any response consonant with his interests, his perception of the interrogator, of his reasons for asking the question, and so forth. Motives such as concern, deceit, indifference, laziness, confusion, etc. , now come into play.

For example a statement such as “ Can you hear me?” which is an IFQ in the logical theory, becomes a WFQ in the psychological theory. Γ first asks himself “Can Ω hear me ?” , which is a legitimate WFQ in the logical theory, but there is no way by which he can obtain an answer except by asking a question, *any question* , that elicits some sort of response from Ω . Even a response to Q such as “Excuse me Γ , but that’s an IFQ.” will satisfy the interrogator’s need to know if he can be heard by the respondent.

Generally in LQT the respondent’s existence is not relevant to the posing of the question. Even a question such as “ If you were a unicorn would you brush your teeth in the morning? ” is only being addressed to some sort of ‘literary’ fiction which is defined in context. One sees this by changing the question slightly to “ If Harry, who never brushes his teeth in the morning, were to be changed into a unicorn, would he begin brushing his teeth in the morning? ” , an abstract or depersonalized question of the type that is appropriate to LQT.

As the existence of the respondent is a contextual assumption, doubting the existence of a respondent is inherently contradictory to the structure of a meaningful question in LQT, and makes it an IFQ.

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In PQT however, it is legitimate to allow that an interrogator may have a strong need to reassure himself of the existence of his respondent. Indeed, each time that we pick up the receiver of a ringing telephone and say, "Hello?" we are transmitting an IFQ in the sense of the logical theory!

If there is no reply at the other end, this statement may be repeated several times until the interrogator decides to hang up.

Note that the conventional interpretation of a ringing telephone is an IFQ ! It's making the statement "Who's there?" , and may not get an answer. This fact may have something to do with the compulsive need many people have to answer a ringing telephone under all circumstances even though they are not under any obligation to do so. The anxiety set up by the thought that there may be some important message waiting to be delivered, is a paradigm of the state of anxiety present in all question statements considered by PQT .

In the psychological theory however , "Hello?" is a WFQ. It means:

- (i) This is me talking
- (ii) Can you hear me?
- (iii) Who are you?

A similar analysis may be made of the notorious IFQ : "Are you sleeping?" As customarily employed, the physical utterance of this phrase is intended to awaken the other party and is not much different from simply "Wake up!" Although in most respects it ought to be considered simply bad English, it is still the case that it is a WFQ in the psychological theory. The interrogator, X, has a need to know if the respondent, Y, is asleep. Perhaps X has just given Y a sleeping pill and wants to know if it's taking effect. X could of course ask a third party, Z, " Is Y sleeping?" . In the absence of Z , he treats Y himself as that third

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person, and asks a question which is essentially of the form " You are Y. From your knowledge of Y's state, is Y asleep?"

Any kind of utterance, including "Yes", means "No" , whereas a lack of response does not mean "Yes". However *the question is legitimate in terms of its instrumentality* , as a tool, for the experimental, or inductive, determination of Y's state.

This informal use of the *logical IFQ/psychological WFQ* type of statement is much abused in modern colloquial discourse. One finds it in particular among a certain class of college age women who compulsively end every sentence with the rising inflection of a question mark. The habit combines "Do you hear me?" " Is everything all right?" " Do you follow me?" "Do you like me?" " Will I be allowed to proceed?" " Do I know what I'm saying?" , and " Does this bad speech habit establish my credentials as a member of the in-crowd?" , along with other meanings.

Its ultimate purpose seems to be to aim at a species of connivance or familiarity which passes for friendliness or informality, but which only brands the speaker as ineffectual in the verbal communication of her thoughts.

This transient fashion does however highlight the ambiguities of the logical versus the psychological question, reflecting the crucial distinction between the twin motives of curiosity versus anxiety in the posing of any question.

I enter an building that appears deserted. Perhaps I'm an inspector who has been charged with evacuating the premises before demolition. I roam from room to room shouting :

? "Hello? Hello? Is anyone there?"

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The process, R, of constructing the answer may turn out to involve inspecting every room . Having done this and found no-one, I become the respondent to my own question, with the answer:

" Only I am in this building."

Or someone may respond with

" What do you want?", or, "I'm upstairs."

Or someone outside the building may hear me shouting and say to me "There's no-one in there." We see that the existence of the respondent is the topic of the question. This is not admissible in LQT

Under the circumstances, it is a WFQ in the psychological theory. Notice the "instrumentality" of the external question Q[U] . Even if one eventually receives a reply of the form: "That question is not well-formed . It belongs to species [$\Omega?$] : the existence of the respondent is being called into question." , I could say: "Thanks . Now I know somebody else is in the building."

Suppose again, that the interrogator is a person lost in a dark cave. Over and over again he shouts, "Help! Will someone please answer me?" The continued response of "silence" may turn anxiety into panic. This pathological intensification of the interrogator's essential anxiety illustrates one of the fundamental attributes of the psychological question: namely that, through the exchange of roles (1st. and 2nd persons) , between Phases I and II of the question dynamic, the respondent *acquires a degree of power over the interrogator* , the extent of this power depending on the urgency of the need for the answer. Paradoxically, this power may be greatest when in fact , (as in the example of the person lost in a dark cave) , no respondent is present !

The expectancy of the interrogator biases the choice set. Common biases are:

B₁ : I must know the answer immediately ! (Desperation)

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**B₂: *The choice set is X or Y, but I must hear answer X!* (Denial.
Leading questions)**

B₃: *We have ways of making you talk !* (Threats)

**B₄: Non-sequiturs. These are among the most fascinating of all
objects in PQT:**

Non-Sequiturs

Non-sequiturs may often be clarified by an examination of the background of power relations between interrogator and respondent. Normally power passes from the interrogator, who silently waits in anticipation of the answer , to the respondent. There are some situations in which the interrogator wants to keep the control over the situation in his own hands. This may sometimes be accomplished by the use of non-sequiturs: IFQ statements which cannot be given a proper answer but which, under the circumstances, demand an unambiguous response. Many standard insults are cast in the form of non-sequiturs.

You run into an acquaintance at some social gathering. He has some reason , (real or imagined), for regarding you with hostility, or it may be the case that your presence places him in an embarrassing situation. After you greet him he stares at you for a moment before replying:

“ Do I know you?” However “illogical” this comment is, its several meanings are all perfectly clear:

- (a) Have we met before?
- (b) It suits my purposes to treat you as if I don't know you.
- (c) Since it is presumed I don't know you, your form of address in greeting me was improper.
- (d) I don't want anyone else to think we've met before!
- (e) I hope I've made you feel stupid.

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To understand how a single IFQ can convey so many different subtleties of meaning, let's examine its explication. Why is it an IFQ? One sees that its form equates the 2nd person (the *personal* other , "you") , with the 3rd person (the *impersonal* other , " he") . *In some sense the respondent has been shoved into the domain of inquiry* . The question could equally well have been " Do I know *him* ? " (Spoken to someone else while pointing in your direction.) The sentience of the 2nd person has been liquidated by reduction to the 3rd . It is this murder in the metaphorical sense which carries the bite of insult , of rejection .

One detects at the same time just a hint that it may be possible to resolve the state of alienation by negotiation; almost as if it were an honest question, of the form :

" Should I be addressing you in the 2nd person , (the class of people known to me) , or in the 3rd , (someone from the undifferentiated background of strangers) ? " ; or ,

" Where do you belong, in the domain of inquiry, or the place of the respondent?"

Stated in this manner, the implication is that if you remind him of circumstances under which you've met, he may recognize that you do have some claim on his attention. Much of this is made clear through tone of voice and other outward signs.

There is also an overtone of challenge, which may be taken as either a dare or a threat:

" As far as I'm concerned, you're an *it* unless you can prove to me that you're a *you* !"

Under slightly different circumstances, the same expression can be neutral, even friendly. It may mean , "Where have I met you before?" or even " Hey! Do I know you? I'd like to."

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Which of these many meanings are intended depends in great part on the hierarchy of power relations between interrogator and respondent. For example: if a policeman knocks on the door of a house with an arrest warrant, and the occupant greets him with, "Do I know you?" this may be considered merely comical.

Other examples of such 'insult non-sequiturs' are:

" Which are you: a boor or a philistine?"

" Can you hear me, or are you deaf?" (A multiple IFQ!)

" Don't you know when you're not wanted?"

With respect to the latter example, if the respondent is in a stronger position than the interrogator, he might reply with something like " I'm afraid that's your problem not mine. " However, if the interrogator is holding a gun, one is advised to move on!

The Categories Of Personhood

As interpreted within the context of Psychological Question Theory, all of the well-formed statements of Logical Question Theory are what one might call "idle questions": no "need to know" is associated with their expression , nor personhood with the respondent, and no freedom may be exercised in transmitting the response. The only way that idle , trivial or frivolous questions arise in PQT are in situations of evasion : people talk idly about neutral subjects because they are anxious to avoid talking about something else. This does not mean, of course, that a question like "What is the speed of light?" is idle, but that, until the relevant context is stated, it must be considered so. Typical contexts for questions in PQT include:

(i) Power imbalances.

(ii) Situations of need (hunger, privation, discomfort), including the need to relieve boredom.

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(iii) Fear and anxiety

(iv) Hope of gain, including the gratification of curiosity.

Logical questions carry their "universe of discourse" with them and are, for the most part, autonomous of their contexts.

Answers to questions in LQT such as : "What is the speed of light?" are presumed to exist in some absolute realm outside time, space or the local context. They are being spoken to the universe, and the reply is just as impersonal as the subject under investigation. By contrast, in the psychological theory, the question is always directed to an external respondent, although he may exist only in the mind of the interrogator, (or be the interrogator himself) .

Thus, in the first phrase of the inquiry, 1st, 2nd and 3rd persons are all mental categories of the interrogator, although the person who chooses to respond, (or not) in Phase II need not correspond to this mental picture of the interrogator. The "actual respondent", need not be or even resemble the "intended respondent" .

The clash between the imagined 2nd person and the actual respondent is a central issue in the psychological theory which has no correlative in the logical theory.

The Transmission

In PQT, a complex of factors emerge in the transmission . One of these is the work involved in finding the answer. Although a logical WFQ may have one or several 'correct answers', the actualized respondent, whether a person, machine, library, whatever, will have to carry out the labor of finding them. The respondent can make a free decision to abandon the investigation from the moment that his calculations show that the amount of work involved will exceed his capacity.

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If the external question turns out to be an IFQ, then it is the cost of the construction of the explication E which will be weighed. Indeed, many a successful non-sequitur, or “squelch”, is based on the calculation that the work involved in delivering a satisfactory explication or “comeback”, far exceeds the time or resources of the respondent! However, if a total explication is delivered, it will include, in addition to the various logical improprieties, the relevant biases, B_1 , B_2 , B_3 ,

The respondent also exhibits biases that may figure in the form of the transmitted response: laziness, fear, concern, advantage and so forth. Let B signify the collection of biases of the interrogator, J the collection of biases of the respondent. Finally, we let I stand for all the signal / noise issues that occur in any communication, including defects and breakdowns in the channel.

We then have the relation:

$$\text{Transmission} = \Phi = \Phi(\Sigma, E, B, J, I)$$

E and I are extensively studied in Logic and Information Theory. The focus of PQT will therefore be on B and J, their interactions with each other, and with all the components of the question dynamic.

Example 1 : The Doctor's Dilemma

A patient confronts his doctor with :

? “ Doctor, how much longer do I have to live?”

Let's say the doctor believes that this patient won't live more than a few weeks. He also recognizes the presence of bias B_2 : the patient needs to be given a certain answer, even if it is incorrect. (Indeed, an overly optimistic appraisal may raise the patient's morale, increasing both his will to live and his life-span, thereby functioning as a self-fulfilling prophecy!)

This doctor is fairly typical of his clan : not inhumane, nor a paragon of honesty. He will not tell a deliberate lie; but he realizes that

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if the answer is presented in a certain fashion, this patient can be cajoled into undergoing expensive therapies that may prolong his life an additional 16 hours or so.

It is possible also that this doctor has done some thinking on his own about Question Theory, and recognizes that the question is (mildly) IFQ: questions can only interrogate past events, or objects outside of time, stable domains that will not change over the course of the inquiry. The correct form of the question is “ Doctor, how long *do you think* I have to live?”

Yet the emotional bias which produced this IFQ is most eloquently expressed by this logical error : the patient needs to feel that his doctor is endowed with an omniscient command over the future not present in mere mortals. IFQ's may be very eloquent or expressive of emotional states, which is why they should be considered well-formed in their appropriate context.

So his doctor ends up saying something like:

“ I'm not a fortune teller , but if you follow my instructions to the letter, I dare say you can increase your life expectancy by as much as 5%. Show up 10 days from now at my office in the multiple organ transplant unit. Payment in cash is preferable. “

One can even introduce an ‘information theory’ bias into the story: the terrified patient rushes to the bank to remove his life savings and collapses on the way from a heart attack!

This story illustrates the many factors that can enter into a transmission. It is also valuable in revealing how the schematic unfolding of a question in PQT may involve manifestations of every kind of emotional state. It is not going too far to argue that PQT is the proper framework for the theory of emotion.

Example 2 : The Translator's Dilemma

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The following example is a logical IFQ , which is WFQ in PQT:

Γ is an American , lost in Budapest. He approaches someone with a friendly face, (Ω) , and asks:

? : "Can you speak English?"

Let us say that the respondent does not even know enough English to respond "No". Γ has an urgent 'need to know' if Ω is an English speaker, and has no other means of finding out other than the posing of this question. He is obliged to treat Ω 's silence as a assurance that he does not speak English, it is also possible that Ω is deaf, or that , not wishing to involve himself with Americans, he's chosen to remain silent .

This classic situation may be labeled the " translation dilemma" . One notes again the important role of contextual power balances. When I turn over a text to someone for translation, I am , to the extent that I do not know the language of the text, completely in his power. He may freely chose to render a good, bad or entirely misleading translation. Translation dilemmæ cast the disparity between the 'imagined' and 'actual respondent into sharp relief.

A peculiar of IFQ, of the species [Q , Γ] , mixing both logical and psychological aspects, is present in:

? " Do I understand the language in which I am making this statement?" (!)

The Reflexive Question: Rationalization and Denial

A reflexive question is one which the interrogator asks of himself. Γ and Ω are identified, the interrogator shifting roles 4 or more times over the course of the question dynamic:

(i) The question is raised in the first person;

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(ii) It is received in the second person;

(iii) The topic is investigated. If the question is about the interrogator himself (" Am I or am I not a rogue and peasant slave ? "), he becomes, as focus of attention , the third person;

(iv) The response is transmitted in the first person;

(v) It is received in the second person.

A process at this level of complexity may provide many opportunities for rationalization, denial, withdrawal, bad faith, lying to oneself, etc. All biases in both B and J are present in the same individual. In addition, objectivity, that is to say, the act of placing oneself in the domain of inquiry, as well as the reasoning process that comes out of this, are likely to go astray. Reflexive questions, with their many stumbling blocks, supply a mother lode for satirists .

The very complexity of the reflexive process can become important. The sheer labor of answering such questions may rationalize abandoning the inquiry. Consider the stages representing in the famous , "To be or not to be." soliloquy from 'Hamlet' :

The alternative of "suffering the slings and arrows of outrageous fortune" is weighed against " taking arms against a sea of troubles" . The work of decision -making is too arduous; perhaps the investigative labor is best resolved by "To die, to sleep" . Between these alternatives, sleeping is obviously preferred, unless death is itself a form of sleep, in which case there are once again problems. Finally we learn that the 'dread of something after death' puzzles the will : the interrogator cannot conceive of his own death yet is obliged to do so.

Ultimately, (and this is the interest for question theory), the interrogator, who is also the respondent and the domain of inquiry, can not resolve the question, either by action nor by thought and, what is more important, cannot even evade it. Thus it "loses the name of action",

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it "puzzles the will", it "gives us pause". "To be or not to be" is at the same time the unanswerable question and the unavoidable question.

In the mechanism of denial, the choice set of the reflexive question is restricted or twisted to provide a foregone conclusion:

A: A fading movie star asks

? *"Why do people envy my beauty?"*

B: A dictator asks :

? *"Why am I not loved by my subjects?"*

C: After murdering his father and driving his sister to suicide, Hamlet asks Laertes:

? *"What is the reason that you use me such? I loved you ever."*

D: A Christian missionary wonders aloud :

? *"Why won't the natives convert?"*

The denial of the obvious alternative in a mind of normal intelligence can only mean that an emotional bias is twisting the form of the reflexive question so as to exclude this alternative . One recognizes a double process of interrogation and rejection. Consider situation (A) :

(i) $\Gamma \rightarrow \Omega$ (1st person to 2nd person) ? Am I ugly ?

(ii) $\Gamma \rightarrow D$. (1st person to 3rd person) In an attempt at objectivity , Γ looks in a mirror.

(iii) $D \rightarrow \Omega$. She doesn't like what she sees, but the alternative of "Yes" is unacceptable. *Therefore she transforms the question , to one with a larger choice set:*

(iv) $\Gamma \rightarrow \Omega$ Why do people *call* me ugly ?

D has been taken outside the self. *Now it is the intentions of others*

.

(vi) $\Omega \rightarrow \Gamma$: (Answer and Transmission Σ , Φ) *" Envy!"*

A similar analysis may be made of the other examples. Consider (D):

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? *"Why won't the natives convert?"*

Well, one possibility may be that the Christian hypothesis is incorrect. The very act of thinking this possibility is rejected. This rejection biases the choice set so that it can only include things like "stubbornness", "sinfulness", "ignorance", etc. The mechanism of denial has turned the question into an IFQ.

Truly clever forms of denial will often be couched in the form of a series of WFQ questions, in which the unthinkable thoughts are present only in the connections between them, sometimes only in the conclusion.

In Oedipus Rex, in the scene just after his confrontation with Tiresias, we may schematically present Oedipus's thought processes as follows:

Premises:

? *Did Tiresias mislead me?* (In fact he did. Tiresias knew from the beginning that Oedipus had murdered Laius and that he was Jocasta's son. Yet he did nothing to prevent the marriage.)

? *Is Creon envious of me?* (He is. We see this in his eagerness to depose Oedipus and send him into exile at the end of the play.)

? *Did Creon send Tiresias to me as an advisor?* (He did.)

Conclusion: *They are in conspiracy to murder me!*

The conclusion, although false, is more than reasonable from the premises. However the choice set is biased by a basic assumption: that what Tiresias has just revealed to him *must* be false . The whole syllogism, although both subtle and ingenious, is blocked from going in certain directions. The study of the mechanisms of denial is profound . I am not familiar with any analysis superior to that given by Jean-Paul Sartre in his descriptions of 'bad faith' in "Being and Nothingness" .

Ambiguous Interpretations of Rhetorical Questions

We examine a set of logically IFQ statements which may be legitimated by the attitude of the respondent:

(A) :

? "Does this question make you laugh?"

Explication : It seems to be the case that people have a tendency to find something humorous in any clever, or even not so clever, IFQ. If the respondent laughs at statement (A) , (and I've had the experience of getting a laugh from people by asking it .) his response converts it into a WFQ. Or, if he replies : " No. I see nothing funny about that." it remains a WFQ. Only when he replies with something like "That statement is an IFQ, therefore meaningless ", does it become an IFQ.

Much Jewish humor, owing perhaps to certain peculiarities of Yiddish dialect, is based on the comic element in the IFQ:

? "Why do you always answer a question with a question?"

! "Why not?" , or

" If I'm not me, who am I?"

This is the punch-line of a classic Yiddish joke: the interrogator , while taking a steam bath, discovers that he's lost the string around his ankle by which he identifies himself. The question is asked of someone who, apparently worried about the same thing, finds it and ties it around his ankle.

Here is an IFQ which interrogates the process, R, of finding its answer:

(B) :

? " Do you consider this question a waste of your valuable time?"

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Such questions divide the universe of potential respondents into two classes, Π and \emptyset . Addressed to persons in class Π are received as IFQ; addressed to persons in class \emptyset , they are received as WFQ. When they are Yes/No questions, the class \emptyset is further divided into those who answer "Yes", and those who answer "No".

Statement (B), when addressed to most people, might elicit a strange look and a response of the form: "Huh? That's meaningless."

Some mathematician might reply with: "My serious work is important! I haven't got time to waste on so-called Mathematical Recreations. So the answer to your question is 'Yes, dammit!'"

Yet a question theorist might reply:

"You've raised a good point: that statement divides the universe of respondents into 3 sets: those who consider it an IFQ, those who answer with a 'Yes', and people like myself who take a profession interest in considering such propositions. "

The possibility that the same question may be either an IFQ or a WFQ depending upon the respondent, makes no sense at all in traditional logic. Indeed, in LQT, the entire second phase of the activity generated by the act of posing the question, the "response", plays only a subsidiary role.

Psychological QT and Emotion

Otherness, Personal and Impersonal

As second and third persons refer to categories external to oneself, they may be defined, respectively, as the personal and the impersonal Other. This 3-fold of the field of attention is basic to the analysis of emotional states.

(a) Depression

One can characterize depression as a species of ontological paralysis arising from the absence of the second person, or personal respondent. Another way of putting this is to say that one becomes depressed from sensing the presence of hostility in the environment. Individuals may elect not to feel depressed by depressing things. However, *when* someone is depressed it is because of the real or imagined presence of hostility. Such hostility may, of course, be directed against oneself, as when one despairs of living up to some self-imposed standard.

One finds that reflexive questions are typical of self-doubt, obsessive melancholy and depression. The complex interaction of the categories of personhood in the reflexive question may lead to a bound state of obsessive self-introspection. One sees in this as well, a transmutation of the interrogator himself, or 1st person, to the impersonal 3rd person, or domain of inquiry.

The "grieving" or melancholy question despairs of its respondent, as when one attempts to speak to someone who avoids listening, or one conducts a monologue with an absent loved one, or perhaps by the side of someone's grave. Both grief and depression arise from the sense of the absence of the respondent.

(b) Anger

Likewise, the reaction of anger, that is to say the feeling of hostility *towards* some object in the field of attention, may be interpreted in the language of question theory, as an attack on the respondent arising from the sense of absence of the third person, or impersonal Other. This needs explanation.

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Communication is only possible between persons when there is some common ground on which they agree. In the question schema, this common ground is the domain of inquiry. Once that common ground is established, only the absence or presence of specified states of the domain of inquiry enter into the question dynamic. The domain itself, or subject, are assumed as mutual or common property of both interrogator and respondent.

When there is no common ground, (when, for example, two people believe that they're talking about the same thing when in fact they are not) , there is a breakdown of communication, a feeling of embarrassment leading to an angry or hostile response. The hostile response attempts to impose a common domain by forcing the 2nd person, (respondent in Phase I, interrogator in Phase II) , into the 3rd , that is to say, by compelling the person addressed to conform to one's idea of what is contained in the domain. Thus there are hostile inquiries and hostile responses.

This act of forcing the subject into one's own particular interpretation or understanding may be viewed, if only metaphorically, as a form of murderous intent. The hostile act, a form of violence to the context of the interrogation, is actually an attempt to depersonalize the Other, *to transmute the 2nd person into the 3rd, thereby reducing the bipartite division of the Other to a unity* , or common ground . Such non-reciprocal assertive action keeps the focus of the attention within the 1st person , or ego. Anger displays itself in acts of self-assertion.

Whenever there is a hostile bias to a question, one usually finds that the answer is already present in an improperly presented choice set: leading questions, rhetorical questions, non sequiturs , etc. The interrogator is not sincere in desiring information from the respondent,

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but rather needs to be reassured that a certain predetermined or wished-for response, is in fact the correct one.

Thus, an arrogant, domineering individual , after issuing an unpopular order, might ask in a disparaging tone of voice: "*Are there any objections?*" . The tone of voice employed is enough to indicate that the penalty for pointing out any sort of objection is prohibitively high . In fact , what we are dealing with is not so much a question, as a command in the form of a question. Thus the statement, "Will you get out of my way?" says the same thing " Get out of my way." save that it is, if anything, even more unfriendly .

Once more the power balance between interrogator and the respondent is critical , although it may remain unstated, or even undetermined. The form of the above question can be interpreted as a bluff, whereby the interrogator presumes more authority in the given situation that he actually possesses. "*Will you get out of my way?*" contains the unspoken question : "*Am I strong enough to force you to get out of my way?*" .

(c) Anxiety

Having correlated the "absence of the respondent" , and the "absence of the domain of inquiry" , respectively with the emotional states of "depression" and "anger" , we now correlate the third alternative, the "absence of the interrogator", with anxiety, or alienation.

The dynamic process of the 'anxious question' is shaped by worry and fear. It speculates on possible threats and dangers, no matter how far-fetched. Typical of the anxious dilemma is the following reflexive pattern: "My fire insurance will never be enough to cover all potential fires in the future. Yet if I invest too much money in insurance I may bankrupt myself and starve to death: What should I do?"

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The condition of anxiety springs from the need, through external or internal circumstances, to avoid looking at oneself objectively. This suspension of the capacity for self-judgment, the absence of the interrogator, leads to a permanent interrogation of the future in order to avoid self-confrontation. Or it may be the case that the future is indeed so ominous that one cannot afford the luxury of self-introspection: there exist rational as well as irrational fears.

“What will happen if the town I live in is struck by an earthquake?”, the excessively anxious person asks, “It’s never happened here, but just last week there was a serious one in Los Angeles.” He may then go out and buy thousands of dollars in emergency supplies that he is likely never to use.

Another way of interpreting anxiety within the framework of PQT is as a process whereby the respondent fills in for the interrogator. The second person, or “you” is absorbed into the first, or “I” , thereby unifying the universe of discourse through the elimination of the fracturing of the “personal” into Self and Other.

Summary

The interrogative process, or question dynamic, establishes a tension of dependency between the interrogator and the respondent. This dependency is the "need to know" characterizing the psychological question, but not the logical question .

All the basic emotional states are associated with present or perceived deficiencies in the categories of personhood necessary to the well-formed question:

I. In the absence of the respondent one senses the presence of hostility. This may lead to withdrawal, a reflexive state of self-introspection familiarly labeled by “melancholy” or “depression” .

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II. In the absence of the domain of inquiry, or subject, there is a breakdown of communication, embarrassment, the sense of futility, anger. One feels like saying to the co-respondent, (interrogator or respondent): "Why are you wasting my time when we have nothing to talk about?" The failure to find, or to negotiate, common ground between interrogator and respondent lies at the root of hostile or angry behavior: Ethnic, national or religious hatreds arise from just this cause.

III. The absence of the interrogator, whereby one can gain insight or self-knowledge, produces powerful anxiety. One is cast, without roots or signposts, adrift in an impersonal world teeming with invisible dangers. By speculating on the future, one avoids the Self. The domain of inquiry, which is one's actual state or identity, is projected onto the future, thereby replacing the interrogator with the respondent.

Emotional Biases Influencing the Schematic Form of the Psychological Question

Anxiety	Depression	Anger
Absence of 1st Person	Absence of 2nd Person	Absence of 3rd Person
Identification with 2nd Person	Identification with 3rd Person	Identification with 1st Person
Attack on 3rd Person	Interrogation of 1st Person	Attack on 2nd Person

The Transmission:

I. Freedom of the Respondent

The phase known as the transmission, Φ , does not correspond to anything in the logical question and exists only in the dynamic process of the psychological question. The two essential elements of the transmission are:

(a) The estimation of the "cost", W , (in terms of time, effort, etc.) of finding and transmitting the answer ; and

(b) The freedom of the respondent in the determination of the form of the response.

A physicist is asked the question:

? "What is the best current figure for the speed of light?"

The interrogator's 'need to know' this elementary datum may spring from a variety of causes: a take-home exam which needs to be completed by a certain deadline; a critical moment in a relativity experiment which involves bouncing radar signals off the surface of the moon; a job interview where the interrogator is a personnel officer testing the competence of the physicist for a certain position; a host of utterly trite, childish or nonsensical reasons; and so forth.

In responding to this question, the physicist may also avail himself of a wide variety of legitimate options. Almost none of them appear in the choice set C , of Q , (which consists only of the real line of all positive numbers in, say, cgs units) . One could say that these options abide rather in the choice set of the transmission. For example:

(i) The logical response: the correct figure.

(ii) An private estimation of the labor involved in finding the answer, the cost W , followed by a rejection of the question process: "I don't know. I'm a professional physicist, not a walking encyclopedia."

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(iii) An estimation of W , followed by a division of labor between interrogator and respondent: "I don't know. Here's a copy of the Handbook of Physics and Chemistry. You can look it up"

(iv) An unstable domain: "I can't tell you now: a new version of the Handbook for Physics is coming out in a week with the most recent figure."

(v) Rejection of the question itself: "That question is boring. Ask me another."

(vi) Rejection of the interrogator: "Don't bother me."

(vii) Disparaging the need to know: "That's a frivolous question. My time is too valuable to deal with it."

(vii) Honest or dishonest ignorance: "I don't know."

(viii) Absence of the respondent: Silence

(ix) Lack of common ground: "Since light is a mystical emanation from the Godhead, its' speed is infinite."

(x) Changing the subject: "I've been told that all cows eat grass."

(x) is an example of an "irrelevant answer." It occurs in LQT *only if we admit the weakest version of Aristotelian logic*, in which one allows that *any* true proposition is a valid answer to a well-formed question. Irrelevant answers have many possible interpretations in PQT, depending on the bias set B of Γ , the bias set J of Ω , the cost estimate, and the background of power relations between Γ and Ω .

In most situations, the intention of the irrelevant answer is the same as in "Don't bother me.", though perhaps more poetic. However, the nuances of insult, humor, or simple misunderstanding, can be considerable.

II. The Estimation of Cost

The calculation of the amount of work, W , that will be required to find and transmit the answer is always a significant factor in the analysis of the two-person interaction characteristic of the psychological question. The respondent must ask himself: "How hard is it going to be to answer this question?"; "Do I have the time, means or resources to answer it?" and, of course: "Is the search for and delivery of the answer a worthwhile investment?"

Normally the analysis of the situation is straightforward. However, certain typical IFQ's which are legitimate in the psychological theory merit further discussion :

The interrogator asks:

"What did you think of my clever idea?" ; obviously an IFQ.

The respondent does not believe that his idea is clever. He knows, however, that Γ will become enraged, and might even attack him if he says otherwise. The cost is not worth it. He may even find it expedient to reply with something like : " You exceed yourself daily in wit and wisdom, Oh exalted sire!"

In certain situations in which there is little danger of an overt or violent reaction, another consideration may be operative: If the respondent honestly states: "I don't think the idea is clever." the interrogator may break off all communication with the respondent, *in which case the entire question process breaks down* . The right answer destroys the channel. The phenomenon of the "unfriendly question" may be defined as one which cannot be answered honestly without destroying the relationship of communication between interrogator and respondent.

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The other face of "cost" is, naturally, "gain". The respondent may come up with a 'calculated answer' designed to mislead the interrogator so as to maximize some possible material profit for himself.

Here is an example based on a real incident: You are dining in a restaurant in some foreign country, where your command of the language is inadequate. You ask the waiter for a bottle of red wine. Clearly taking advantage of your ignorance, he returns with the most expensive bottle in the house. When you protest the \$200 bill, he threatens to call the police.

In this example the role of the interrogator is filled by the customer, the role of the respondent by the waiter. The calculation of gain is made on the assumption that the interrogator does not know what the correct answer looks like (a bottle of wine within his price range) .

The calculation of gain may be less dishonest, yet still self-serving. A child complains,

"I'm hungry . What should I eat?"

Its' grandmother comes back with an ice cream sundae. It is not what the child needs, but she imagines that the child will like her for it.

In both of these examples we see the role of the calculation of gain in the transmission.

These brief comments must terminate this preliminary introduction to the concerns of, and distinctions between, logical and psychological question theory. Hopefully the author will find the opportunity to develop these suggestions more thoroughly at a later date.

