Chanowitz, Benzion

ON THE CONTEXT-DEPENDENCE OF PERCEPTION

City University of New York PH.D. 1983

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by

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A dissertation submitted to the Graduate Faculty in Psychology in partial fulfillment of the requirements for the degree of Doctor of Philosophy, the City University of New York.

1983

This manuscript has been read and accepted for the Graduate Faculty in Psychology in satisfaction of the dissertation requirement for the degree of Doctor of Philosophy.

January 3, 1983
Date

Co-Chair of Examining Committee

Jan. 6, 1983
Date

Co-Chair of Examining Committee

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Abstract

ON THE CONTEXT-DEPENDENCE OF PERCEPTION

by

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A framework for detailing the manner in which social perception depends upon context is presented. An historical preface outlines the tensions between mechanism and vitalism in 18th and 19th Century physical science; and how the triumph of mechanism influenced the development and direction of theory and research in perception during the 19th Century. The grounds for a causal model of natural perception that would lend credibility to a natural science of perception and psychology are given. The inadequancy of such grounds as the basis for an account of social perception are detailed. Three studies are presented through which an alternative account of social perception can be generated. In a manner similar to the procedures of Rosch (1973), subjects were asked to make judgments of prototypicality about a category-bound set of objects that were presented in either lexical (Study 1) or pictorial (Study 2) form.

The targeted sets of items, in all cases, were embedded within one of two larger sets of items. Each of these larger sets gave different form to the "same" embedded targeted set. Subjects' prototypicality judgments of the "same" objects were influenced by the context invoked through the larger set of items that surrounded the targeted set. In Study 3, the stimuli from Study 2 were "hidden" in a drawing. Subjects were required to find and name the hidden objects. The names subjects gave to the targeted set of objects were again influenced by whichever larger set of objects surrounded them, despite the fact that in this case there was no mention of the category-bound character of the set of presented objects. Disparities in social perception may be a function of distinctive contexts that are deployed in order to give shape to the social world. An alternative account of bias and perception is offered in that light.

ACKNOWLEDGMENTS

Acknowledgments may be considered a matter of form but this is one occasion where I have no desire for breaking with convention.

I thank Ellen Langer, Lindsey Churchill and Bernard Seidenberg for their encouragement and support. At one point or another over the course of my undergraduate and graduate careers, each was my mainstay as I travelled through the underworld of academia. In retrospect, I marvel at their patience with me in some of my less corrigible moments. I am glad that they could together serve as members of my dissertation committee.

I thank Jonathan Adler and Michael Brown for their generous support and for their help in shaping my dissertation.

I thank my mother, Anita, and my father, Chaim, and my brother, Benjy, and my sister, Ellen, for the home that they have provided over the course of my life, wherever I may have been. I will always be in their debt for the spiritual, emotional and intellectual support that they have unselfishly and unwaveringly given to me.

I thank the following people for the moral and technical sustenance they provided: Harold Bursztajn, John Hallowell, Jan Pan, Joan Romaniello and Barbara Skydell. Without them, this dissertation would not be a finished product.

Last but not least, I thank all of my friends who have enriched my life. I cannot thank each and every one of them here and so they may be nameless on this paper. But, the living memory that I have of each of them and the gratitude that I feel testify to the richness of my life.

Grateful acknowledgment is given to the following publishers for permission to quote copyrighted material in the dissertation:

Cambridge University Press for selections from Remembering: A Study in Experimental and Social Psychology by F.C. Bartlett, 1932.

D.C. Heath & Co. for selections from Psychology: An Elementary Text-Book by Hermann Ebbinghaus, 1908.

Dover Publications, Inc. for selections from Memory: A Contribution to Experimental Psychology by Hermann Ebbinghaus, 1964, and from Hermann von Helmoltz by Leo Koenigsberger, 1965.

Hafner Publishing Co. for selections from Newton's Philosophy of Nature: Selections from His Writings edited by H.S. Thayer, 1953.

Holt, Rhinehart and Winston for selections from Elements of Psychophysics: Volume One by Gustav Fechner, 1966.

John Wiley & Co. for selections from Helmholtz on Perception: Its Physiology and Development edited by R.M. Warren and R.P. Warren, 1968.

MacMillan & Co. for selections from Outlines of Psychology: Based Upon Results of Experimental Investigation by Oswald Kulpe, 1895.

Plenum Press for selections from Wilhelm Wundt and the Making of a Scientific Psychology by R.W. Rieber, 1980.

University of Illinois Press for selections from "Oswald Kulpe and the Wurzburg School" by R.M. Ogden in the American Journal of Psychology, 1951, Vol. 64, 3-19.

University of California Press for selections for The Mathematical Principles of Natural Philosophy by Isaac Newton, 1962.

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I - HISTORICAL PREFACE

Isaac Newton published The Mathematical Principles of Natural Philosophy in 1686. At that time, the practices of philosophy and physical science were not as easily distinguishable from each other as they are today. Newton was merely repeating the common knowledge of his time when he said that "natural philosophy consisted in discovering the frames and operations of nature and reducing them, as far as may be, to general rules or laws." Newton aimed to show in his work how the frames and operations of nature were reducible to principles of the mathematical kind. The necessary geometrical rigor of the world was expressed in the mathematical formulas that were reflections of nature's proportions. Those proportions, whose discovery by scientists was made possible in part by systematic empirical observation, timelessly and pervasively existed in nature, independently of the actions of scientist-observers. Regardless of the hypotheses that scientists supposed, nature retained those singular proportions that were mathematically defined. Nature's unswerving proportions were given shape by mathematics whose well-recognized independent existence and universal relevance provided the certain ground for the coherent organization of all parts of nature's universe. This is how Newton puts it in the preface to the Principles:

> And therefore I offer this work as the mathematical principles of philosophy, for the whole burden of philosophy seems to consist in this: from the phenomena of motions to investigate the forces of nature, and then from these forces to demonstrate the other phenomena; and to this end the general propositions in the First and Second Books are directed. In the Third Book

> I give an example of this in the explication of the System of the World; for by the propositions mathematically demonstrated in the former books, in the third I derive from the celestial phenomena the forces of gravity with which bodies tend to the sun and the several planets. Then from these forces, by other propositions which are also mathematical, I deduce the motions of the planets, the comets, the moon, and the sea. I wish we could derive the rest of the phenomena of Nature by the same kind of reasoning from mechanical principles, for I am induced by many reasons to suspect that they may all depend upon certain forces by which the particles of bodies, by some causes hitherto unknown, are either mutually impelled toward one another and cohere in regular figures, or are repelled and recede from one another. These forces being unknown, philosophers have hitherto attempted the search of Nature in vain; but I hope the principles here laid down will afford some light either to this or some truer method of philosphy.
>
> (Newton, 1962; pp. xvii-xviii)

When developments in arithmetic and measure theory allowed for sizing up the materially available world, the arithmetic expression of that world became possible through the instrument of the mathematical formula. The physical sciences emerge through the controlled observation of empirically given states of the material world. The operations of experiment permitted the development of a practicable physical science that could pry loose the secrets of nature. However, scientists' knowledge of those formulas, which were lodged everywhere within the material world, left those proportions intact and undisturbed. In the domain of natural science, it is understood that understanding Nature is a matter of grasping and comprehending that which continually exists independently of the observer and which remains unaffected by the act of knowledge. Only the observer is affected by the act of knowledge.

Newton's efforts were devoted to deciphering the regularities in those segments of nature that are of specific interest to physicists and astronomers. But, his work set up a framework through which "we could derive the rest of the phenomena of Nature by the same kind of reasoning

through mechanical principles." As a part of nature, the human being also qualified (inescapably) as an object for this kind of study using these principles since the human body was caught up in and could not violate the inviolable laws of nature's operation that had independent existence. Though he didn't work out the empirical details of this endeavor, Newton foresaw the character of an undertaking which would make humans the object of research that was informed by mechanical principles. The human being (at least the body) could not help but be effected by and participate in the lawful operations of the rest of nature that constituted the external world. Given the correctness of Newton's grasp of the world at large, it was a necessary implication that things follow in this sort of way, from the world to the senses and through the nervous system to the sensorium of the brain. As Newton says in the Opticks (1721),

> When a man views any object... the light which comes from the several points of the object is refracted by the transparent skins and humors of the eye... as to converge and meet again in so many points in the bottom of the eye, and there to paint the picture of the object upon the skin (called the tunica retina) with which the bottom of the eye is covered... and these pictures, propogated by motion along the fibers of the optic nerves in the brain, are the cause of vision. For accordingly, as these pictures are perfect or imperfect, the object is seen perfectly or imperfectly.
>
> (Thayer, 1953; p. 99)

And as he says elsewhere,

> Granting me but that there are pipes filled with a pure transparent liquor passing from the eye to the sensorium and the vibrating motion of the ether will of necessity run along thither. For nothing interrupts that motion but reflecting surfaces; and therefore that motion cannot stray through the reflecting surfaces of the pipe but must run along (like a sound in a trunk) entire to the sensorium.
>
> (Thayer, 1953; p. 104)

Of course, Newton and the followers of a mechanical philosophy were constantly confronted by the counterproposals of the vitalist position.

Vitalism's philosophy posited an entirely different character to the whole of the world's organization. The substance of their arguments centered around the character of the orderliness exhibited by human beings whose actions, for vitalists, were obviously incommensurable with mechanical principles. The animate sections of the world were viewed as paradigms for the orderliness of the whole of Nature -- including those sections that appeared less animated (e.g., rocks, planets).

The organization of the natural world in all its parts was a function of the whole that each part shared in. The organization of any thing in the world was to be explained in terms of what it was a part of and what it was drawn into as it more coherently organized itself rather than, as the mechanists would have it, by what it was made up of. For the vitalists, this could be most clearly seen in the human being where all of the person's parts were organized in terms of the spirit that suffused and personified the whole. And as the mind was drawn into a more coherent organization of itself though active, vitalist principles, what is referred to as the body got dragged along. But this vital principle of organization held as surely, even if less clearly, with regard to the less animated sections of the natural world. The difficulties that mechanists had in accounting for the orderliness of animate life, in general, and human life, in particular, forestalled the complete victory of a Newtonian, reductionist framework for science. How could one seriously consider the Newtonian philosophy of nature as a viable framework in which to practice natural science when it could not account for the orderliness of some elements of the natural world -- to wit, human beings?

However, the 19th Century achievements in such domains as human physiology (e.g. Bernard, 1865), psychophysics (e.g., Fechner, 1860), and

evolution (e.g., Darwin, 1859) served as a vindication for Newton's vision of a materialistic, mechanistic program for natural science. These achievements showed the way in which a mechanist program could account for animate (and, in particular, human) life in the natural world -- even though the mechanist program did not immediately supply all of the details of that accounting. It was generally conceded (especially among physical scientists who studied the more inanimate elements of the natural world such as rocks and planets) that Newton had won the war even though the battle is still being fought. This victory, however, had two less-noticed effects. First, it confirmed the sense of notions like "object," "observer" and "natural science" that had accumulated through the work of the past 300 years. It reaffirmed the utility of using that framework when examining all elements of the natural world -- including human beings. Second, it localized the problem of vitalism within certain domains of pyschology and physiology. Heretofore, the vitalist hypothesis was understood to be an attempt to explain the apparently inanimate elements of the world as much as the animate elements of the world. But with the 19th Century victories of Newton that situated the human being in a mechanistically natural world, vitalist proposals were not seriously considered as offering explanations for order in the inanimate world. Once mechanism had gained a foothold in the human being, there was no question of the correctness of Newton's program for the rest of the world.

When a natural science of psychology was seriously undertaken, the problematic aspects of the notions of "object," "observer" and "natural science" and the troublesome "appearance" of vitalism re-emerged. But, they were no longer taken as global problems. Rather, these were

problems for the junior members of the corps of physical scientists (e.g., physiologists, psychologists) as they attempted to follow through on the implications of Newton's program. However, the intractability of these problems was not immediately evident at the outset of these attempts by junior scientists. Quite the contrary. Their imagination was fired by the very successes that had "proved" the case for a mechanist, materialist framework at large. They grasped their project as a matter of keeping track of events that began in one already-defined locale of the mechanistically natural world (e.g., the environment) as those events lawfully had consequent effects in other as-yet-undefined locales (e.g., the human body). Inescapably, the human being was caught up in those events as Nature worked its way. Nature's laws did not cease to be potent at the thresholds of the human body. But how Nature worked its way in this region of the natural world was not clear. They were tracking these events into a border region that adjoined heretofore unexplored neighboring territories. And they used the experimental methods and mechanist principles that served other scientists well.

Through a series of quotes, it is instructive to mark the progress of the initial stages by which psychology moved toward its status as a natural science. It can be seen that all of this work does no violence to the spirit of Newton's mechanical philosophy. In 1850, Hermann von Helmholtz made a discovery that would be of tremendous import to psychology. Approximately 130 years after Newton wrote the Opticks, Helmholtz discovered the velocity of transmission for impulses that make their way through the nerves of the nervous system. One cannot underestimate either the practical or symbolic consequences of this discovery. For vitalists, it did not make sense to speak about the

"speed" of nervous impulses (as if this was the sort of thing that travelled over distances). To speak of the rate of "transmission" or "propogation" in the nervous system (as if something out there happened in the world independent of the person and then after traveling over the course of the nervous system it had its effect on the person) was to speak nonsense and to misunderstand the character of "happenings" in the world. Firstly, all things that happen in the world are "part" material and "part" spiritual. Any thing that happens is the concurrent expression of both levels. And secondly, in that concurrence, it is the spiritual (or the mental) that takes the leading role in the organization of things. If one is to speak at all about the influence that one part exercises over the other part (as if these two parts ever could 'interact' with each other -- thus implying that each part has its own ontological integrity and thus ignoring the fact that the two parts are expressions of one happening thing), one must recognize that it is the "body" that is mobilized in the interests of the "mind." The "body," so to speak, gets dragged along as the mind more coherently organizes itself.

A discovery of this sort (and its possibility) is entirely consistent with the framework outlined by Newton. An exchange of letters between Helmholtz and his father gives hints of how mechanists and vitalists (more so, the former) would regard the character and significance of this discovery. Helmholtz's father was a friend and colleague of I.H. Fichte, one of the better known vitalists of that day, and he was sympathetic to the vitalist position. In March of 1850, Helmholtz wrote to his father:

> I have another six weeks vacation and am using this time to prosecute my discoveries in regard to the transmission of nervous activity, extending it in as many cases as possible and getting it ready for publication. Since my first note to the Academies of

> Paris and Berlin I have been studying the point in man also and here too have found it possible to demonstrate that the time required for a message from any part of the body to reach the brain (e.g., one thirtieth of a second from the great toe) is longer in proportion to the distance it has to travel while another interval is required before the process that excites contraction can be transmitted from the brain through the nerves to a muscle.
>
> (Konigsberger, 1965; p. 66)

The father responded by writing to his son:

> As regards your work, the results at first appeared to me surprising since I regard the idea and its bodily expression not as successive, but as simultaneous, a single living act, that only becomes bodily and mental upon reflection; and I could as little reconcile myself to your view, as I could admit that a star that had disappeared in Abraham's time should still be visible.
>
> (Konigsberger, 1965; p. 67)

In an effort to clarify the import of his discovery, Helmholtz again wrote to his father saying:

> I am adding a note intended so far as may be to remove your doubts about the rate of propogation in the nerve. You must remember that the interaction of mental and bodily proceses is initiated in the brain, and that consciousness, intellectual activity, has nothing to do with the transmission of the message from the skin, from the retina, or from the ear, to the brain. In relation to intelligence this transmission within the body is as external as the propogation of sound from the place at which it takes origin, to the ear. Just as in this case it is the elasticity of the air that conveys the concussion of the resonant body to the nervous apparatus of the ear, so it is here the motions of the minute material particles of the nervous substance which are propogated from the end of the nerve to its origin in the brain where they are first recognized as a message to consciousness.
>
> (Konigsberger, 1965; p. 67)

And as Helmholtz wisely adds elsewhere:

> Happily, the distances our sense perceptions have to traverse before they reach the brain are short, otherwise our consciousness would always lag behind the present, and even behind our perception of sound.
>
> (Konigsberger, 1965; p. 71)

In the Elements of Psychophysics (1860), Gustav Fechner sought to take the measure of sensations whose cause could certainly be located in

the measured physical stimuli that, under experiemental control, the experimenter exposed to subjects. These sensations, that were routed through the nervous system to the mind, were unproblematic objects of study within the Newtonian framework for natural science. As Fechner said at the beginning of the Elements:

> Insofar as an empirical relationship between body and mind is acknowledged and its empirical pursuit is allowed, there is no objection to trying even the most complicated kind of representation. In what follows, we shall base our inquiry only on the empirical relations between body and mind... this basis is indeed purely empirical and every assumption is to be rejected from the start.
>
> (Fechner, 1966; p. 5)

Only two technical problems stood in the way of an accomplished empirical science of psychophysics. First, disciplined observational access to the objects of study had to be acquired since, unlike most objects of physical science, the objects of psychophysical study were located within the confines of the human body. Second, a system of measure had to be devised whereby one could mathematically relate the measured stimulus with the psychic sensation that was its upshot. One could then gain the mathematical formula that reflected nature's necessary proportions in the psychophysical domain. Fechner solved these problems and more through his use of the technique of introspection. Introspection afforded access to the psychic sights and a unit of measure was at hand when the subject was asked to mark when one sensation was just noticeably different from another sensation. This unit of measure for the elementary psychical processes allowed the constitution of a mathematical formula. Further, the disciplined training that was required before a subject's introspective reports were considered acceptable data ensured that the necessary chain of consequences would not be detoured by any undesirable influence, as the subject sighted and

recounted the psychic sensation. Fechner's debt to introspective techniques is apparent when he says:

> We count as mental, psychological or belonging to the soul, all that can be grasped by introspective observation or that can be abstracted from it.
>
> (p. 7)

Only data grasped by or abstracted from introspective observation could serve as the empirical basis for an experimental science of psychophysics. Anything else would be pure speculation which was not the sort of thing a scientist engaged in. There were others who attempted to solve the problems that the psyche posed by turning attention inward to gaze at what was happening inside the mind (e.g., Freud through the process of psychoanalysis and Husserl through the process of phenomenological reduction). But their understanding of the mind, its parts, and the operation of gazing inward through the process of introspection was at odds with Fechner's understanding of what the mind was and what a direct analysis of the mind would yield. Thus, they are not a matter for our concern.

Fechner's confidence in the viability of an experimental science of psychology and in the fact that a mathematical relationship captured the psychophysical process (he was willing to entertain "even the most complicated kind of representation") was theoretically grounded in his appreciation of the First Law of Thermodynamics. The recent promulgation of the law of conservation of energy (in which Helmholtz had taken a part) had galvanized the other physical sciences. Given Fechner's philosophically monistic inclinations and despite the dualistic language in which Fechner self-admittedly phrased the Elements, the psychophysical event emerged in the light of the transposition of energy from one part of nature (i.e., the physical stimulus) to another part (i.e., the

psychic sensation). A monistic perspective sees the physical and psychical as distinctive expressions of the singular underlying orderliness that nature retains throughout. But as Fechner explains, his was a purely empirical study, "where every assumption is to be rejected from the start," and he viewed his results as being indifferent to the adoption of a monistic framework or a dualistic framework, which would declare the physical and psychical spheres as autonomous from each other. Since no part of that energy in the entire psychophysical act could be lost, the law of conservation of energy in principle guaranteed that the energy represented by the physical stimulus exactly amounted to the energy represented by the psychic sensation. As Fechner says in the Elements:

> If one wants to use these terms in the sense in which they are employed in exact physics, mechanics, physiology and even in everyday life, only kinetic energy and not momentum can serve as a measure of physical activity. The kinetic energy of which we speak should by no means be mistaken for the vital energy of the philosophers, for it implies an exact concept of measurement... The kinetic energy of a particle is calculated by multiplying its mass m by the square of its velocity, so that the expression for the energy of a specific particle becomes mv^2. (p. 20)
> Kinetic energy can be developed in a system through mutual interaction of its parts, as in the system of planets or in every organism... The whole of nature is a single continuous system of component parts acting on one another, within which various partial systems create, use and transmit to each other kinetic energy of different forms, while obeying general laws... Since in exact natural science all physical happenings, activities and processes, whatever they may be called (not excluding the chemical, the imponderable and the organic) may be reduced to movements, be they of large masses or of the smallest particles, we can also find for all of them a yardstick of their activity or strength in their kinetic energy, which can always be measured, if not always directly, then at least by its effects and in any case in principle... We know, even without awareness of the special nature of psychophysical processes, what we have to understand by their magnitude, if we are to clearly relate psychophysics with physics, physiology and everyday life, and we can base generally valid conclusions on the universal conditions and laws of kinetic energy.
>
> (pp. 22-23)

In principle, the regularity of psychophysical processes participated in the necessary character of law that marked and was shared by mathematics and physical science. This train of reasoning reconfirmed the sort of psychology that Isaac Newton had foretold when he said in the Opticks, as was quoted earlier, that "the motions cannot stray...but must run along...entire to the sensorium" (my emphasis).

In the aftermath of Fechner's achievements, there was a great, ongoing sense of anticipation and optimism about how far this sort of work could go (within a Newtonian framework and under the auspices of its characterization as an experimental natural science) in charting hitherto unapproachable regions of the natural world. Listen to Helmholtz in 1867, where he is lecturing about the work in his recently completed Physiological Optics:

> The physiology of the senses is a borderland in which the two great divisions of human knowledge, natural and mental science encroach on one another's domain; in which problems arise which are important for both and which only the combined labor of both can solve... It is by this path that the art of experiment, which has become so important in natural science, found entrance into the hitherto inaccessible field of mental processes.
>
> (Warren and Warren, 1968; p. 61)

With the latter sentence, Helmholtz is acknowledging his assumption that at least in part the objects of the psychic world are of the same kind as the objects of the physical world that Newton had put in order. At least some of the events of the psychological world are amenable to distillation in the laboratory of natural science. Wilhelm Wundt, in his work, also sensed that he was treading on a "border land." In the introduction to his Principles of Physiological Psychology (1873), Wundt states:

> The present work shows by its very title that it seeks to establish an alliance between two sciences that...deal

> with...human life. Thus, there exists a border region that, so long as physiology and psychology remain separate from each other, may usefully be assigned to a special science standing between them. However, such a border region offers its own prospects to both sides... and all its investigations will finally reach their climax in the question, how, indeed, in the last analysis internal and external existence are connected with each other.
>
> (Rieber, 1980; p. 157)

And Wundt also understands the usefulness of a Newtonian natural science and its experimental methods.

> The investigations of physiological psychology belong essentially to the realm of a natural science of mind. It is wholly directed towards demonstrating the elementary mental phenomena... That is why it is able to utilize the most effective technique of explanatory natural science, the experimental method. For the essence of experimentation consists in varying the conditions of events in a manner that is both <u>arbitrary</u> and -- if we wish to establish lawful relations between causes and effects -- <u>quantifiably determinable</u>.
>
> (Wundt's italics) (Rieber, p. 160-1)

Certainly, these scientists were still groping to understand how "in the last analysis internal and external existence are connected with each other" and how far it was that they could track an event into the mind of a subject when, in the laboratory, that subject was exposed to a well-defined, external stimulus. But in the late 19th Century, the solutions to these problems seemed to be within reach and the way to go about solving them seemed clear. Thus, psychology set out to establish itself as a science in the image of the other, seemingly successful natural sciences. It too would learn how to deal with the notions of 'object,' 'observer,' and 'vitalism' within the framework of a Newtonian natural science.

Up to this point, most of the research conducted under the auspices of experimental psychology concerned itself with uncovering the natural, necessary proportions of the elementary psychical processes. It was then

a matter of great controversy whether or not the same framework would be adequate to account for the apparent regularity of the higher psychological processes (e.g., memory) that now fall under the heading of cognition. Were the higher psychological processes universally constrained by natural law in the same way that the lower psychological processes were constrained? Certainly, the theoretical grounds and philosophical inspiration that had guided Fechner's work on the lower processes did not rule out similar possibilities for the higher processes. In fact, they invited a similar analysis; and Fechner did believe that the higher processes were legitimate objects for a natural science of psychology and were amenable to experimental analysis in the laboratory.

Hermann Ebbinghaus shared Fechner's perspective and in his Memory: A Contribution to Experimental Psychology (1885) Ebbinghaus accomplished what many take to be the first experimental analysis of a higher psychological process. For Ebbinghaus, the sole obstacles that stood in the way of achieving a natural science of the higher processes were methodological in character. And they were similar to the problems Fechner faced in psychophysics. As Ebbinghaus says in his Memory:

> A numerical determination of the interdependent changes of cause and effect appears indeed possible if we can only realize the necessary uniformity of the significant conditions in the repetition of our experiments. (p. 11)
> Two fundamental difficulties arise in the way of the application of the so-called Natural Science Method to the examination of psychical processes:
> (1) The constant flux and caprice of mental events do not admit of the establishment of stable experimental conditions.
> (2) Psychical processes offer no means for measurement or enumeration.
>
> (Ebbinghaus, 1964; p. 19)

Through the use of nonsense syllables and introspection in the laboratory, Ebbinghaus was able to overcome these technical, methodological

obstacles; and his experimental analysis of memory revealed that the shape of its operation, too, took on mathematical proportions.

His confidence in the tractability of the higher processes drew its warrant from the same sources that Fechner had drawn his warrant. In a primer intended for university students, Psychology: An Elementary Text-Book (1908), Ebbinghaus writes in a chapter entitled "Explanation of the functional relation between brain and mind":

> There are two other difficulties of very considerable importance. One of them is compliance with the principle of conservation of energy. If mind is an entity independent of the brain, if the brain is a tool which mind can use arbitrarily, without having to obey the laws of the material world, there would be a serious break in the continuity of natural law, and the principle of conservation of energy would suffer an exception. Until recently it was, not probable, but at least possible, that this principle of the conservation of energy was not strictly correct when applied to conscious beings, especially to man. But in recent years direct experiment has proved that it applies to the dog, and even to man... The result is the same. Taking the total result, there is absolute equality between the energy supplied and the energy given out; in the human organism, mind has thus been proved to be subject to the laws of the natural world. The second difficulty spoken of consists in the fact that, accepting the view which regards the brain as the mind's tool, we cannot well avoid regarding the mind as a kind of ghost or demon.. Now it does not seem probable that our brain is the residence of a separable demon, no matter whether we attribute to him the power of changing at will the total amount of energy contained in our body, or conceive his activity, as some psychologists do, as a new form of energy added to the mechanical, thermal, electrical, chemical, and so on, -- requiring only an additional transformation of energy and not breaking down the principle of its conservation.
>
> (Ebbinghaus, 1908; pp. 45-47)

On the basis of this sort of "reasoning from mechanical principles" that Newton had recommended, Ebbinghaus had an inescapable, inviolable warrant for presuming that the higher psychological processes were amenable to scientific study and were capable of being rendered in mathematical prose. The mind and its operations (including cognition) were extensions of and participants in the natural order. Once the technical obstacles

had been eliminated in the laboratory, the mathematical proportions of the higher process that was under experimental study would inexorably emerge from is controlled empirical examination, guaranteed by the brute lawfulness of material nature. As Ebbinghaus (1908) says:

> If we cannot regard the brain and mind as two independent entities, scarcely any other conception of them is possible except as a single entity of which we may obtain knowledge in two ways, an objective and a subjective way... There is no objection to speaking of a causal relation between material processes of this kind and mental states. Whatever explanation of the functional relation between brain and mind a person may accept, he need not constantly be on his guard lest he be inconsistent. We speak of the rising and setting sun without meaning that the earth is the center of the universe and that the sun moves around it. So we may continue to speak quite generally of the material world influencing our mind, and of the mind as bringing out changes in the material world.
>
> (pp. 47-49)

And just in case students reading this text hadn't already understood the message, Ebbinghaus included the following two elegantly-phrased questions at the end of this chapter for students to answer:

> 41. Is mind subject to the law of conservation of energy?
> 42. Is mind a demon interfering with the laws of nature?
>
> (p. 49)

Ebbinghaus shared with Fechner an understanding of the natural world's inviolable character; and, given this understanding, it was simply inadmissible to entertain the notion that some of the regular things which take place in this world (e.g., higher mental processes) operated with indifference to the mathematical principles of natural philosphy. On the contrary, those principles guaranteed that a natural science of this domain was accessible -- if technical obstacles could be overcome. The operation of introspection afforded access to single empirical instances of mental acts; and on the basis of accumulated data, one could document the mathematical proportions of any mental process that was

necessarily given shape by nature's law. This natural science of psychology (including the higher psychological processes) was equally relevant for and equally binding on all humans regardless of their situation. And when these laws were found out, then that act of knowledge and the laws that gave its motions form would remain unaffected by the act of knowledge, as psychologists unravelled the fabric of human life. Just like the elementary mental functions, the higher mental functions were also universally constrained, regardless of the historical contingencies in which any one higher mental act was situated. These assertions amounted to a declaration that, underlying all instances of any one of the higher mental functions, there was a timeless, natural structure that gave shape to the mental operation and that was indifferent to the context in which that operation occurred. Clearly, when those functions were performed and/or observed, only a semblance of order (rather than clockwork) was apparent. But for those who aspired to a natural science of the higher psychological functions, this semblance of order was no different from the semblance of order that was available in the rest of the physical world apparent in everyday life. The semblance of order in the rest of the natural world had been found to be grounded in mathematical principles. And so, the apparent semblance of order in mental life hinted at the austere, mathematically concise structure through which the mental world operated like clockwork.

However, there were then those who viewed the prospect of a science of psychology otherwise. There were those who felt that only the lower psychological functions (e.g., psychophysics) could be encompassed within the sphere of physical science and that the higher psychological functions belonged to a different domain that had a coherence of another

kind. One variant of this opposition (to placing the totality of human mental activity within the sphere of physical science) asserted that the social and cultural practices of human beings had an orderliness of their own that was alien to the orderliness that marked the physical sciences; and that the higher mental activities were so thoroughly encumbered with cultural activity (if not completely divorced from psychophysical activity) that they could not be counted on to be the objects of a physical science. Perhaps, a science of higher mental activity could be included among the cultural sciences. Perhaps, it had a special place of its own. It was also unclear whether the cultural sciences had a purely descriptive function or whether cultural practices had an omnipresent logic peculiar to Culture that could serve as the unified basis for the cultural sciences. Of course, a position like this, that granted independent status to both the physical and the social sciences, would encounter the theoretical difficulties of interactionism which monism did not have to contend with in principle. A position that at least tacitly endorsed dualism (by asserting that Nature and Culture each had warrants that were native to their selves and foreign to the other) would have to come to grips with the issue of how either set of laws (but especially the laws of Nature) was left unviolated when the two domains came into contact with each other (e.g., within the human being). On the other hand, this position would not have to contend with a problem that persistently remained in the background for stalwarts of monism. That is, where did the data, which in everyday life regularly obscured the structure of higher mental activity and which they in the laboratory had cast adrift, come from? If all activity reduced to a single, underlying reality governed by mathematical principles, then how was one to account

for the "other" data? Dualists could answer that this data was part of the cultural domain; and, provisionally, all scientists could investigate activity within their own domain while awaiting a grand unified theory. Given an understanding that the lower psychological functions were indubitably a part of the physical domain, this quasi-dualist position afforded the possibility of unveiling a psychophysics in the physical science tradition while reserving cultural practices and, perhaps, higher mental activity for the cultural sciences.

Wilhelm Wundt falls neatly into this ambiguous position. The late part of his life was almost entirely devoted to the compilation of his multi-volumed work on _volk_ psychology. In this work, he attempted a detailed and systematic account of the forms that were initiated into existence by the activities of different groups of people (e.g., customs and cultural practices). Yet, he did not find this work necessarily inconsistent with the work that he continued to produce on the lower psychological functions at his experimental psychology laboratory in Leipzig. Established in 1879, this laboratory is generally taken to be the first of its kind. In agreeing with Fechner that an empirically-founded scientific psychology of the lower mental functions was possible, Wundt abided by the same methodological procedures and precautions that Fechner had taken. Scientific psychology was within reach but it only could be empirically founded on the basis of observation. The only available method for observation was through introspection. Anything else was speculation and, hence, not part of an empirical science. Unlike Fechner, Wundt felt that the higher mental activities belonged to another realm; and, hence, it was less than useless (if indeed it was possible) to subject the higher mental

activities to introspection in the same spirit that lower mental activities were subjected to introspection.

It is instructive to hear how Oswald Kulpe endorses these sentiments regarding introspection and a scientific psychology. When Kulpe wrote his Outlines of Psychology: Based Upon the Results of Experimental Investigation, in 1893, he was a good student of Wundt's working along with him at his laboratory in Leipzig. The book (Kulpe, 1895) was translated into English by another good student of Wundt's, Edward Bradford Titchener, and was dedicated to Wilhelm Wundt. There is therefore some measure of confidence in assuming that each of the three believed they agreed with the others in understanding Kulpe when he said,

> If psychology is to be scientific, its statements must possess universal validity... But a dependency upon experiencing individuals may seem to imperil the universal validity of psychology and to increase the difficulty of the discovery of facts. However... anatomy and physiology are not hampered in the solution of their problems by the numberless individual differences in muscular structure, in nervous excitability, in the circulation of blood. And in the same way, the fact of personal differences in regard to the subjectified facts of experience does not present any insuperable difficulty to psychology... It is not given to every one either to use or to interpret [experience] correctly; and it follows that the right psychological disposition and special practice are indispensable both for observer and observed.
>
> (Kulpe, 1895; pp. 3-5)

Through disciplined introspection of the "subjectified facts of experience," one gains observational access to data that provide the empirical foundation of a scientific psychology. This reasoning applied only to the lower psychological functions. The higher functions belong to the cultural sphere; and besides that, as Kulpe (1895) says at the end of the following quotation, these features of mental life are only fragmentarily accessible to introspection:

> We need only add that what are called the mental dispositions (logical or mechanical memory, inductive or deductive intellect,

> receptive or constructive imagination, talent, etc.) may also be looked upon as ultimate general conditions of centrally excited sensations (Kulpe's emphasis). They, too, are forces, which appear in the course of individual development, but which are only fragmentarily accessible to introspection.
>
> (my emphasis, p. 215)

Only the completely introspectable mental contents of sensation, image and feeling which had the well-defined, descriptive attributes of quality, intensity, extensity and duration qualify as objects for the introspective process. These, in turn, will serve as the basis for an empirically-founded science of psychology. All other contents of the mentality are not fully open to direct inspection and thus we are not offered the possibility for data that would serve as the unspeculative, empirical basis for a scientific psychology of these other mental contents. Furthermore, for Wundt, these other mental contents do not qualify as the objects for a physical science because they are so thoroughly encumbered with cultural life. They, therefore, belong to a volk or conventional orderliness (where things are initiated into existence through human activity) with a logic of their own that is not necessarily commensurable with orderliness in the physical sphere.

However, Kulpe began to let the cat out of the bag when, in 1893, he grudgingly conceded that other mental contents were indeed "fragmentarily accessible to introspection." In 1896, when he established his own experimental psychology laboratory at Wurzburg, he undertook the study of these other mental contents and he provided the environment in which other experimental psychologists could open this line of empirical inquiry. It was this setting that provided for the emergence of what came to be known as the Wurzburg School. These psychologists turned their scientific attention to those contents of the mind that were not

subject to completely direct introspection but for which they would find empirical evidence (i.e., imageless thought contents). Wundt, however, must have regarded the actions of Kulpe and his followers as a matter of opening up a veritable Pandora's Box.

At the Wurzburg School, Kulpe and his followers undertook the study of those very "mental dispositions" that Kulpe had underlined in the Outlines. These features of mental activity (that, at other points in the Outlines, Kulpe refers to as levels of "preparedness" or "predisposition") became the focus of experimental study in the Wurzburg laboratory. Narziss Ach, a student of Kulpe's, devised the method of "systematic experimental introspection" in 1905 so as to examine the "imageless thought contents" of the mind that had heretofore remained unexamined, either as a matter of principle or because it seemed impossible in practice. This work led to the documentation of such notions as "pre-determining tendency," "attitude" and "mental set." This research served as the basis for what Kulpe hoped would be a natural science of the higher psychological processes. Kulpe himself referred to it as "the psychology of thought." This natural science would have universal relevance and binding force for all humans regardless of their situation. And these natural laws had independent existence, constraining the operation of human thought, regardless of whether or how the individual human paid attention to it.

Kulpe speaks to these issues, in 1912, in the first volume of a planned four-volume work, Die Realisierung, that was intended as a systematic presentation of his views. Kulpe died in 1914, before beginning work on the fourth volume. To my knowledge, this work has not been translated into English. The quotation comes from an historical

article on Kulpe and the Wurzburg School (Ogden, 1951). It is interesting to see how much Kulpe's views have changed since the time when he worked in Wundt's laboratory. Note, for example, how he now regards memory in comparison with how he spoke of it in 1893, in the immediately preceding quotation. The two views are not necessarily inconsistent.

> According to astronomers, the heavenly bodies complete their courses even when they are unknown. The maturation of an egg, after fertilization, also proceeds in intervals of time during which no consciousness is directed upon it. Memory works on, even when left entirely to itself. In all these, and in similar instances, we have independent regulations within the object of knowledge -- a continuity of development and being, and thereby an independence of being known. We are therefore obliged to accord an existence to these objects, even when they are not apprehended by any epistemological subject, or consciousness. It is the conviction of all real sciences that the existence of their subject-matter neither stands nor falls with the knowledge we have of it. The independence of facts from our awareness of them finds in experience legitimate ground for assuming transcendental objects. This independence has nothing to do... [and] does not coincide with the supplementation of conscious fragments; because the continuity that is required by the facts under consideration is not a continuity of consciousness, but a continuity of the objects themselves.
>
> (Ogden, 1951; pp. 14-15)

Kulpe seems to be saying that the forms of thought that constrain higher psychical activity do not depend for their existence or coherence on the psychical activity that individuals initiate. It is unclear from where Kulpe drew the warrant for making these assertions. His confidence in the existence of natural forms that constrain the higher psychological processes predates any empirical evidence that these forms exist. He does not seem to take the route that Fechner and Ebbinghaus took. And his continuing sympathy with a Wundtian position would leave him with problems. He seems to have relied on philosophical grounds as a warrant for the existence of objects that could be studied by, as he referred to them, the "real sciences."

It is ironic that the work of the Wurzburg School contributed to the decline of the introspective method; and it thereby contributed to the decline of consciousness as a legitimate or interesting object for empirical study. By the second quarter of the 20th Century, the study of cognitive processes fell into disrepute. The operational and/or behavioral approach seemed to be the way to go for anyone who aspired to a natural science of psychology. Besides, the latter approaches were so productive; and the frameworks that had provided a coherent basis for the science of higher psychological processes seemed to have lost their attraction. For many, it was not an appealing or productive avenue of study. There was research here and there, but there was no coherent movement that directly studied the cognitive processes. It is interesting to hear Ogden (1951) lament the fact and the withering away of the Wurzburg School.

> Why is it, we may ask, that the method of 'systematic experimental introspection' ceased to be employed almost as suddenly as it began? Why is it that 'thought processes' are no longer a subject of great psychological interest? Was the whole movement abortive, and without influence upon psychology of today, or promise of revival in the future?
>
> (p. 11)

It is interesting to hear these words because at that very moment forces were gathering that would again make cognitive psychology a viable, exciting, galvanizing, and empirically-approachable prospect. The mathematization of information by Shannon and Weaver (1949), the revelation of an underlying structure to language by Chomsky (1957) and the coming of the computer all lent credence to the hypothesis that there were underlying cognitive structures (which were creatures of the natural world) that timelessly gave shape to cognitive operations while indifferent to the contingencies of the cultural life that surrounded them.

II - THE GROUNDS FOR A CAUSAL MODEL OF NATURAL PERCEPTION

The mysteries of psychophysics and of the processes that consequently follow (i.e., perception and cognition) are taken to begin at the sense receptors of the human body. Strictly speaking, of course, the psychophysical process is understood to have its beginning in the stimulus and to have its end in the psychic experience. But, the problematic character of perception begins at the sense receptors. The "external" world that constitutes the rest of nature (and that hems the human being in on all sides) is given and it moves in a lawfully and rigorously defined fashion. The forms that are lodged everywhere in nature guarantee the inviolable lawfulness of the initial stages of the perceptual process between the stimulus and the sense receptor (e.g., as the light travels between the flashing bulb and the retina during the initial stages of the process of seeing). For whichever human subject that the initial part of the process is replayed, that process is identical with all other replications of that process regardless of whose sense receptors are exposed to that stimulus. Hence, in the attempt to square the account of perception, the chain of events between stimulus and sense organ is taken to be an inherently reliable and lawful process capable of being captured in mathematical prose; while the chain of events between the sense organ and consciousness is taken to be an inherently unreliable and unruly process. The attempt to solve the problem of perception, therefore, focuses on that part of the process that takes place between sense organ and consciousness. It seeks to

uncover what is common to all humans in that part of the process, "before" each human idiosyncratically interlaced that naturally-produced common ground. Experiments are designed to empirically discover the hypothetical "before"-state; and it is understood to be as amenable to rendition in mathematical prose as the rest of the process of perception that takes place in the external world. The semblance of order that is each human's subjective experience is understood to a mixtured product. The ingredients of that product include the ground that is common to all humans which is inviolably given by the laws of nature and another part that is provided by the contingencies of the human's social arrangements. This latter part may be peculiar to the person or it may be a function of forms that are shared by all members of a group, in which case it would add a measure of consistency among members to the experience each of them has as all of them look at the same stimulus object. In either case, this consistency or regularity has a provisional character since the form or attitude that produces it passes into and out of existence as a function of conventional arrangements among/within humans. And it is not of primary interest to those who aspire to a natural science of perception. They are interested in that part of perception which necessarily must be the case, the ground that is common to all humans which is rigorously given by natural law.

There are a number of features about this account of perception that should be noted. First, it accepts without question the description that other natural scientists (e.g., physicists) offered of the external world and of its motions which together constitute the initial stages of the process of perception. Many of the early researchers who involved themselves in the problems of perception had initially received training

as physicists (e.g., Fechner, Helmholtz, Mach) and, as such, they well understood the rigorous character of the external world as it is given shape through the framework of physics. From this perspective, then, the whole point of research into the psychology of perception is to uncover the process whereby what we know to be the case in the external world (as it is given by the prevailing physical theories) manages to make itself experienced by the human being. Such a research project of perception cannot picture itself to be inconsistent with prevailing, theoretically-couched physical accounts of the world at large since it begins with the question, "given such and such a description of physical stimuli that will initiate the experimentally studied process of perception, what sort of processes could possibly go on within the human being that would account for the measured behavioral expressions of psychic experiences that amount to perception." Hence, any hypothetical processes that try to make sense of the results of a perception experiment will take for granted the "such and such a description" that physics offers of the experimental stimuli. And that experimentally verified account cannot help but be consistent with what the contemporary theories of physics provide. One could almost say that such practices in experimental psychology are in the service of current theories of physics (as they are understood by psychologists). If the practices of experimental psychology do not meet with complete success, that is not taken as an occasion for revising our physical descriptions of the external world. Of course, if psychologists misunderstood the claims implicit in physical scientists' descriptions of stimuli that anchor experiments in perception of if those descriptions turn out to be misconceived, then the hypothesized processes of perception that have

been experimentally verified (by mathematically relating the measure of produced results with the given measure of stimuli) must be revised.

Second, this account of the perceptual process understands that the perceiver is caught in the midstream of that process once it has already begun. The perceiver has no control over the beginnings of that process as it proceeds from stimulus to sensory receptors. Regardless of what posture the perceiver takes, this part of the process remains the same; and the perceiver's efforts to "manage" the stimulus and its consequences will only have potency after the stimulus or its necessary consequence has entered the environs of the human body, between the sense receptors and consciousness. Hence, the process of perception is understood to be a one-way street, with the physical world invariably and inviolably working its way to the threshold of human senses. At that point in time, human posture can have an effect on the chain of consequences that follow; but before that point in time, the external world remains unaffected by the perceiver's posture as it initiates what will become an instance of perception.

Third, this framework invites the understanding (although it does not dictate it) that the processes of sensation, perception and cognition follow each other serially once the external world has made an impression on the sense receptors. First you "sense" something, then you "see" something and then you "comprehend" something with the consummation of each of these operations succeeding on the basis of the products of its predecessor-process (e.g., understanding this sight follows from having seen it). The one-way street of perception with its stream of stimuli lends plausibility to this account. In fact, this sort of account helps constitute the distinction between, e.g., perception and cognition. A

parallel process account, whereby the same gesture (e.g., of the brain cells) accomplishes the processes of both perception and cognition in "real time," would contribute to the collapse of that distinction. That is, the latter account would have "both" processes "really" going on at the same time and in the same place; and the distinction between them is conceptual in nature as we set up distinctive frameworks of relevance for following the series of consequences when one scheme of relevance or another is a matter of research concern. But, the prevailing account of perception lends plausibility to a serial process; and to the existence of an elaborate sequence of mechanisms which would each, in series, accomplish the functions of that sequence of processes. It must wrestle with the problem of how a perception "becomes" a cognition in real time; or how one becomes the other in the unreal time of a flow chart that is still limited by the spatial constraints of unilaterality.

Fourth, this framework for perception preserves the distinction (and the gulf) between the observer, whose skin marks the boundaries of the "internal" world, and the object of observation, which resides in the "external" world. It understands that the external world suffers no ambiguity. There is no uncertainty in the manner of its exerted presence. That is, it doesn't waffle between being one thing and another. Rather, it tirelessly sustains a singular orderliness that is characterized by a complement of properties. And the whole project of perception pictures itself as an effort to bridge the chasm between the object and the observer, so that the observer can gain a sense of the object's rigorous character that is independently sustained and exhibited. Knowledge of that character is the purpose of the project of perception as the observer attempts to learn about that which has

independently organized existence. And the object exists exactly. Hence, in its steadiness, the object is something about which one (e.g, the observer) can be accurate and certain; and the object's qualifications as the target of an accurate aim are intrinsic to the object itself. That steadiness is vouched for by nature. Those qualifications are not indebted to the presence of an observer or to the manner in which the observer exerts presence during the process of perception. The chain of events that constitutes an instance of perception can go awry once that chain passes through the skin on its way to consciousness. The vision that is gained through the process of perception is, therefore, suspect because that sight might be a product of distorting processes that are "internal" to the observer. In the effort to gain an accurate perception of the object, observers seek to drain themselves of biases which obscure the object that otherwise clearly presents itself.

Fifth, this framework therefore provides an understanding of that occasion when an observer gazes at an object and moments later gazes at the "same" object, only to find that the sights that were afforded by these two gazes are inconsistent with each other. It understands that at least one of the two sights was biased and that it was influenced by the processes of bias. Unless there is evidence to indicate otherwise, the object is not taken to have changed from time to time. Rather, the reason for disparity between sights is located at some point internal to the person. Similarly, if two people simultaneously gaze at the "same" object and render accounts of that object that are inconsistent with each other, then it is clearly the case that at least one of them is biased and/or wrong, since it is impossible that the object singularly organized

by nature could retain two descriptions that are at odds with each other. For any natural object about which one can tell the truth, the rendering of two disparate accounts by two observers necessarily signals the presence of bias and/or error in one or both of the accounts. (And if any one person hears an account of some present object from another which is at odds with what the first person manifestly and certainly sees to be the case, then it is only natural, at first, for that person to conclude that the other is suffering from bias). Analyses of social perception mimic these implications that follow from an analysis of the process of natural perception. That is, in the social world, when two people offer disparate accounts of some object that has taken shape as a result of social arrangements, it is only natural to conclude that at least one of them is prejudiced.

In sum, this sort of accounting for the process of perception presumes that there is an independently organized world "out there" that remains indifferent to the posture that observers take when they turn to the world that they are about to perceive. Once the chain of lawfully given consequences that began at the stimulus reaches the sensory receptors of the observer, the independently organized world begins to have its effect on the observer. By virtue of the characteristic shape that the stimulus retains, it will strike the observer's body in one way or another; and the follow-through of that impression as it works its way through the body will result in an upshot that is experienced as consciousness. The person pieces together those impressions that unilaterally had their specific effects as a function of the specifically shaped stimulus that was the cause of the perception. As a part of nature, the body of the human observer serves as a reliable conduit for

conveying these effects. And insofar as it is a part of nature that is inviolably governed by nature's law, the human body can be counted on to invariably deliver the same effects to the brain when the same object is repeatedly exposed to the view of the observer. Once there, the mind operates on what it receives through perceptual and cognitive processes. The resulting perception or cognition may or may not be true to the observed object, depending upon whether or not those processes were distorted by bias.

In accounting for the natural processes of perception and cognition, there are some differences of opinion about the manner and mechanisms through which these higher processes are accomplished. Surely, there is a timeless, natural organization to the "external world" that has its effect on the observer. But the character of the timeless, natural organization of the "internal world" and how it operates in conjunction with the organized external world in order to accomplish the finished product of perception or cognition is a matter of some dispute. For some, there is a materially-rooted natural capacity in the human (that, in the last analysis, amounts to natural rationality) which is consistent with the forms omnipresent in the rest of Nature. These forms' independently organized integrity is guaranteed by sources that are indifferent to the contingent, conventional activities that human beings undertake. Within this frame, there may be disagreement regarding the character of the material human body's receptivity to the ordered external world that constitutes the rest of Nature. Either the human body is neutral in its readiness to receive Nature's formal effects or the formed human body is specifically keyed to receive Nature's formal effects that are encoded everywhere. All within this framework agree,

however, on the absence of contradiction between the material human and the world in which it has membership. When the external world delivers its effects to the sensory receptors, midstream in the act of perception, then the natural organization of the human vouches for the consistency of the continuing process as the consequent effects make their way through the conduit of the body to their final uptake in the skull. There, the finishing touches are put on the act of perception as it emerges in consciousness, still consistent with the organized integrity of Nature.

There are others who phrase the manner and mechanisms of accomplished perception differently. For them, the forms of thought intrinsically pose their own restrictions. That is, it is in the nature of these forms of thought that constraining provisions are made on the character of perceptual and cognitive processes and on their upshot. Thought, in its finished form, is only expressible within these independent geometries that timelessly and naturally exist, indifferent to the contingent, conventional activities that human beings undertake. Their organized integrity is independently guaranteed by other sources. The consummation of higher psychological processes is executed through these forms as the external world provides the data that activate these processes; and these forms, emplaced in humans, embody natural rationality as the external world's data are drawn up into participation in rational activity. These forms of thought (whose shape is given by their nature) restrain the possibilities of rationally ordered thinking that are realized through these forms and the directions that they can take. They lawfully dictate and give shape to the course of psychological processes. Within this frame, there may be disagreement regarding the coded character of the remainder of the natural world,

outside the psychic precincts. Either the remainder is neutral in its codification, ready to become actually realized once it is taken up in psychological activity, or the remainder is specifically keyed for realization, even before it is actually taken up in actual psychological activity. However, the organized integrity and existence of these forms is not dependent on the contingent psychological activity of humans who participated in these forms. And all within this framework would agree on the absence of contradiction between precincts of the natural world, with regard to the formal character that is everywhere encoded in one state of realization or another.

Certainly, most contemporary psychologies are couched in the former (i.e., the materialistically inclined) framework as they attempt to square the accounts of cognition, perception and sensation. In part, this is a sign of our times. In part, this may be due to the fact that the experimental work of psychology, anchored in the physically described stimuli, lends itself to expression in this manner. But most of the successful experimental work of the natural science of psychology does not necessarily indicate support for one framework over the other, since both frameworks operate under the assumption of a formal consistency (in one way or another) among all elements of the natural world. The experimental work merely fleshes out the character of that consistency as natural psychological processes are consummated. Much of the experimental work can be seen to be indifferent to the actual sources (i.e., materialist or idealist) of the independently organized forms that vouch for the apparent regularity of the natural world's operation, since those documented findings could be phrased using one vocabulary or the other. And in that sense, the practices of experimental psychology can

continue and can accumulate documentation of psychological regularities while remaining indifferent to philosophical issues since their basis, to use Fechner's words, "is purely empirical and every assumption is to be rejected from the start." They rely merely on the presupposition of a singular, thoroughgoing consistency to the uniform regularity that is sustained throughout the precincts of nature. This is not too much to ask for since the uniformity of nature is the key sine qua non for any projected natural science.

The successful accomplishment of any natural process (including the process of perception), where different parts of the whole system of nature act in conjunction, is guaranteed by a sort of pre-established harmony whose character unites the "disparate" elements of nature. The uniformity of disparate elements guarantees successful concerted action of those elements as any natural process is accomplished through a chain of cause-and-effect episodes. The occasional serendipitous discovery of an underlying unity to seemingly unrelated elements of nature often reconfirms these presuppositions. A tacit intuition that the brain shares in the natural organization of the natural world's remainder might have been reconfirmed by the discovery, for example, that the morphine distilled from poppies makes a natural and perfect fit with certain brain cell receptors, as a key fits a lock. This unity can be taken as encouragement for natural scientists interested in psychological processes. It indicates a deeper, underlying commensurability among those parts of nature that are integral to the process of perception. The natural world's organization is somehow mirrored in the brain's organization. The organized categorical form is somehow native to both the external world and to the internal perceptual processes. It ensures

the successful accomplishment of the act of perception, when the person pieces together the organized elements of nature that present themselves at the sensory receptors.

A causal model of natural perception understands that when a naturally organized stimulus strikes the person, the natural organization of the human lends itself to the continuance of that process that will inescapably lead to the experience of perception. The experimental practices that attempt to chart the character of psychological processes invite (but do not dictate) a materialist grasp of those processes since, in the experimental set-up, the natural material organization of the external world (in its status as stimulus) is more easily manipulable at the outset of an experiment that will chart these processes. In any case, the real-time process of perception begins in the external world that retains its natural organization independently of human presence; and the natural organization of the internal world (that is retained independently of human conventional presence) can become evident as experimentalists measure the necessary consequent shape of the perceptual process' final product.

In this sense, there is no difference between the accounts offered by Bruner, Goodnow and Austin (1957) and Rosch (1973) when they attempt to uncover the natural cognitive process of concept attainment. Both accounts would agree that there is an independently organized natural world, whose "external" parts reliably have their effect on the observer during the process of perception. As their experimental designs which track this natural process indicate, they merely differ on the <u>character</u> of that independent organization. The experimental work of Bruner, et. al., relies on the understanding that prospective members of a natural

class are included or excluded in that class on the basis of strictly defined criteria. The strict presence or absence of those defining criteria in any potential member of the class strictly rules the object in or out of that class. And the concept of that class that an observer attains (as a result of repeated empirical exposure to properly identified member and non-member instances of that class) reflects those criterial considerations. All members of that class are united by common possession of those criteria; and, on the basis of a concept that appreciates this, an observer can distinguish between those objects that are and are not members.

The experimental work of Rosch relies on the understanding that all members of a class exhibit a family resemblance which constitutes the class. Objects that do or do not display that family resemblance respectively are or are not members of this class. All members of the class are united by a family resemblance; and a concept that is attained as a result of repeated empirical exposure to various instances of that class reflects an appreciation of that family resemblance.

In contrast to the account of Bruner, et. al., Rosch's account could serve to explain why everyday people and natural scientists find it so hard to offer a description of the naturally organized class in so many words. And Rosch's account could serve to explain why the data points that represent the behavioral expressions of humans' natural conceptual activity do not neatly fall on a smooth curve that is mathematically defined. Both failures are understandable in light of the non-propositional character that marks the coherence of natural categories and concepts. The categories are not put together propositionally; and, therefore, any worded account of the category might misclassify some

borderline potential members since this account would not be completely consistent with the actual, unwordable account. The concepts that are, in fact, attained through the brutely empirical process of perception therefore are also not amenable to representation in propositional form; and the behavior that follows from conceptual activity that employs these concepts might not neatly fall in line with a curve that was generated with discrete, mathematical terms. But by the accounts of both Bruner, et. al., and Rosch, the natural categories retain an organization independent of the human observer. When the natural processes of perception and cognition are unimpeded and allowed to follow their course, the sight of appropriately identified members and non-members of a category will invariably lead to the attainment of the appropriate concept through the brutely empirical procedures that convey the effects of the stimulus from the sense receptors to consciousness.

III - THE INADEQUACIES OF A CAUSAL MODEL FOR SOCIAL PERCEPTION

This broad account may adequately portray the natural psychophysical, perceptual, and cognitive processes. Nature's forms that are lodged everywhere in the material world (including the human body) strictly govern the motions that this world goes through. The inescapable patterns of nature are expressed as physical laws whose necessary character is identical with the necessary character of mathematics. These forms take their existence from Nature, as they timelessly and relentlessly have their effect on the world's operation. They operate with indifference to the social conventions that are humanly established and that pass into and out of existence as a function of a social consensus that provisionally exists. These natural forms independently guarantee the regularity of nature that physical scientists over time have discovered. Nature is also taken to have emplaced in all humans the natural forms that guarantee the natural processes of sensation, perception and cognition. These forms that are identically emplaced in all humans operate with indifference to conventionally established distinctions (although those conventions might bias the apprehended result of those natural processes). The universal emplacement of these forms in all humans allows for the possibility of a supra-cultural, natural science of psychology. In the laboratory where the effects of the social world can be either controlled or eliminated, the natural scientists of psychology (in, e.g., psychophysics, perception, cognition) can discover the forms that Nature has everywhere

deployed. These forms guarantee the rigor of all human behavioral and mental activity, regardless of the culture that situates this human. And so the causal model of perception that was initially outlined can account for how the human naturally acquires knowledge of the natural world out there and how human behavior is naturally governed by the forced impression of the material world, irrespective of the provisional social landscape that surrounds the activity.

But this causal model of perception and this model of how the material world brutely orchestrates natural human behavior (through the forms that Nature has everywhere emplaced, both within and without the human) is an insufficient frame for supporting the regularities of social processes. It cannot adequately serve as the basis of an account for the exhibited, orchestrated regularity of human social behavior and social perception. The initially outlined models cannot serve to account for the shapely human activity that is patently indebted to social forms precisely because Nature is indifferent to socially-arranged cultural distinctions. Nature and its apparatus cannot be relied upon to individually convey and sustain the social import of an object that was initiated into existence through socially arranged conventions. The pipelines of nature (which vouch for the inescapable consummation of natural perception, through some pre-established harmony and/or commensurability among all the contiguous natural elements that participate in the process) are empty of social conventions. Those conventions have been subsequently woven into the fabric of naturally formed material that has timelessly been in place since the beginning. The brutely natural, topographical features of an object (and its complement of properties as a natural object) provide no hint of the

conventional significance that has nested in the object. Within the framework of a causal model of perception, it is not clear how, in the nitty gritty of everyday life, social perception is possible. How are the pipelines of Culture, which convey social significance across distance, kept open?

Nothing about a thing of nature, as it is described by the law of physics, will provide a hint of its social significance. Nothing about the natural description of an article of cloth will provide a hint of its significance as "the uniform of a baseball player." And nothing that is conveyed to an observer through the process of natural perception can be expected to direct the observer to that natural object's social significance. Even the legible characters on the uniform (that we humans recognize as "words" or "symbols") cannot in their natural, material status provide a hint of the significance of "baseball" that came into existence long after nature had independently given shape to the world. The material means by which communication is accomplished (whether by verbal, graphic or behavioral gesture), whereby a conventional object is "explicitly" pointed out, are themselves silent about their "own" social significance when they are regarded as objects of nature. Nothing about the sight of a thing as a bounded shape of ink (e.g., the letter "d") that an observer has access to through natural perception says anything about its social significance; and no more is added by a string of bounded shapes (i.e., the letters "d"-"o"-"g"). As socially dumb shapes, they provide no hint of what is referred to. Their referent is fixed by social convention; and whether we understand that string to make reference to a two-legged animal or a four-legged animal, the natural aspects of the perceptual process by which we catch sight of "dog" would

basically be carried out in the same way. The natural process of perception, in all its parts, is indifferent to what it socially conveys. It is not weighed down in one direction or another by the conventional import that humans, by social arrangement, had established.

Very little is gained by sequestering in the skull the process by which "something," that is delivered by natural processes to the brain, becomes "something," that is appreciated for its social significance. In the "external world" nature is indifferent to the conventions attached to natural objects. Those natural objects still move in strictly defined ways regardless of social significance. (A tornado unlike a smuggler, for example, is not detoured by the boundary between the United States and Canada). And there is little reason to believe that nature operates any differently in the "internal world." Nothing about the topographical shape "dog" in the external world, or its graphic equivalent on the retina, or its neurological equivalent in the optic nerve, etc., forces itself (or even invites itself) to be taken for its social significance. And any part of the brain that accomplishes "semantic" processes also must be indifferent to the social import that is conveyed by the material underpinnings of those conventions. The problem of how the social world is nested in the natural world is only mystified when that problem is solely located in the brain.

As shall be noted in greater length later, the notion of "attitude" or "set" as it is usually given only begs this question, since it is unclear what it is in the first place that "leads" us to adopt any particular attitude or set. That which primes us for the rest of the socially significant world itself offers no help when it is regarded as an object of nature. What is the prime's mover? Further, even when one

is "primed" (so that there is a provisional social schema emplaced in the head that corresponds to the provisional social context emplaced in nature's external world), it is unclear what ensures the continuing harmonious character "between" the external world and the internal world. Through its pipelines, nature continues to convey only its raw effects. By this model, humans would be continually guessing when they engaged in social perception.

What accounts for the perceptual differences in the sight of an object before and after one has grasped the social significance of that material thing out there in the natural world? (Take, for example, the sight of the word "syzygy," now when I assume that you don't know its meaning and the sight of it once you are told that it means "a nearly straight-line configuration between three celestial objects." During a lunar eclipse there is a syzygy. Where is the difference between the two brute instances of perception when your eyes fell twice on the word "syzygy?" And how was the latter social perception "caused" by the sight of the word? Those differences certainly cannot be attributed to the natural properties of the object as it makes its way toward the brain where it will be "processed." It should not make its way to the brain any differently as a function of whether or not conventional significance has been attached to it or as a function of the sort of conventional significance that has been attached to it. Nothing about the natural process of perception (whose pre-established harmony is independently guaranteed) ensures the arrival to the mind of social significance (whose coherence is guaranteed by conventional glue). To begin to make claims like these would be to begin to assert that processes which had naturally occurred prior to the time when an object's conventional significance was

appreciated are now, after that fact, being violated (or unnaturally detoured) in light of conventional appreciation.

The seclusion of all this "processing" of raw nature within the skull's cannery also amounts to an assertion that the objects which take shape through social convention have no existence independent of the present observer in the external world. Socially shaped objects might have only provisional existence; but we certainly don't want to say that the New York Yankees exist only inside present human minds. If that were the case, what would "cause" me to be struck by the fact that I was seeing a Yankee when I looked at Mickey Mantle; and at the same time leave me not struck by that fact when I looked at Carl Yastremski? In some sense that is akin to the causal model of perception, the world bears in on the observer; but in another sense, it is socially shapeless without the historically conditioned actions of human beings. A simple model of caused natural perception (where the succeeding parts of that harmonious process are vouched for by the shape that Nature gives through the universally relevant forms) cannot account for how social perception is accomplished. It cannot account for how in their everyday lives, from moment to moment, humans immediately grasp the detailed conventional significance of their surround when, by Nature, there is nothing around. If Nature is naked of social clothing (as are its pipelines through which natural perception is consummated), then how is it that humans, when gazing at the world, are struck by the profusion of its social finery? A model of social perception that could begin to account for all of this must be depicted otherwise.

The social forms that guide human activity take their existence from Culture by virtue of the willful arrangements of human beings. These

patterns of culture and the materialized shapes of any single items within them are initiated into existence through agreements that are established among human beings. Unlike the timelessly enduring natural forms, the social forms pass into and out of existence with the rise and fall of a group whose members participate in that arrangement. Through the process of socialization, humans become members of that group and parties to that agreement; and they gain the resources by which the social significance, that is nested in the natural world, becomes evident. Concurrently, the natural world becomes socialized, in one way or another, as the conventional practices of that group use the material elements of that world, endowing it with conventional significance. The social features woven into the fabric of nature add to the resolution of the natural world, since what had hitherto been two examples of one thing (e.g., two days) are now understood to be two radically different things (e.g., Sunday and Monday). This "addition" is more clearly seen when two groups "add" to the natural world in diverse and possibly incommensurable ways.

The shapes of social forms are <u>arranged by</u> the human activities of proto-members as the group edges toward full-blown existence. And, subsequently, those social forms <u>arrange</u> the social behavior of group members, when their behavioral responses to the socially significant environment take shape through these forms. The social forms may have only provisional existence, since they have not existed from the beginning. But, they gained a measure of autonomous existence after they had been brought to life by conventional activity. Thereby, they can "dictate" the shape of human social behavior that falls under their purview.

To take a radical example, the social significance and existence of hieroglyphics is indebted to the conventional activity of the ancient Egyptians. They breathed social life into those graphic features. Egyptians arranged these forms so as to convey significance and Egyptian behavior was subsequently arranged by the significance of their form. And yet, when the ancient Egyptians died, the hieroglyphics retained some life. They breathed intelligibility in such a way so that when thousands of years later other humans came along, these humans clearly understood that something had been added onto and interwoven with the graphic features that were naturally presented. This was clear in a way that is not so clear, for example, about Stonehenge whose arrangement of stones may or may not point at something else in the universe other than themselves. And many people today probably understand the literal significance of the hieroglyphics. Only probably, because nothing about the natural, graphic features themselves inescapably mirror their social significance which was "added on." There are Egyptian practices and experiences, shaped by convention, that we will never have access to and that added to their significance. We can never be certain in our grasp of what the hieroglyphics "meant" on the exclusive basis of their natural features. Their arrangement and juxtaposition as strings give us direction to the meaning of individual items. Similar, though less severe, problems exist in the here and now, where the lively members of a group used their "shared," conventional resources for arranging their otherwise nakedly natural gestures in order to convey their intentions.

In the late 19th Century, Abner Doubleday devised the game of baseball. He designed a playing field and invented some rules. He took some materials that had hitherto served other purposes and gave them

newly significant shape as "balls," "bats," "gloves," "bases," etc. And new things appeared like "balls," "strikes," "hits," "home runs," "outs," "innings," etc. The forms of baseball were arranged by human convention. The patterns gave a shape to materials and events that nature was incapable of offering. Social objects materialized. The social patterns had an internal symmetry whose implications might only be realized as the game was played out in real life; implications that probably weren't realized when the game was devised, but in retrospect were "always there." For example, it is probable that the notion of "double play" wasn't available when the game was devised. At some point, when the batter hit a ball to the second baseman with a man on first and the second baseman stepped on the bag, he must have realized that he still had time to throw the runner out at first. In that moment of realization, the notion "double play" was born. And yet, that notion existed in some sense from the beginning of the game's existence. Contrast this with the former example of hieroglyphics. In the former example, we have social existence after the fact. In the latter example, we have social existence before the fact. Both examples hint at the internal symmetry and automony that the social forms, like the natural forms, possess.

Today, millions of people witness baseball games. The socially significant shapes of baseball's "things" have acquired greater rigor and in fact have grown in significance. The conventional import of any single natural gesture is obvious to all of those who are a party to the game. The patterns of baseball arrange the behavior of baseball players, baseball announcers, and baseball viewers, insofar as it is relevant to the game. In their status as provisional creatures of sociality, the

forms of baseball can change in a way that is beyond the capacity of nature's forms. But, despite their provisional character, these forms will continue to arrange the behavior of all of those involved. The events on the field, in their conventional guise, dictate the actions of all involved. The roar of the crowd when a ball is hit into the stands of fair territory (i.e., a "home run") or the anticipation and disappointment of the crowd when a ball that is solidly hit curves and falls into the stands of foul territory (i.e., a "foul ball") signifies the fact that everyone understands what is going on. But, how is this profusion of social significance so readily accessible?

Imagine the Eskimo who has just been flown in from Alaska and who is deposited in the stands of Yankee Stadium. This Eskimo has never heard of the United States, much less baseball. What can be his experience of the concerted activity on the field and the volubly underlined understanding of the crowd? Bewilderment. In part, the bewilderment is a function of his grasp of the fact that there is a socially-arranged something to be understood here. But that just emphasizes his complete bewilderment, especially if he doesn't realize that he is watching a "game." He is at a loss. But, why is he at a loss while all the natives are enjoying themselves? Are the natives being exposed to any more sights than the Eskimo? All of them are seeing the same things. Why aren't the natives bewildered?

The easy answer is that, unlike the Eskimo, the natives are party to the conventions that shape baseball's activities and give them significance. But, this answer really misses the point. Nothing about the "natural" features of any gesture on the field (which are, in fact, more readily accessible to the Eskimo) says anything about the social

significance that is woven into the natural fabric of that gesture. Nothing that, by natural perception, reaches the retina of a fan hints at the social significance nested therein. And nothing about that natural thing, once it reaches the brain, invites the native to pull the file "home run" or "foul ball" or to identify that thing out there as a "foul pole." Why aren't the natives bewildered? (And why don't they have access to the sights that are so readily available to the Eskimo?) In some sense, they must be struck by an already socially saturated object. Clearly, the native must have aready bought into the system of significance that gives shape to all the objects out there; and clearly the native is postured to be on the social lookout, keyed to the system of significance, as the action takes place on the field. But, a description of that system begs the question of <u>how</u> single instances of the socially significant perception of that action actually take place. Any ethnography that documents the regularities that are exhibited within the confines of the stadium merely documents the <u>facts</u> of those regularities that all (actors and observers, inclusive) partake in. It says nothing about how those understandings are transported over distances or how members can continually read each other's intentions as they act in concert.

A causal model of perception is an implausible, unwieldly device for accomplishing that social perception. This model would lead us to believe we are at a distance from the world; and that, on the basis of what we receive naturally, we internally compute the solution to what is probably "out there." Needless to say, what is out there, socially, was put there by human beings. Between the social "in here" and the social "out there," there is a chasm that nature bridges. But, that bridge is

indifferent to the social import that is conveyed from there to here. It is implausible to believe that "first" we receive natural stimulation and "then" we process it for its social significance. If that were the case, it should be an easy matter for baseball fans to "see" the game in the way that Eskimos see it. But the maturing baseball fan has become somehow attached to a certain conventional sight of the field and cannot easily go back to the bewildering sight. How do becoming natives gradually lose their bewilderment as they acclimate to the socially significant environment? And how is subsequent bewilderment forestalled to the point of inaccessibility? The character of human connections and attachments to the cultural world is left unexplained. If nature's forces are so powerful and ever-present while the structures of sociality are so provisional, why is social "prejudice" so hard to overcome? If humans first had access to a natural description of the world (as depicted by a causal, serial model of perception), why (when we are asked to describe what we see in front of us) is it so easy to describe that sight in conventional terms while we find it awkward to describe it in "natural" terms? The experience and memory of any sight that we witness appears to be a profusion of unnatural conventionality.

A causal model of perception is an impossible device for accomplishing social perception. The gulf that exists between object and observer in an instance of natural perception (and which is bridged through cause-and-effect episodes guaranteed by natural law) cannot exist between object and observer in an instance of social perception, since nature cannot be relied on to convey social significance. Nature (both in the external world and the internal world) is dumb to the social shape of an object. It cannot convey that social object over "distances"

through a chain of consequences. There must be some way in which object and observer are united to begin with, in order to consummate the act of social perception. The problem is easier to see when one considers any single object (in its natural, material status) that, by the conventions prevalent in a society of overlapping groups, allows for the nesting of two distinctive social significances, in different "situations." The "same" thing can mean two "different" things. The word "pipe" conveys one thing or another when speaking to a plumber or a smoker. The natural, topographical features of "pipe" offer no hint of its social import. The causal model of perception begs the question by answering that this is done through the internal mechanisms of cognitive processing which use the resources of an external social context (that fixes the social meaning) and an internal model or schema (that interprets what is offered by natural perception). The appropriateness of any conventional interpretation is a function of situational constraints that are "out there." But all the "processing" that goes on "in here, behind the retina" relies on what has been conveyed through nature's pipelines. When we attempt to solve the social truth of "pipe," we must return our gaze to "out there" in order to assess the situational constraints. But any part of the "out there" that would indicate the appropriate interpretation of the primary object of interest is also only given to us in its naturally raw form, drained of its social significance. Though harder to grasp, the same problem exists when only one social significance seems available (e.g., "syzygy"). How is the awareness of the "one" social convention engendered by the natural, topographical properties of the object? How do humans sustain their connections with context? How do natural objects unambiguously catch our social attention?

This raises another issue. How does one go about aiming for accuracy when the target of that aim is of social significance? Its social truth is relative to the situational and contextual constraints that are conventionally established. The "truth" about any social situation is a moving target in a way that natural truths are not, even though that social truth may be immobile relative to the rest of its social context. The necessary symmetries that fix the truth of nature differ from the situational symmetries of sociality that "autonomously" fix society's truths (that is, autonomous of the opinions of any one person, as in the previous example of the "double play"). A causal model of perception mystifies the whole operation of truth seeking and truth telling that aims for what is held in place conventionally. Those operations must be different from the "same" operations when their targets are naturally given. A causal model of perception obscures the manner in which humans go about "seeing" what is socially appropriate. By leaving unresolved the manner in which social truth is acquired, a causal model can't begin to appreciate the "attachment" that group members display toward the contexts that have given shape to their truths. Notions like "social truth," "social falsity," "social accuracy," and "social prejudice" are all relative. But the "relative" circumstances don't explain the attachment and the violent behavior that ensues when the truths of different groups collide. A model that depicts social perception otherwise might be helpful for resolving these issues. A better understanding of what is involved in achieving social accuracy might help resolve the problems of social prejudice.

In short, a causal model of perception is an inadequate guide for the attempt to understand how social perception is consummated. This

model can be useless, misleading or possibly dangerous when it is applied to social perception. This becomes evident when recounting some of the features that were earlier noted as that model was used to square the accounts of natural perception. For natural perception, the experimental psychologist relied on the physical descriptions offered by physicists in order to characterize the stimuli that anchor perception experiments. The changeless truth of those descriptions was vouched for by nature, through the proxy of physicists. But, the truth of the object matter in social perception experiments is a moving target that is socially constrained. Who vouches for the accuracy of the description of social stimuli that experimental social psychologists take as an anchor for experiments in social psychology? Certainly, the "truth" of those descriptions, for the subject, is relative to the context that the subject deploys in order to give socially significant shape to those stimuli. As one assesses whether the subject's aim for the socially true hits or misses the mark, one is left in a quandary when using a source other than the subject for the provision of the social stimulus' description. Experimenters don't know whether or not subjects are using that same description as subjects take aim at the target. Thus, the results of social perception experiments might only tell the experimenter whether the subject is or is not a party to conventions that some "other" used to give social shape to the stimuli.

Such experiments might merely document that the subject is or is not a party to certain conventional regularities. The results give little insight into <u>how</u> that regularity (i.e., social perception) was consummated. The experimenter's conclusion that the subject's responses were "inaccurate" or "wrong" can become a dangerous thing. In what sense

does the experimenter mean "wrong?" Two possibilities are constantly available. Either, the subject systematically adhered to a context foreign to the experimenter's, or the subject, sharing the same context, was systematically wide of the consensually defined target. Such ambiguity can become dangerous when the experimenter is under the impression that the description he has started with is vouched for by Nature. Aside from all else, he is not on the lookout for other contexts and pathology in the subject is his natural conclusion.

A causal model of social perception would lead us to believe that there is a gulf between object and observer that is somehow bridged through a serial process, whereby a sensation becomes a perception which becomes a cognition. This model invites confusion between natural truth and social truth, and so it is hard put to do anything about "social prejudice" other than to show "the truth" to people who are socially prejudiced. It invites miscalculation about the attachment that group members have for their truths since it cannot see the manner in which object and observer are united from the start.

A model that would be used in the attempt to square the accounts of social perception must make visible the cultural attachments that connect the object to the observer. That model must show the promise that it can aid in making progress toward the resolution of two problems. First, given the singular orderliness of Nature that vouches for its continuing regularity, how is it that diverse and possibly incommensurable forms of Culture can nest in that Nature while each remains consistent with Nature? Second, given that the cultural forms are initiated into existence through human activity and therefore have a provisional existence that is somehow dependent on humans, how do these cultural

forms gain a measure of autonomous existence such that they can "independently" determine the shape of human activity? And a third problem pragmatically would follow from the "solution" of these two problems. How does one distinguish between the natural forms that are singularly, necessarily given and the social forms that are contingently given, each one being part of an array of diversity? Of course a solution to the first two problems might lead us to reorganize our notions of what is meant by the "natural" and the "social" and the relation among them.

There are attempts to explain the sprouting of social forms in terms of their iconic relation to the natural forms and to explain the comprehensibility of social gestures in terms of the fact that they echo what is already there naturally. These attempts do no service to a social psychology that takes as its problem the diversity of social possibilities within the singular constraints of nature. It overlooks the forces that keep social forms in restricted bounds that are a matter of indifference to nature. What keeps <u>this</u> social form as the stable force within a group rather than another form when nature allows for both? To appeal to nature is to deny the difference between the forms and to demean the attachment that one group or another displays for one form or another. To appeal to nature is to deny the existence of <u>social</u> phenomena whose diverse forms operate within singular constraints. This appeal does not <u>explain</u> the <u>social</u> aspects of social behavior which take their definition from the fact that they could have been done otherwise. The appeal to nature overlooks the fact that they could have been done otherwise.

IV - INTRODUCTION TO EXPERIMENTS

In reconsidering the question of social perception, it does no good to explain the ability to understand what is socially "out there" by appealing to a social schema "in there," in the head, that will do all the work of social understanding. This work will only discover that the structure of the social schema in the head corresponds to the structure of the social world out there. But it does not explain how this schema can, on the one hand, so easily and autonomously sustain its coherence whereby it will rigorously transform into social significance what is naturally given; while, on the other hand, this schema can have a plastic consistency such that it can change its shape with the acquisition of new conventions that, in turn, will reshape the conventional significance of the external world. How can a social schema (which is all about things of provisional existence) sustain both the capacity to be rigid and the capacity to change? The "external" world and its objects present some of the same difficulties that the "internal" schemas (by their properties) pose. But by sequestering in the skull the process through which natural things "become" social things, we have unnecessarily mystified an admittedly difficult problem. The burden of this problem was shifted to physiologists and psychologists, when, for most practical purposes, mechanism triumphed over vitalism during the 19th Century. At that point, it became obvious to all that the "external" world could be completely explained on the sole basis of mechanical principles. All the problematic aspects posed by the "appearance" of vitalism and/or

organicism were shifted to the "inside" of animate beings (and human beings, in particular). By "externalizing" the problems of organic vitalism (that is, by showing the external correspondents of the internal process whereby the natural is "transformed" into the social or whereby one social thing is "transformed" into another social thing), the following experiments will hopefully both explain part of that process and shift some of that burden back onto other scientists.

It is ironic that so much of the current experimental work in cognition that devotes itself to social scripts cites the work of Frederic Bartlett (1932) as a reference. Bartlett was violently opposed to the use of social schemes as an "explanation" for the rigorous regularity of social behavior and social perception. As Bartlett says, the notion of schema was devised by the physiologist Henry Head. In Remembering: A Study in Experimental and Social Psychology (1932), Bartlett lists a number of reasons for his disagreement with Head's account of the regularity in psychological processes. He puts it eloquently when he says:

> Thirdly, and perhaps most important, I strongly dislike the term 'schema.' It is at once too definite and too sketchy. The word is already widely used in controversial psychological writing to refer generally to any rather vaguely outlined theory. It suggests some persistent, but fragmentary, 'form of arrangement,' and it does not indicate what is essential to the whole notion, that the organized mass results of past changes of position and posture are actively doing something all the time; are so to speak, carried along with us complete, though developing, from moment to moment... It would probably be best to speak of 'active, developing patterns.'
>
> (Bartlett's emphasis), (Bartlett, 1932; pp. 200-201)

> A new incoming impulse must become not merely a cue setting up a series of reactions all carried out in a fixed temporal order, but a stimulus which enables us to go direct to that portion of the organized setting of past responses which is most relevant to the needs of the moment. There is one way in which an organism could learn how to do to this. It may be the only way. At any rate it

> is the way that has been discovered and it is continually used. An organism has somehow to acquire the capacity to turn around upon its own 'schemata' and to construct them afresh. This is a crucial step in organic development. It is where and why consciousness comes in; it is what gives consciousness its most prominent function. I wish I knew exactly how it was done.
>
> (p. 206)

I wish I knew exactly how it was done. I don't. But I hope that the experimental work which follows helps to point out a way through which these problems can be solved.

In many respects, the following experiments mimic the procedures of Rosch (1973) when she attempted to document the character of a natural cognitive process. In one of her studies, 113 University of California, Berkeley students were given a list of eight categories (e.g., fruits, birds) and six examples of each category (e.g., apple, pineapple, fig; robin, wren, ostrich). For each category, they were asked to judge (on a scale from one to seven) how good an example of the category the six instances of that category were. Despite the fact that the subjects each rated the instances of the category privately, a significant degree of agreement was found among subjects about how prototypical the various instances of the category were of that particular category. Evidently, their responses were not randomly generated. On the basis of this agreement, Rosch concluded that she had uncovered the shapes of concepts that subjects had of certain categories. The agreement was taken as evidence for the constraining character of certain natural facts and for the cognitive form of concepts; and it was taken as the exemplary upshot of certain inescapably lawful, cognitive processes.

In designing her experiments, Rosch was interested in eliminating or controlling the ambiguity in the experimental stimuli so that she could

catch sight of the "natural" cognitive processes as they emerged. Each stimulus item should unambiguously announce what it refers to so that the subject can express the prototypicality of an item in its status as a member of the category. But the following experiments, by design, invite ambiguity in order to catch sight of the "social" cognitive processes by which the ambiguities of everyday social life are forestalled or resolved. Social psychology is concerned with how members of a group manage to adhere to the social forms that allow for the orchestration of concerted social interaction among members. In its nakedly natural status, the material that group members use for its conventional significance is ambiguous with respect to that conventional significance that it conveys. And when any single material thing has, by convention, the capacity to entertain two meanings, then that thing as a nakedly natural object is certainly ambiguous.

The experiments seek to "externalize" the process by which those ambiguities are resolved; so that "outsiders" can see how "insiders" become so certain about the socially accurate description of an object which, by nature, has no social description. If you sequester in the skull the entire process by which ambiguity is resolved (out of sight, in the mind), then that process takes on an unnecessarily mysterious quality. Exposing that process to view in the external world might eliminate some of its occult qualities. Undoubtedly, the gross ambiguities embodied in the following experiments are caricatures of the subtleties that confound social life in the everyday world. But such caricatures afford the possibility for identifying and naming all of the parts of the process by which ambiguities are resolved. Once all those elements have been located and the character of that process can be

appreciated, that model can be applied to real-life situations where that process happens in miniature.

It should be noted that the following experiments also bear a resemblance to Carmichael, Hogan and Walter (1932). In that study, subjects were shown "ambiguous" figures that were named in one way or another (e.g., a "thing" that was either named as a crescent moon or the letter "C"). When later asked to draw that figure, subjects' drawings "distorted" that figure in order to conform with the properties that were alluded to by its name. This procedure begins to get at the way in which social context gives shape to objects; and the authors say that the psychology of Gestalt may offer some explanation for their phenomena. But their procedures suffer from faults. First, they study the subjects' perception of single items and so they miss how a single context operates to give shape to the whole material surround (including the observer); and they miss how the social features of context are indispensable ingredients of that process. In their socially significant shape, all objects of the surround are united by their conformity to context -- each conforming in its own way. Second, the procedures confuse material ambiguity with conceptual ambiguity. Anyone reading their study might be led to believe that the ambiguity they are referring to can be resolved with a magnifying glass or an airbrush. (The figures have a hybrid quality in that the graphic representation preserves features of, e.g., crescent moons and 'C's. That would be inappropriate for a materially pure version of one or the other). The ambiguity featured in a Necker cube is a more appropriate display of conceptual ambiguity since the 'same' material figure engenders two radically different sights. The authors admit they are at a loss to explain what they have uncovered.

> It is the belief of the present authors that psychology is not yet in a position to explain this process of apprehension with assurance.
>
> (their emphasis; Carmichael, Hogan & Walter, 1932)

Starting with the Rosch procedures, the following experiments take a set of items that, in their nakedly natural shape, retain a sharply defined material identity. But in one social context or another, each of those disparate items in the set takes on one social shape or another, in unison with the others, together systematically indebted to and in conformity with one context or another. The subjects are asked to use those objects for some purpose that is indifferent to one context or the other. But, though they are given hints, they are not told which context is appropriate. The manner in which subjects resolve the ambiguity presented in the nakedly natural objects by giving them socially significant shape is, hopefully, open to view for all on the "outside" (indifferent to either of the two structured contexts that together constitute the social ambiguity) -- a common experience of ambiguity under experimental conditions.

V - EXPERIMENT 1

Introduction. Subjects were each given two problems to solve. For each problem, subjects were required to make a series of judgments about the goodness of membership for a series of items with reference to its larger, encompassing item. In this sense, the procedure resembles that of Rosch (1973) where subjects were asked to judge how good an example of a category (e.g., crime) various instances (e.g., murder, stealing, vagrancy) of that category are. Unlike the Rosch procedures, however, this experiment gave subjects a list of sub-activities and asked subjects to judge (on a scale of 1 to 7) how important each of these sub-activities are for the accomplishment of the larger activity. All sub-activities were constituents of the larger activity; and, hence, this experiment shared with Rosch's the requirement that subjects judge the exemplary character of a constituent to its constituency (or a member to its category). In principle, these procedures should be as applicable to activities as they were, in Rosch's case, to objects. The issue of how these larger activities (as opposed to the categories) are mentally represented is not examined. However, the work of Schank and Abelson (1977), where the representations of activities are examined in terms of scripts and their elements, suggests a framework for establishing a loose parallel between subjects' tasks in this experiment and in Rosch's work. The second experiment reverts to Rosch's procedure where subjects are asked to make judgments of the exemplary character of various objects as instances of their category.

The procedure in this experiment departs from Rosch's procedure in another way. Subjects were not explicity told the name of the larger activity that encompassed the sub-activities. Rather, subjects had to first look at the listed sub-activities, gain a sense of the larger activity, and then rate each of the sub-activities with regard to how important it was for the accomplishment of the larger activity. That is, for each problem subjects engaged in two sorts of judgment. First, they judged the name of the larger activity and, then, they rated each of the sub-activities. This practice was also carried through on the second experiment.

The written instructions made it clear to subjects that all of the listed sub-activities were legitimate parts of the larger activity. This points to a feature of the Rosch procedures that could be overlooked. By first naming the category and then listing the objects to be rated, Rosch decided for her subjects that these instances were indeed appropriate examples of the considered category. The only question for the subjects was how good or bad an example of the category this instance of the category was. That is, "murder" might be a better example than "vagrancy" of the category "crime," but "apple" doesn't belong in that category to begin with. This raises a question. When subjects are asked to rate the exemplary character of an instance and the distribution of subjects' ratings is not statistically significant (Rosch mentioned that this happened in a couple of instances), this absence can be interpreted in two ways. Either, it could signify the various belief among subjects that this instance doesn't belong in the category. Or, it could signify a various belief among subjects about the exemplary character of that instance, given that it is an appropriate example. The latter belief

could be attributed to an absence of consensus among subjects about the placement of the instance or to an ambiguity in the categorical form that would dictate where the instance should be placed. In any case, the reason for a distribution of ratings that is not statistically significant is unspecified and subject to various attributions.

This is not intended to be a criticism of Rosch (1973). After all, the object of that research was to pin down the categorical forms. In that sense, it is important to clear away the ambiguity before the onset of research. Given a clear category and its clear members, that research seeks to resolve the character of their organization. By minimizing the ambiguity, Rosch may have restricted the variance of subjects' responses and this may have contributed to the statistical significance of the results. In the following experiment, on the other hand, the larger unit was left undefined so as to "allow" for ambiguity and allow for different groups of subjects to see the "same" material words in different ways. The focus of interest is on the between group variance of responses to the "same" material. But this procedure inescapably also admits the greater possibility of within group variance in subjects' ratings, since they may each be operating with notions of the larger activity that are only roughly similar to each other, unconstrained by a single, common word that unambiguously names that larger activity. Hence, it should be expected that, within any one group, a greater number of the distributions of subjects' ratings here will not achieve statistical significance when compared with the results of Rosch (1973).

These remarks also address the fact that a portion of the cognitive activity necessary for managing practical life outside the laboratory is not to be found in Rosch (1973). In that experiment, the cognitive

activity that would conclude that all of these objects are nominally united by membership in this category (or, vice versa, that this is the category that nominally unites all of these objects) does not take place. It took place before the experiment when the stimuli were collected and the experiment was designed. This cognitive activity is packed into the experimental design as the research focuses on the characteristic structures of the deployed categories, once the ambiguity about which category to deploy had been resolved. The following experiments focus on the cognitive activity that is devoted to resolving which category to deploy in order to assess any one object, given that any number of categories are possibly appropriate. In everyday life, people often "find" themselves deploying one category without considering any number of alternatives and even without the recognition that there are alternatives. Hence, their behavior shows the after-effects of resolving ambiguities beforehand, without any awareness during the activity that, in some manner, this activity took place. Hence, this portion of cognitive activity may be as hidden from them in everyday life (perhaps by the design of the world) as it is hidden from Rosch's subjects by the design of her experiment (who never "judged" the eligibility of, e.g., vagrancy as an example of crime). But, both of these portions of cognitive activity are necessary in order to manage the stream of practical life in the everyday world.

Human behavior in the laboratory is remarkably reliable and elegantly formed once the experimental conditions for behavior (which instruct the subject and give fixed shape to the stimulus materials) have been set. Outside the laboratory, however, a portion of humans' cognitive activity must be devoted to realizing what setting they are in

and that will then give shape to the individual material items within their environment. For individuals, the successful management of the stream of practical social life relies both on their ability to zero in on the appropriate setting that will give social shape and conventional significance to the environment's elements; and then, given that setting, on their ability to use those socially-shaped and conventionally-significant elements as they accomplish social behavior. Much of experimental social psychology focuses on the latter, given that the former has been resolved. In the laboratory, this is done by clearly defining the experimental situation for the subject and, in the field, this is "done" by assuming that all observed individuals "know" what setting they are in and then tracking the motiviated regularity of their behavior in the light of that knowledge. Under such circumstances, the notions of "role," "attitude" and "norms" are useful for tracking the regularity of social behavior within a social setting. The person adopts a role that is conditioned by attitudes and guided by certain norms. But, how do persons "find out" or decide what setting they are in? Certainly, a portion of human social cognition must be devoted to resolving this issue during the course of everyday life -- at least, at the beginning of each social episode. And how do persons know to sustain or know to change the character of that setting that gives shape to everything within it? Most empirical work leaves the resolution of this problem outside its focus as it concentrates on the regularity of social behavior once this setting has been accomplished. The work presumes the rigor of that setting (and its provisional autonomy that sustains continuing social action within a social episode) as the work concentrates on uncovering the details of that setting's shape. In this

sense, the empirical work of social psychology resembles the work of Rosch (1973) whose design eliminates, "hides" and/or displays disinterest to that portion of humans' cognitive activity that identifies the setting for their behavior.

The management of practical social life relies on the interplay of both of these cognitive activities. The knowledge of what you're doing relies on the knowledge of where you're at. In the realm of conventional behavior, natural processes of perception cannot be relied upon to inescapably convey this knowledge of setting since that setting has only conventional social existence. Convention takes the possibility for its provisional existence precisely from the fact that Nature is indifferent to whether or not it exists. Hence, the participation in conventional behavior signifies, in some manner, the after-effects of choice since Nature does not compel the conformity of human behavior to one or another set of social forms which are equally capable of nesting in the available natural material. So, how do humans "choose" or otherwise identify the social settings in which their action takes place and shape? Nature is indifferent to whether or not conventional significance, per se, has been woven into it. The lawful motions of its elements are not weighed down, in one way or another, by the significance that has been conventionally attached to them. And it plays no favorites with the competing conventional forms (that nest in the same material and that take their existence precisely because Nature displayed no favoritism) as they vie for the social observer's attention. Hence, within the moment to moment stream of a practically-oriented, human life, the manifestation of any single social setting, per se, or the manifestation of one social setting when another, "competing" social setting seems to be as readily

accessible (from the "outsider's" perspective where both can be seen) remains something to be explained.

The following experiments were designed to study this portion of humans' cognitive activity whereby they "choose" or otherwise identify the setting in which their social perception and social behavior take place. They are meant to demonstrate how such an operation is possible. Each problem has a subset of material items that systematically lend themselves to either of two settings which are equally accessible from an "outsider's" perspective. However, each group of subjects finds those items within larger sets of items that invite constraints upon how one group or the other will view that smaller set of stimuli. The operation of these inviting constraints are meant to be an exemplification of the inviting constraints that operate, from moment to moment, in giving coherence to the practically-oriented stream of social life. The procedures and statistical analyses within any one group as such, then, resemble the procedures and statistical analyses of Rosch (1973) where there was no ambiguity about the quality of relation between members and their category. Her analyses fixed their quantitative relations. And within each group, the analyses of the following experiments use subjects' responses fo fix similar quantitative relations (although for reasons explained above the analyses of subjects' responses may not attain the high degree of statistical significance that Rosch found).

This within group coherence, however, is not the point of these studies except insofar as it is an expression of coherent social perception; and except insofar as this coherence is placed side by side with another statistically-demonstrated, within-group coherence which uses some of the "same" material stimuli as the means for expression of

an entirely different, coherent social perception. If one ignores the larger setting and the operation through which subjects caught sight of those stimuli in one way or another by resolving which setting to deploy, then one is simply left with two groups of people each adhering to a definition of some one object that is at odds with the definition offered by the other group. But, this work attempts to describe how that operation can be accomplished, by persons, leaving social ambiguities behind. It attempts to explicate the manner in which the larger social setting lends shape to individual objects within its purview; thus giving rise to the materialization of social objects and the creation of social truths about those objects. It suggests the manner of attachment that group members display for their social truths. And it suggests that more is called for in the alleviation of social prejudice than simply showing biased individuals (e.g., "racists", "sexists") the error in their apprehension of the world or the truth in another apprehension of the world. The problem is only compounded when each "side" declares the "obviously" truthful facts that are afforded by their respective perspectives. The roots of this disparity between "social truths" may be in the larger settings that give shape to the disparately-formed, individual social objects. Even the terms of "communication" may be disparately shaped. Other strategies may be required for communication between individuals who have placed themselves in different settings.

These studies examine the manner in which individuals accomplish the emplacement of any one social setting that can be relied upon (and is relied upon) to give shape to the individual items within that setting. That process becomes easier to see when, from the outside, two distinct settings are readily accessible. In turn, this understanding may clarify

how it is that, when a person is firmly on the inside of one social setting, that person's accessibility to another social setting is restricted -- even when that person is a party to the languages of both settings and even as both settings simultaneously occupy the "same" physical space. These studies are less interested in the detailed shape that individual items take on, once that setting is emplaced. The statistical reliability of those detailed shapes is of secondary interest. On the other hand, much empirical work in the social sciences has uncovered the detailed shape of objects within any one setting, given the emplacement of that setting and its continuing rigor. As they are presently phrased, each of these projects presumes that one portion of cognitive activity (i.e., the identification of the appropriate setting) or the other (i.e., the management of individual elements within that setting) can be studied independently of each other by social scientists. This might lead to the presumption that, within the ongoing life of a practically-oriented, social individual, those functions can operate independently of each other; so that from one time to another, the individual is occupied with one project or the other. But a reasoned understanding of how the individual goes about identifying, appropriating and living through larger settings might indicate otherwise. It might indicate that there is a more dialectical relationship between the objects that take their shape from larger settings and the larger settings which give shape to objects within them. In some fashion, the sight that an individual catches of an individual object might lead to the reorganization of its larger setting (which in turn would lead to the reshaping of other objects in that setting) -- even as that larger setting, in some provisional manner, retains the properties of

autonomous, rigorous and determining existence that are traditionally attributed to the natural forms.

Materials and Procedure. Twenty-eight subjects received two problems to solve, each of which required that they rate eleven sub-activities (from 1 = very important to 7 = very unimportant) for their importance in accomplishing the larger activity that encompassed all the sub-activities. As mentioned earlier, subjects were not told what this larger activity was. Rather, they had to glance through the listed sub-activities, judge the character of the larger activity and then rate each sub-activity for its relative importance to the larger activity. The subjects were divided into two groups and each received distinct versions of the two problems. For one group (Form A), the first problem implied a clerical context and the second problem implied a football context. For the other group (Form B), the first problem implied a fighting context and the second problem implied a data-processing context. Both versions of the first problem (i.e., Form A - clerical and Form B - fighting) contained four words in common -- pinning, shuffling, boxing and clipping. Both versions of the second problem (i.e., Form A - football and Form B - data processing) contained four words in common -- scoring, running, punching and scripting.

Subjects received their instructions for the experiment in written form on a cover sheet stapled to the problems. Prior to the subjects' completion of the two problems, the experimenter only communicated with subjects in order to clarify the written instructions. However, subjects showed no difficulty in understanding the instructions or in using them as a guide for completing the problems. When subjects completed the

problems and returned them, they were given questionnaires that probed for their experiences regarding each of the two problems. These included questions about the name of each of the two larger activities; when they had come up with the word naming that (e.g., either when solving the problem or when answering the preceding question); when they first gained a sense of that larger activity; and it asked for a list of the sub-activities they remembered rating, including the rating they gave and the reasons for it. After they returned the questionnaire, subjects were debriefed.

Subjects were 28 college students (14 subjects in each group) at a Northeastern university with an approximately equal number of men and women in each group. Briefly, the procedure consisted of handing subjects the forms , having them read the instructions, solve the problems, return the forms, receive the questionnaire, respond to it and return it. They were then debriefed. Four subjects (two in each group) were tested individually in order to allow for extensive debriefing where the experimenter could get extensive feedback. These subjects were paid for their time. The other twenty-four subjects were tested, en masse, in a classroom setting and received no remuneration for their services. The entire protocol (i.e., instructions, two problems and two questionnaires) for Group A (i.e., Problem 1 - clerical; Problem 2 - football) and for Group B (i.e., Problem 1 - fighting; Problem 2 - data processing) can be respectively found in Appendix A and Appendix B. These forms appear in the appendices in reduced size (i.e., 8 1/2" x 11"). In their original form, subjects received an enlarged version (i.e., 8 1/2" x 14"). The same is the case for the instruments presented in subsequent experiments.

Measures. Subjects' mean ratings of importance for each of the sub-activities were tabulated. For each grop, twenty-two means (eleven for each problem) were generated. A chi-square analysis was performed, independently assessing the distribution of each group's ratings for each item rated. This is in line with the procedure in Rosch (1973). Statistically significant results for each item would indicate that, within groups, there was a coherent notion of the importance of that sub-activity for the larger one and, by implication, a coherent notion of that larger activity. It would also provide evidence for the represented organization of that larger activity and its related parts.

In addition, two other analyses were performed that related the responses of subjects between groups A and B to the common, "ambiguous" items that appeared in both versions of Problem 1 (i.e., pinning, shuffling, boxing, clipping) and in both versions of Problem 2 (i.e., scoring, running, punching, scripting). The first of these analyses pooled the two distributions of ratings from the two groups for each of the common words, so that a single distribution of 28 ratings was obtained for each of the eight common items (i.e., four common items in Problem 1 and four in Problem 2). A mean rating was calculated for each of these eight items and the distribution of pooled ratings for each of those items was assessed using a chi-square analysis. In some sense, this analysis is all wrong. It's like comparing apples to oranges (or footballs to computer tapes).

And yet there is a perspective from which this analysis can be seen as all right. After all, most of the subjects sat in the same room when solving the problems and all subjects received the same instructions. And when subjects had to rate the importance of a sub-activity to its

encompassing activity, those judgments were based on the conventional meaning that was conveyed by the same word (e.g., running), when the judgment "same" is assessed on the basis of physical criteria (i.e., the graphic dimensions of the string of letters that constitutes the word). If experimenters restrict their attention to these bits of the experimental procedure, then the operations that "different" groups of subjects went through in rating the importance of this one word and its attached, conventional sub-activity should be considered identical. And there is no reason to shrink back from pooling "different" subjects' ratings when those subjects were exposed to the "same" conditions and went through the same motions. If a group mean (N=28) was calculated and its distribution of ratings for any one word on a chi-square analysis was significant, then that would provide all the more justification for having engaged in this statistical procedure. Obviously, the distribution of this group's ratings (N=28) was significant. Their ratings were not randomly generated.

From our perspective on the outside of this experiment, this is an unjustified procedure. But, it points to some dangers of a certain mode of experimental practice that, in this context, can be clearly located. We know that "running" (probably) conveys one thing or another to the subject depending upon whether the first word in that list of sub-activities is "punting" or "coding." (Leave aside, for the moment, the question of what the word "running" actually conveys). But this knowledge rests on an explicit decomposition of a structured experimental design. We know <u>that</u> the word is subject to distinctive, conventionally-shaped meanings. We know <u>what</u> those rival candidate-meanings are. And we know <u>which</u> meaning is (probably) conveyed to the subject, on the basis

of the other "words" that surround "running" in any one setting. (Of course, these other "words" might also be subject to multiple, unspecified meanings. For the moment, this will not be addressed).

But, what if the entire list of sub-activities that constitute any one problem (in the design of an experiement that was similar to Rosch, 1973) consisted solely of these four "common" words? Consider that improbably we had single-mindedly produced that list of members as exemplary of a single constituency. We wouldn't know <u>that</u> the members were subject to distinctive meanings. We wouldn't know <u>what</u> those rival candidate-meanings were, for each word. We wouldn't know <u>which</u> meaning was conveyed to the subject. Rather, we would single-mindedly assess subjects' responses in line with the single-minded intentions we used for designing the experiment. And, as a matter of <u>fact</u>, subjects' behavior would be unconstrained with regard to adopting one setting or another in giving shape to their single-minded responses, if both settings were accessible to them. But we wouldn't know that. Rather, we would unilaterally pool their responses, statistically assess the distribution of their responses, and, if statistical significance was achieved, take this as evidence of the validity of our hypotheses which guided the design of our experiment. In this experiment, the chi-square analysis that assesses the pooled subjects' responses (N=28) demonstrates how statistical significance can be achieved in this manner.

Of course, another separate condition of the experiment could have been run in which subjects would have been exposed to only the four common words in each of the two problems. But, what would this have yielded? A single distribution of 28 ratings for each item. If we didn't have some other means for marking which subjects had adhered to

which setting, we wouldn't know how to go about classifying the ratings into two distinct groups. We would have to try every permutation for dividing subjects into groups in order to see whether this division yielded statistically significant differences. And even if we did have a trustworthy means for dividing the subjects (and in this experiment as it was run we do have that trustworthy means), statistically significant differences would only indicate that there is a difference between groups (perhaps as a result of the fact that different groups deployed different settings to give meaning to the individual items within them). A statistical summary of each group's ratings of the individual items and of their relations would only yield two mathematically formal models of relations between conventionally significant items that are conveyed by the "same" graphic representations. We still wouldn't know what they mean (e.g., for the subjects) and how behavior is guided by them. Of course, we could ask the subjects what they mean, but this (as we shall explore in a moment) goes entirely against the spirit in which most contemporary experimental social psychology is practiced. We could catch wind of the fact that there are two collections of people that distinguish themselves as members of distinct groups by the manner in which they set themselves in and use a single, materially-given environment that is occupied by all members of both groups. (In this regard, an appreciation of the rigorous but provisional character of social arrangements would help make for such a realization). And, then, we could give members of each group bits of that "same" material environment for each to assess in such a way that was amenable to mathematically formal modeling. We may find that these models differed from each other mathematically. (In fact, this was attempted in the

second analysis that was performed on this experiment's data relating the two groups of responses to each of the common words. That is, a comparison was performed between the distribution of subjects' ratings of, e.g., "running" when "punting" was the first word versus when "coding" was the first word. These were compared to each other to see if, for each of these "common" items, there was a statistically significant difference between distributions of ratings). If analysis of the two groups' responses yielded two distinct mathematical models, then we could approach a third group of heretofore unidentified individuals and obtain their responses to a restricted set of "ambiguous" material items. We could see whether their responses conformed to one model or the other that we had earlier obtained. (For example, on the basis of distinctive models obtained from our "footballers" and "data processors," we could give a third unidentified group the restricted set of common items for rating in order to see whether the latter group's responses conformed to those of the "footballers" or "data processors"). If the latter group's responses conformed to one model or the other (e.g., to the footballers or data processors), then we might justifiably assert that one setting or the other was more accessible to the consciousness of members of the heretofore unidentified group. But this is not a matter of interest for the series of studies presented here and, therefore, this third group was not run. Rather, these studies are interested in clarifying how, per se, within the practically-oriented stream of social life, individuals "choose," identify, or otherwise find themselves in the setting for their action.

As was mentioned above, one of the analyses performed on the data consists of pooling different groups' responses to each of the "common"

items in order to see whether this pooled distribution is significant. Of course, we all understand that this difference (which mixes, e.g., footballers and data processors) is spurious. The point is to show how there may be parallel dangers in many of the practices of contemporary experimental social psycholgoy. We may be grouping the responses of disparate groups and still achieving statistical significance. Of course, there may be (by the grace of God) what is referred to as a bi-modal distribution and we may (by the grace of a sharp-eyed statistician) notice it. But, this still wouldn't tell us what those conventional disparities mean. We could ask the subjects to inform us about the conventional significance of the stimulus material that gave shape to their behavior. But this, as was said before, goes against the spirit in which current experimental psychology is practiced. That spirit pulls us in precisely the opposite direction, sometimes unwittingly blinding us to the significance of our data. The whole behavioral and/or operational approach to measuring subjects' activity purposefully renders subjects voiceless. By the way (e.g., as a "by-product"), this cuts off a line of communication whereby subjects can tell us the shape of material stimuli that elicited their behavior. And the continuing use of operational measures during the entire course of the experiment by the experimenter virtually guarantees the continuing, unmolested employment of an understood setting that subjects had taken at the beginning of the experiment, once they were set in their way. This procedure will continue for the duration of an experiment so long as the experimenter can manage to fit the subjects' responses on the data-sheet scorecards that were initially devised -- even if the setting that

subjects take is at odds with the setting that experimenters had single-mindedly designed before the actual onset of the experiment.

But, of course, this cannot happen in a well-designed experiment. That is why we do piloting and sharpen our designs. We foresee all of the possibly ambiguous ways in which the experimental environment can be taken and we control for them and/or eliminate them by a more sharply designed experiment. Any ambiguity or alternative conventional explanation (which, on the one hand, occurs to us and, on the other hand, might spuriously lead to differences between groups) is taken care of by us in our design of the experiment, either by elimination or control. Hence, when two groups that have been manipulated in one way or another show significant behavioral differences in the manner that we have predicted, those significant differences couldn't possibly be caused by anything other than the mechanisms that motivated our hypotheses and predictions. (Of course, we always include manipulation checks). We have eliminated all of the conventional ambiguities that are present in the experimental environment. (And if there still are some unknown quirks, they are randomly distributed across groups and cannot account for the significant between-group differences). We <u>know</u> what the experiment is about. We <u>tell</u> subjects what the experiment is about during the debriefing.

Of course, there is communication of sorts between the subject and the experimenter at the conclusion of the experiment where, if all else has failed, the subjects have finally regained their voices in order to convey their impressions. But, it is an altogether strange sort of "communication." We hear subjects tell us what they imagined the experiment to be about and then we tell them what it was actually about.

And it is all to the better if, on the one hand, the subjects were under the impression that the experiment was about something that is altogether irrelevant and, on the other hand, the grouped responses of subjects produce statistically significant results in line with our predictions. The subjects have been deceived. Their knowledge and/or expectations couldn't possibly account for the behavioral differences that we measured. But do we really hear what the subjects are saying or the imaginative impressions that they are offering during the debriefing? If there is an ambiguity or an alternative conventional setting that would otherwise give shape to the experimental environment, then by our clever designs we have ensured that it is one to which, at the moment when subjects regain their voices, we are deaf. In designing the experiment, we eliminated any alternatives that either would naturally occur to us or whose understanding was easily accessible to us; so that all the alternatives that are left, at the moment, are ones that we are incapable of understanding and/or which are inaccessible to us. So we might note what subjects say in the debriefing; but we take subjects' experimental behavior to signify what they did not necessarily intend. Of course this does not necessarily happen in psychological laboratories at all. The pooled analysis of "different" groups' responses to the "same" words is offered as an account of how this <u>possibly could</u> happen; how the experimenter, by an act of benign coercion, might force a certain shape on subjects' behavior when they meant it and offered it otherwise. If this ever does occur in psychological laboratories, it would be a cruel caricature (and replication) of the benign coercion that happens in segments of our society at large, when people's words and gestures are

"unambiguously" taken to convey a social significance that is totally at odds with what was intended.

Once again, the experimental measures consist of:

1) The within group mean ratings of importance for each of the sub-activities in relation to its larger, encompassing activity.
2) For each group, a chi-square analysis of the within group distribution of ratings for each of the 44 sub-activities (i.e. 11 for each problem and two problems for each group).
3) A chi-square analysis that assesses the pooled distribution of ratings for each of the eight common items that appeared in both versions of either the first or second problem.
4) A chi-square analysis that compares the two distribution of ratings that were engendered by one setting or the other for each of the eight common words.

Also, the subjects' responses to the questionnaires are summarized in order to see, among other things, whether or not each setting was effective enough to engender a within-group consensus about the name of each larger activity; and whether or not there was a common means for mentally representing that activity while they solved the problems.

Results. Table 1 presents, for each group, the mean ratings of importance for each sub-activity in relation to its larger, encompassing activity. It also presents the results of chi-square analyses that assessed each group's distribution of ratings of any one single item. Each significant result would indicate that there is a significant consensus among subjects about the importance of that sub-activity to the

larger activity. It would also indirectly indicate that there is a consensus about the character of the larger, unnamed activity which provided an organizing framework for each of the sub-activities. More direct evidence of the latter consensus would be available in responses to the questionnaire which explicitly asked for the names of these unnamed activities.

Table 1 shows that for Problem A1 (i.e., clerical -- Form A, Problem 1) six of the eleven distributions of ratings were significantly different from chance. That is, there was a significant consensus within the group on the importance of a sub-activity for six sub-activities. For Problem A2 (i.e., football), five of the distributions were significant. For Problem B1 (i.e., fighting), three of the distributions were significant. For Problem B2 (i.e., data processing), five of the distributions were significant. Of course, significant consensus for each of the eleven sub-activities in all four problems would have been preferred. It would have indicated that each problem represented a well-organized larger activity which dictated the importance of its eleven constituent parts. However, the design of the experiment (as was explained earlier) allowed for the possibility that subjects would reach for understandings of the larger activity; and each subject had the "latitude" to reach an understanding that was subtly or widely at variance with the understanding of other subjects. A different understanding of the larger activity would differentially value the importance of its constituted parts. It is instructive, then, to look at the responses in the questionnaires to see whether the same constituent items (within each group) engendered a consensus about the name of the larger activity.

TABLE 1

MEAN RATINGS OF IMPORTANCE FOR EACH SUB-ACTIVITY AND ITS CHI-SQUARE SIGNIFICANCE (EXPERIMENT 1)

Clerical (Problem A1)			Fighting (Problem B1)		
Member	Mean Rating		Member	Mean Rating	
editing	1.86	*	jabbing	3.14	n.s.
stapling	4.79	n.s.	hitting	2.50	*
signing	2.21	*	wrestling	3.43	n.s.
typing	2.64	n.s.	shoving	4.71	n.s.
pinning	5.00	*	pinning	3.36	n.s.
filing	3.43	*	moving	2.50	*
shuffling	4.78	n.s.	shuffling	3.14	n.s.
writing	1.50	*	sneering	4.93	n.s.
boxing	4.21	n.s.	boxing	2.36	*
reading	1.71	*	grabbing	3.50	n.s.
clipping	4.50	n.s.	clipping	4.43	n.s.

Football (Problem A2)			Data Processing (Problem B2)		
Member	Mean Rating		Member	Mean Rating	
punting	3.21	n.s.	coding	3.00	n.s.
kicking	2.86	n.s.	programming	2.57	*
passing	1.71	*	computing	2.36	*
scoring	1.64	*	scoring	2.86	n.s.
tackling	1.64	*	tabulating	2.86	n.s.
running	1.57	*	running	2.21	*
jumping	2.71	n.s.	collecting	2.64	*
blocking	1.57	*	debugging	3.64	n.s.
punching	4.57	n.s.	punching	3.71	n.s.
tripping	5.07	n.s.	sorting	3.36	n.s.
scripting	4.31	n.s.	scripting	3.57	*

For mean ratings 1 = very important; 7 = very unimportant. The chi-square analyzes subjects' distribution of ratings for each item within group independently.

* = $p < .05$; n.s. = not significant

For Group A, there was a tightly-knit consensus about the name of the larger activity represented by the sub-activities in Problem 2; but there was a more loosely-knit (though recognizable) consensus about the larger activity represented in Problem 1. For Problem 2, twelve of the fourteen subjects used the word "football" to name the larger activity. (One subject couldn't remember and the other said "running"). For Problem 2, there was greater variability in the name given to the activity, but the relationship between them is not hard to discern. Some of the names were, "paper writing," "paperwork," "clerical work," "proofing," "newspaper office," "research paper," "term paper," "publishing" and six variants on "writing or putting together a newspaper, book or magazine." Obviously, the listed sub-activities consensually engendered a well-defined sense of the activity. But, that sense might be hard to put into words. And this might have had an effect on the ratings of importance that subjects gave to individual sub-activities. That is, perhaps the greater codifiability of the category name lends greater coherence to the definition of items within that category. This latter possibility should not necessarily be taken to mean that the greater codifiability provides the means for more coherently defined ratings. Just as likely is the possibility that codifiability is indicative or is symptomatic of some thing in the category's form itself, which is also manifested in the more coherently defined ratings of each category's individual items.

The relative difficulty or ease with which subjects could word a name for the larger activity (even as all of them had a sense of that activity) might be evident in subjects' responses to Question B on the questionnaire for Problems 1 and 2. That question asked subjects whether

they had come up with a word naming that activity while solving the problem; or whether they came up with the word while answering the preceding question, but had only worked with an idea of the activity while solving the problem. (See Appendix A or B for the exact wording of this question). The loosely knit character of the group's consensus about the activity in Problem 1 might be reflected in an "ideational" rather than worded grasp of that activity for individual subjects. And the tightly knit group consensus about the activity in Problem 2 might be reflected in the fact that a single word naming that activity springs to mind in individual subjects -- even as they are solving the problem. Here is a complete quotation of one subject's responses to Question B in the order that he wrote them (i.e., first for Problem 1 and then for Problem 2). His responses to Question A were, for Problem 1, "term papers" and, for Problem 2, "football."

> I realized their connection to writing while answering the question, but I did not think of the word until I was asked to.
>
> Came up with word while looking at them.

And here is another subject's responses to that question for each of the two problems. His responses to Question A, were, for Problem 1, "publishing a newspaper, book or magazine" and for Problem 2, "football."

> At first, the larger activity seemed like some sort of secretarial job, but after looking at all of the activities, I figured they were involved with some form of publishing, either a paper, or magazine.
>
> Realized it was football after about the first three or four clues.

The individual difficulty or facility with grasping the larger category might respectively lead to lesser or greater consensus on the rating of items that constitute the category. And so statistical significance might not easily be within reach. But, most (if not all) of

the subjects have a grasp of the category. The quoted answers of subjects are not unrepresentative of the group's responses.

A similar situation occurred with the subjects in Group B (i.e., Problem 1 -- Fighting; Problem 2 -- Data Processing). For Problem 1, there was a tightly-knit consensus about the name of the larger activity. Nine of the subjects named that activity "fighting." There was more loosely-knit consensus about the name for Problem Two's activity. These names include "programming," "computing," "data processing," "computerizing information," "computer and its processes," and "computer programming." There were three offered names that stand out at first glance. They were "grading a test," "secret messages," and "counting election vote." But, it does not take a supreme act of imagination to see that these latter names share a kinship with the former family of names. The names that these latter subjects offered merely indicate that they took the listed sub-activities in a slightly different fashion. And this group's responses to Question B parallel those given by Group A.

A larger point of this exercise is to show how the "same" (graphically given) words contribute to the consolidation of radically different larger activities. "Running," for example, doesn't just take its form from "data processing" or "football;" it also gives greater consolidated form to "data processing" or "football."

Table 2 presents the results of the chi-square analysis where the ratings of the two groups are pooled for each of the eight "common" items (e.g., running) and are then analyzed. Mean ratings for the eight items are also presented. As can be seen, three of these pooled distributions are statistically significant. We know that this is of spurious

significance because we know that there are two groups within this one group. The social constraints of one situation or the other guided the distinctive performances of one group or the other. But, this just goes to show that one can mix apples and oranges and still achieve a statistical significance that would serve as the (mistaken) basis for practical action. But are these apples and oranges statistically distinguishable from each other?

A chi-square compared the distributed ratings of a common word when it was placed in one situation versus another situation. There was a statistically significant difference in the distribution of ratings (as a function of context) in only two of eight cases. "Pinning" plays a more important role in a clerical setting than it does in a fighting setting. And "scripting" plays a more important role in a football setting than it does in a computer setting. There is something about these findings (and their phrasings) that is, at the same time, both significant and misleading. The misleading part in the two sentences that announced the findings consists of the misuse of the word "it." We know very well (as outsiders) that "pinning" refers to two different things in the two contexts. We keep our bearings by keeping that distinction in mind. But, "it" throws us into confusion, since when "pinning" is used to begin the sentence we are led to take it in its clerical setting; but, strictly speaking, "it" as it's used in the second half of the setting should refer back to "pinning" in its fighting setting. However, the well-defined structure of this situation and our well-honed sensibilities for dealing with this labyrinth allow us to draw back and recognize things for what they actually are. This is not so easily manageable outside the laboratory. As the material basis for conventional

TABLE 2

MEAN RATINGS OF "SAME" WORD POOLED FROM DIFFERENT PROBLEMS AND THEIR CHI-SQUARE SIGNIFICANCE (EXPERIMENT 1)

Members	Mean Rating	
pinning (A1) + pinning (B1)	4.18	n.s.
shuffling (A1) + shuffling (B1)	3.96	n.s.
boxing (A1) + boxing (B1)	3.29	n.s.
clipping (A1) + clipping (B1)	4.46	n.s.
scoring (A2) + scoring (B2)	2.25	*
running (A2) + running (B2)	1.89	*
punching (A2) + punching (B2)	4.14	n.s.
scripting (A2) + scripting (B2)	3.93	*

* = $p < .05$; n.s. = not significant

NOTE: parentheses indicate source of word (e.g., 'A1' is from Form A, Problem 1)

import,"pinning" retains its identity as it becomes a nesting place for alternative conventional significances. And this confounded problem is also the case for any material substrate that conveys conventional import. This problem is relatively easy to "solve" when the material you are dealing with is the underpinning of words and when there are many other "words" around which altogether "unambiguously" point to a particular setting. The problem is more difficult to "solve" when you are dealing with objects, which, unlike words, announce themselves as "things to be understood" rather than as "things to be understood for their meaning;" and to begin to solve it one must realize there is a problem. In any one conventional world, when you refer to "this" then you are referring to a materialized social object and not to its material underpinnings. And, on the other hand, when you point to "this," qua material underpinning, you are pointing to something (or some cloud) that has the capacity to spring into one coherent social existence or another as a function of one "surrounding" setting or another. These difficulties are highlighted in the next experiment where the common items are "pictured" rather than worded.

The significant aspect of the latter statistical analysis concerns what was actually accomplished in that analysis once we get past the confusing aspects of "its" (or their) material underpinnings. We found a statistical means for making visible the fact that by consensus "pinning" is more important for clerical activity than "pinning" is important for fighting activity. This is like saying that (perhaps) by consensus knowing how to shoot a gun is more important for fighting a war than knowing how to make coffee for the boss is important for doing secretarial work. Regardless of which is more valuable in relation to

its encompassing activity, there is a difference in value. A mathematical procedure that could verify the fact of such difference could be of use when all the terms of reference in the outside world are confounded and systematically take on one meaning or another as a function of one context or another. That is, it would aid in the verification for members of each context that there was indeed another context. Given that each accepted the coherence of mathematics' language, it would help each orient toward the thing-ness of the other.

Discussion. This experiment seeks to demonstrate certain features of the manner in which social perception is accomplished since they are otherwise not so readily accessible. They are otherwise not so readily available because, as social creatures, we humans are always acting in context. But, the structured ambiguities of this experimental design afford the possibility for locating some of those certain features that are otherwise difficult to speak about.

In the experiment, when "running," "scoring" and "punching" were preceded by "punting," then all those words took on a coherent, particular social significance. When those words were preceded by "coding," then all and each of those words took on an other coherent, particular social significance. And yet we recognize that the graphic presentations (i.e., the material underpinnings) of "running," "scoring" and "punching" are identical regardless of which system of significance is deployed. And we can accept the fact that, together, each of the trio becomes one socially significant thing or another depending upon the social setting that is deployed. There should not be anything surprising about these facts, nor anything controversial about them. Consider this

trio of items alone. Context plays a crucial role in managing the way this trio acts in unison. What is context? I don't know what 'it' is, but traces of its presence can be seen in the way that individual items within it are treated. If I ask you "what does 'running' mean" and you answer "it means self-propulsion with your feet," I understand that a football context reigns. Where is context? I don't know where it is. When I pull apart each thing in the context to see what they're made of, I find no trace of it; and when I take all torn-apart things away, I still see no trace of context. So I won't try to say what context is or where context is. Rather, I will try to talk about how its presence can be felt and its influence can be seen.

Given the emplaced context of football, then running, scoring and punching have taken on a certain conventional significance. And now that I have found out, from my friend's response to my query about "running," that a football context is in place, then it is true when I say that "scoring" means "crossing the goal line" and it is false when I say that "scoring" means "filling in the data sheet" -- given that conditions have remained the same throughout this episode. Given that conditions remain the same, each of this trio of objects are united in their conformity to that context. And yet within that union, each item has its own socially-shaped significance. Within the context of football, scoring does not mean the same thing as running. Each item has its own peculiar significance, even as all of them are obedient to a single context. That context manifests its presence in different ways when it descends upon different parts of the materially available world. When the context of football descends upon the graphically given "scoring," "running" and "punching," then the socially-significant items of scoring, running and

punching emerge into existence. Hence, as elements of football's conventional world, the presence of scoring, running and punching can each be regarded as signifying the conjoint presence of some segment of the natural world that serves as a material underpinning and of some "thing" that the context of football has injected. My primary concern is not with the overhanging context or the underlying material. Rather, I am concerned with the conventional world that emerges through their conjoint presence. In that "relative" world, the possibility does exist for telling a truth or telling a falsehood. Those possibilities are provided for when, e.g., each of the trio of words remains in conformity to their context. This sets up an internal symmetry among them that can be sustained or violated. As was said before, that conformity does not mean that they are all the same thing. Each conveys a distinctive significance. Scoring does not mean punching. And yet one could say that by all being in conformity to context, they each retain an attachment to all the others. They retain their attachments to each other by all being united in context. "Scoring" (as a graphic presentation) is not attached to "running" (as a graphic presentation). Scoring (as a conventional item in the world of computers) is not attached to running (as a conventional item in the world of football). Scoring displays an attachment to running when both are "of" the context of football. They exhibit their affinities <u>by virtue</u> of their conventional existence; and it is in their conventional status, constituted by context, that the move can be made to establish them as elements of a coherent whole.

Let us take any one of these conventional items of the football world. Scoring. Each of its letters, s-c-o-r-i-n-g, contributes to

constitution of the word. But, it is wrong-headed to say that each of the seven letters contributes one-seventh of its total conventional significance. The significance of "scoring" is obtained by the arrangement of things around it, by the constraints that they provide and by the context that is indirectly present in each and every thing. One can say that the meaning of "scoring" is not obtained by what it is made up of. Rather, the meaning of "scoring" is obtained by what it is a part of. It obtains its meaning through participation in a larger coherence, which in its most abstract sense might be called context. But, once "scoring" has obtained its conventional meaning, we can say that all of the constituent letters of scoring (i.e., s-c-o-r-i-n-g) participate in reciprocal relations to constitute just <u>that</u> particular convention; and they do not participate in constituting the 'scoring' that lives in the world of computers. Even though it is graphically identical to its counterpart in the computer world, the 's' that contributes to scoring (in the football world) takes social shape in a different way. It is the limb of a conventional creature of the football world, not of the computer world. This 's' is not identical with the 's' that helps constitute "scoring" of the computer world, in just the same way that the word "scoring" which is a conventional artifact of football is not identical with the word "scoring" which is a conventional artifact of computers. There is a difference between "scoring" and "scoring." They are conventional worlds apart. I don't know if these differences are physically describable (perhaps, within some conventional world). But, they are differences which humans are responsive to. (An episode that occurred in the piloting of this experiment's instruments might provide anecdotal evidence for this. When naive friends were shown both versions

of one problem and then the problem sheets were taken away, they disbelieved my assertion that there were several words in common on both sheets. And within the conventional worlds they inhabited at one time or another, perhaps they were right. There is a difference between "scoring" and "scoring." I don't know if these differences are physically describable, but they are differences that humans are responsive to). And the same goes for c, o, r, i, n, and g. And although, within the football world of 'scoring,' each letter has a different shape, all of those letters are united in their participation toward the constitution of the football word of scoring. Each letter, in its own way, lends itself to "scoring," but all, in their own ways, are commonly oriented to football. This commonality that is distinctively manifested in the disparate letters is radically at odds with the way that each of the letters, in its own way, all together lend themselves to the "scoring" of the computer world. Hence, a rough analogy might be drawn between the relation that exists, within a stable conventional world, among the context football and the words scoring, running, and punching; and the relation that exists among the word scoring and the letters s, c, o, r, i, n, and g. The latter portion of each relation is a limb of the former part and, of course, each former part is constituted wholly of limbs. And, the 's' of scoring takes its social significance from the football context, even as the word "scoring" mediates that relation between 's' and football. It is a coherence that echoes at different levels, so long as the correct connection is recast between limb and its whole. 'S' is not a limb of football in the way that it is a limb of scoring. Given a stabilized context, no matter how far "up" (e.g., the string of words or larger units for organization) or "down"

(e.g., the string of letters or smaller units of organization) one goes, on any one level within that materialized conventional world, that echo resounds.

And yet, if one of those limbs is dismembered from its arranged context and it is presented to observers independent of its encompassing configuration, it presents itself to those observers as a naked letter rather than as part of a socially significant word. Its quality as a part is invisible. The letter has lost its membership and no inclination towards any social coherence (on the level we have been speaking of) is evident. In that case, however, the conditions that had been earlier held constant have changed and that conventional world of football has dissolved. But, we want to examine the properties of that arrangement while conditions remain the same, when the context is firmly emplaced. Under those circumstances, each element is recognized for its quality as a part; and, within that conventional world, there is harmony that issues from the concerted presence of all the limbs, through their common inclination to a larger social coherence. The human is responsive to that conventionally-given character of each limb. Though each element might manifest that common inclination distinctively (e.g., 'scoring' is different from 'running' and 's' is different from 'c'), all the elements are under the sway of the emplaced context (e.g., of football). And all those elements would commonly incline otherwise and harmoniously sway otherwise, if this emplaced context (e.g., of football) dissolved and another context (e.g., of computers) took its place. While any one context is in place, a particular conventional world is set up and all of its items are seen as parts, making contributions to something. Through the fact of this particular conventional world and the characteristic

socially-significant shape that it gives to its parts, these parts can truly be attached to each other. The inclination of each limb is guided by the direction of that context. Each is trained on and takes shape from the context; and, by way of context, they are attached to each other. In conjunction, the harmony among them indicates their attachment. Within the habitat of any one conventional world, they are appropriate to each other. The common denominator that marks this appropriateness is the conventional world to which they all contribute.

Hence, when a context is invoked and a conventional world is emplaced, the effects of that emplacement are simultaneously available throughout the spatially-extended confines of that conventional world. That is, the moment in which the word "scoring" acquires its character as a part of the conventional world of football is the same moment in which the "running" acquires its character as a part of the conventional world of football. Once a particular context is invoked all elements of that world acquire their definition at once. The human's eyes might not fall on some segment of that spatially-extended world until some time after context is invoked. But, at the moment in which "running" acquires its football character, in some sense it becomes decidedly true that "scoring" indicates "crossing the goal line" and false that scoring indicates "filling in the data sheet" -- regardless of human activity. The former indication is true to the context initially invoked by "running" and the latter indication is false to that context.

How is the presence of a context invoked and a particular conventional world emplaced? How it is done may be a mystery. But, when a particular object is referred to in its conventionally significant guise, it is already done. By pointing at an object of particular

conventional significance, one indirectly points at the presence of a particular context that gave shape to this object; and that in turn gives shape to the rest of that conventional world's spatially-extended confines. By the same token, when pointing at a particular conventional object, one only points indirectly at the material underpinnings of that object. Within a conventional world, each and all objects signify the conjointed presence of material and context. Within a conventional world, the human is pointing at that conjointed presence which is present in any one object. Given a conventional world and the correct apprehension of any one shaped object, the means exist for working out the social significance of the rest of that spatially-extended conventional world. "Punting" indicates indirectly the presence of a football context which in turn has given shape to "scoring," "running," and "punching." It indirectly indicates the true meaning of that trio, within this conventional world. It may take time to traverse that world in order to examine and investigate its parts; but all those parts immediately and simultaneously take on definition once context is indirectly invoked through the socially-significant naming of any one of those parts. And once any object is correctly named, the means exist for correctly apprehending the rest of that world.

Hence, the naming of the first object acquires a dual function. It invokes a context and it provides a means for grasping the rest of its spatially-extended conventional world. Consider the sole presence of the three words, "scoring," "running," and "punching" in their status as material underpinnings. At least two contexts lie fallow (e.g., football and computers) and each is capable of coherently encompassing the entire materially-available world. The act of grasping "scoring" as a matter of

crossing the goal line both invokes a certain context with its conventional world and provides the means for attaining those other objects' true significance as football items. Those objects acquired their true significance by virtue of the act's invocative features. Of course, one could then come across another "item" that does not easily lend itself to the invoked coherence. One might then step back and entertain the possibility that another context should be invoked. Or, that possibility might escape one and, instead, one single-mindedly struggles to fit the "difficult" item into the deployed context. This might occur if the word "scripting" occurs along with the other three items.

This did occur when "scripting" did occur below the other ten items in one of the problems. By that point, the possibility of a radically different context, that would coherently give significance to all eleven materially-given items, was too far out of reach. It should be noted, however, that the struggle for the social significance of "scripting" must have subtly altered the "given" context that gave shape to all the other items. After this struggle of learning, the sensible sighting of "scripting" had the effect of displaying an alteration in the overhanging context. The selfsame activity of struggle with <u>this</u> object, which directly accomplished the subsequent loss of bewilderment with regard to this object's social significance, also indirectly accomplished an alteration of the <u>context's</u> form. This occurred despite the fact (or because of the fact) that the subject's attention was wholly directed at the object "scripting." Given that altered overhanging, the presence of the material underpinning of "scripting" now makes routine sense within football's conventional world in a way that it did not make routine sense

before the alteration of the context's form. Once "scripting" was included in the family of items, the contextual light shed on any one of the other items was also different from the light that was shed before the incorporation of "scripting" as a legitimate football term. The import of this analysis might be more clearly conveyed by envisioning the process through which a novice football fan sensibly incorporates a heretofore unfamiliar item that is actually a legitimate part of football's lexicon (e.g., spearing). Of course one does not require the sight of an "inappropriate" item in order to act out the aforementioned possibility of switching from context to context. In the initial example where only the trio of items were materially available, one could regard "scoring" in its football guise and then a moment later regard "punching" in its computer guise. But, then, conventional conditions would not have remained the same and one would not have remained true to the originally invoked context. And we are concerned here with exploring the properties of an emplaced conventional world, given that conditions remain the same.

Perhaps this exploration of these properties was overwrought and speciously ornate, since the facts about these three words, when they are surrounded by one set of words or another, are uncontroversial and unremarkably plain. The lexical items "scoring," "running" and "punching" mean one thing when they are preceded by one set of words and they mean another thing when preceded by another set of words. There is a sense in which we can see that they are all attached within and through one context; and in which we can say that a lexical item truly means one thing or another. Within a stable context, there is an arrangement where all of the materialized social parts are in harmony by virtue of their common conformity; and each "part" (e.g., scoring) has its limbs (e.g.,

s, c, o, r, i, n and g) which, in their harmony, are guided by and recapitulate the harmony of the larger units. Within a stable conventional world, that coherent arrangement is there all at once even though it might take time to traverse that spatially-extended world. The experiment presents a "cute" and not necessarily prevalent situation in which three distinct items all together systematically mean one thing or another depending on their surroundings (perhaps like the Necker cube). They take their meaning (or, perhaps, lend themselves to a certain coherence) as a result of the socially-coherent significance of their surroundings. And all of this we can unremarkably say about a circumscribed set of lexical items that is essentially inert. These items need not be more than inert in order to display these properties of arrangement. So what? So if we can say this much, we can say a little bit more.

As just another inert item within an emplaced conventional world, there is no reason to exclude the human from this arrangement. And it, too, is subject to all of the considerations hitherto outlined. The conventional human, too, takes shape within an emplaced context. That human indicates the conjointed presence of material underpinning and contextual overhanging. It, too, retains attachments to the other conventional objects through their common conformity to a single context. Of course, within the emplaced context, the human takes a different shape from other objects in that context. But, this is no more remarkable than the fact that "scoring" is different from "running," even as both conform to a particular context. Given a football context, the human takes on one posture and, given a computer context, the human takes on another posture. These different postures might not represent a

difference that is physically describable, but it is a difference that humans are responsive to. If and when the two postures are placed side by side, the difference is felt. As a unit, the human gains its meaning by how it fits into the larger, encompassing arrangement -- in an effort that is after coherence. And all of its limbs are under the harmonious sway of emplaced context as each, in common with the others, contributes to the constitution of a human unit that has a definite character within the emplaced conventional world. We can call that character the particular role or attitude or identity that the contextualized situation confers on the human. There is no need to provide the bodily details of these distinctive postures, even though they are taken into serious consideration, since they can systematically and exhaustively be captured under the heading that names the context and/or the attitude. And those effects are not just in the brain. They suffuse the whole body. The visceral, muscular aspects of the singularly, coherently organized body parts, within any one conventional world, might be more evident in comparing the human's state within two superficially similar sports activities (e.g., being a quarterback and being a pitcher) or in comparing two more "intellectual" activities (e.g., playing the piano and playing the harpsichord). In one circumscribed context or another, one part of the human body (e.g., the arm) or another (e.g., the hand) might more evidently display the distinctive organization that the whole body takes on when the human is totally given form. But that distinctive organization exerts its presence in all of the body's parts. Those differences are equally there, when (in this experiment) subjects found themselves in a football context or a computer context. Those differences are written large in the different appearances of "scoring,"

"running," and "punching" in the experimental materials and in the differential responsiveness to those appearances that subjects displayed. Within a rigorously stable conventional world, the context totally gives conventional shape to all of its parts; and the systematic character of activity throughout that conventional world is the result of each and every part's conformity to the reigning context through which they remain attached to each other. Within two distinctive circumscribing circumstances, the subject's exposure to the word "scoring" might engender the same image on the subject's retina (and by "same" we mean 'thus far physically indistinguishable' in the way that the two words "scoring" are physically indistinguishable). And the two exposures might engender the same circumstances in the optic nerve and in the brain's motions. But, the differences between the two "same" firings in the brain (where one is experienced as "crossing the goal line" and the other is experienced as "filling in the data sheets") are just as evident as the differences on paper between "running" and "running" when it is circumscribed by one set of circumstances or another. Once the context is emplaced and the human is on the inside of that conventional world (e.g., by the fixing of "punching" in a particular way), the different social existence between "running" and "running" on the page of paper should be just as remarkable or unremarkable as the different social experiences of "scoring" and "scoring." And vice versa. Whether speaking of social existence in the "external world" or social experience in the "internal world," the social differences that are engendered by the "same" natural, material underpinnings are equally remarkable and equally mysterious. Once context is in place, we are examining the relations among a set of conventional objects each of which displays its

legitimate integrity as the conjointed presence of material and context. With a conventional world in place, to speak of a thing is not just to speak of its conceptual meaning within an ideal system of significance, indirectly pointing out the overhanging context by directly naming the socially-significant object. To speak of a thing in the world is to speak just as much (and just as indirectly) of the material underpinnings of that thing. What is actually and directly spoken of is the thing that is the union of material and context. And to speak of the attitude that persons have during the practically-oriented stream of life within that everyday world, should be to speak just as much about both the postured, bodily features and the conventional significance which together constitute persons in their orientation to the rest of the world. Within that conventional world, which was set up in this experiment (e.g., when the context of football was invoked), the attachment between "subject" (who is already oriented to be a reader of football words) and "scoring" is as easily understandable as the attachment between "scoring" and "running." There is no need for extra "processing" in the brain as these conventional objects lawfully intermingle with each other on the bridge of conventionalized nature. There is a pre-established harmony among all of these parts that is vouched for by the integrity of context. They all speak the same language and they each hold the key to all others' organization within their own conventional orderliness. Once the context is invoked, all elements of that conventional world have simultaneously taken on a particular organization that conforms to context -- even though it might take time to traverse that conventional world's spatial extent. The emergence of one social object raises into existence all other objects of that conventional world. Perhaps, this will be clearer

in the next two experiments where the "ambiguous" objects are pictured items rather than worded items.

All of this analysis treats the socialized human as just another inert item in a conventional world whose definition is totally given by context and whose parts are united by that context. This human has no special status as an outsider attempts to keep track of the regularities that are exhibited within a conventional world. This analysis portrays the features of that world once context is in place and the human finds itself in context. It only secondarily focused on how context is put in place. This text is concerned with how social perception is possible since the mechanisms of natural perception cannot bridge the chasm between, e.g., the events that take place on the baseball field in their conventional guise and the fans in the stands who experience the profusion of conventional significance. It may seem like question-begging to attempt an answer to that question by asserting that the postured fans are a part of the entire coherent scene that is united in its conformity to context. But, in the meantime, this angle of view on the conventional world allows for certain fruitful distinctions and for a more satisfying appreciation of certain features of social life.

First, it bridges the chasm between "object" and "observer," by demonstrating how both can simultaneously take shape when a context is invoked. Secondly, both are united through the route of context. The inescapable attachments of the "observers" with the rest of a conventional world become more understandable once it is grasped that this conventional world is readily available to the "observers" within it because of the conventional shape that they have already taken. That shape is in conformity with the overarching context that gives form to

each and every item within its conventional world. That shaped "observer" (i.e., that conventional identity) is the person's stake in the reality of this conventional world. It is in that shape and through that shape and by that shape that these attachments are sustained. Those attachments take on even greater significance when, from this perspective, it is realized that, thirdly, in speaking of a conventionally-organized observer, we are speaking of one who is wholly organized -- "body" and "mind." Each "part" or limb of that observer is organized with reference to the unit of human which is itself a member of a larger coherence; and, so, each limb of that human in its conventional situation is a unity which shows traces of "body" and "mind." This highlights the potency of assuming a role, attitude or conventional identity. By having assumed an identity, one has invoked the presence of an entire conventional world. And the coherence of all parts of this conventional world (including the observer) has emotional significance as well as conceptual significance. Hence, fourth, the satisfying quality of found coherence (which within the conventional world has the character of truth) is as emotionally rooted as it is conceptually rooted. Truth, in this world at large, amounts to the co-incidental satisfaction of both "coherence" criteria and "correspondence" criteria. Certain facts about a conventional world are true by virtue of the shape of that conventional observer. The attachments to truth run deep because the verification of the truth of those "external," conventional facts amounts to a verification of the authenticity of that conventional observer who remains true to that world. Fifth, this perspective makes more sensible the utter emotional and conceptual violation that humans feel when elements of their conventional world are treated "wrongly" (from their

perspective). Indirectly (that is to say, through the route of context) it is an assault on their own cultivated, conventional identity which they have learned that they cannot live without. Within a stabilized conventional world, "relative" truth is not relative a all. Sixth, it makes more visible the elements of socialization, whereby, in witnessing a conventionally articulate scene, persons gradually lose their bewilderment. As becoming members of a group they become acclimated to the social significance of the environment. Concommitant with a gradual understanding of the social scene is an accumulation of conventional identity that is coherently a part of that scene, complete with "bodily" postured expression. It is not something that is easy to go back on and it is not something that can easily be abandoned, even when there are "good reasons" for abandoning it. Hence, on the one hand, there is attachment by members to social truth that is available within the group, which has been cultivated over the years; and, on the other hand, there is difficulty for members in detaching themselves from those truths. This amounts to detaching a part of themselves from themselves. This task is made all the more difficult when there isn't another already-fashioned context to take its place, in the vacuum that was left by the departure of the cultivated context. Seventh, this perspective serves as a basis for distinguishing between two sorts of "bias": that which springs from a member's systematic "error" (intentional or not) within the coherent framework of a single particular context that is shared by the member engaging in "bias" and the member making the charge; and that which springs from a member's systematic adherence (intentional or not) to a context which is foreign to the context and conventional world that is available to an outsider who is making this charge. (This

will be examined in greater detail in the discussion of the second experiment). Eighth, this perspective can serve as the basis for distinguishing between two sorts of cognitive "activity," one of which would be better called "conceptual inertia." When persons recognize, e.g., "scoring" as an element of football and then turn their eyes to "running," recognizing its football features, this is an effect of the context that has firmly remained unchanged in place. It is to be distinguished from the sort of conceptual activity that occurs when, after recognizing the football "scoring," one recognizes the computer "running." In the former case, context remains inert when, through "cognitive activity," "running" is recognized for its football features. The activity that accomplished the recognition of "running" relied on things remaining conceptually in place. In the latter case, context undergoes active alteration when, through "cognitive activity," "running" is recognized for its computer features. This latter activity that accomplished the recognition of running relied on things becoming conceptually active. (This will be examined in greater detail in the discussion of the third experiment).

Finally, this perspective gives us a firmer grasp of what is at issue in conceptual stability and conceptual change. In the practically-oriented stream of everyday life, the attention of humans (through the use of their resources as group members) is trained on social objects not contexts. The contexts are indirectly made present by the way in which objects (including observers) are grasped. Conceptual inertia goes hand in hand with conceptual stability. But, when the appreciation of any one object is altered by experience with that object, that alteration has its effect on the context which under normal

circumstances gives shape to objects. Turn about is fair play. The background context is altered by experience with the object; and this in turn lends more articulate shape to all the other social objects that inhabit this conventional world. Does this scheme buy any more than the schemes that Bartlett disparaged? I hope it does. I think it does. In any case, it makes more understandable the emotional significance that a particular conventional world has in store for observers who take the conventional perspective that is coherent with that world.

VI - EXPERIMENT 2

Introduction. Among other things, the previous experiment sought to demonstrate how the same gesture can both directly name the object in a conventional world and indirectly name the context of that conventional world. In the practically-oriented stream of everyday life, the person struggles to manage with things in the world. As such, the person's attention is trained on certain objects while the context's definition is taken care of indirectly and by the way. Naming objects or recognizing them for their conventional significance fixes this context and the conventional world, while it shears away alternative contexts and their conventional worlds. The conventional identity of the person is just another one of the things that are given form when context is indirectly invoked (by the direct naming of an object) and the entire conventional world is given form. The importance of the act that names the first object was highlighted, insofar as it both invoked the presence of context and provided the means for identifying the other social objects in that world. It follows that all subsequent namings or recognitions, within context, serve to reiterate the character of that context and to strengthen the bonds among all objects that are given form by that context. The first object named could be the human "observer" who would accomplish this by assuming a conventional identity. Or, the first object named could be a "thing" in the environment which seems to invite itself to be seen in a certain conventional way thereby inviting the observer to be in a certain conventional way. In either case, the upshot

of this is that conventional observers constantly find themselves in the middle of a conventional world. If we leave aside an examination of the process by which humans assume a conventional identity or how humans switch from one coherent identity to another, then from a distanced perspective, the daily life of any one human can take on the appearance of a series of discontinuities. In a series of discrete moments, the human is conventionally located in one social space or another.

This situation offers both an opportunity and an obstacle. This situation offers observers the opportunity to obtain a reading of the character of their conventional identity by reading off the conventional character of the objects that populate the world with them. (In the previous experiment, for example, recognizing "scoring" for its football features indicates the presence of an observer whose conventional identity is one of a "person who is ready for the football lexicon"). Hence, any gesture that takes place in context (i.e., that relies on the conventional coherence of the available world) is also indirectly a gesture of self-reference and self-affirmation. But, there is an obstacle that stands in the way of this opportunity for information about one's self. The informativeness of this described world is diminished by the lack of concurrent access to another conventional world (inhabiting these same materially given precincts). If both descriptions or experiences could, in one moment, be placed side by side, then this might indicate the way-wardness of a particular conventional way of seeing things. Otherwise, what you see is what you see. That gives you no direction in understanding the character of the conventional identity that has been adopted. If you could grasp how things could be experienced otherwise, you could appreciate the dimensions of the

"choice" that was made when a certain conventional identity was adopted. But, living within any one conventional world inhibits that activity which amounts to an experienced appreciation of another conventional world. The very act of reading the signs of this world hems one into its conventions and seals one off from other conventions.

In this sense, the ready-made character that the conventional world has for its observer-inhabitants resembles the ready-made character that the experiemtnal stimuli of Rosch (i.e., categories and their members) had for is observer-subjects. They don't find themselves making certain larger choices. Rather, they are witness to and operate in a world that shows the aftereffects of choice. In these situations, the fullest exercise of choice is only possible when two contexts and/or conventional identities are equally accessible for deployment before the onset of conventional action. And the fullest measure of responsibility for those actions (whether credit or blame) is only attributable under these circumstances. It is only under such circumstances that one can entertain the research questions "How come these subjects chose this context through which to give shape to the experimental stimuli." Or, how come these persons chose to live their life through this context and in this way? Otherwise, one is observing, in those actions, a facsimile of choice within the confines of a set or context. Those people are being led on by the inescapably featured form of their conventional world. So, any project which seeks to investigate how subjects or persons choose one context as they are faced with the prospect of action must first delineate whether one context or many contexts are easily accessible to the actor; and how the character of action that follows

from "choice" is distinguishably different when it occurs under one circumstance or the other.

These considerations have relevance for a society in which accusations of bias and prejudice are prevalent. Subjects could choose blindly, as they operate in experiments. Persons could choose blindly, as they live out their lives within a conventional world. But when, within one society, there are many groups each of which has members (with conventional identities) whose lives overlap with the lives of members in other groups; and when those lives come into systematic conflict so that charges of bias and prejudice fill the air, it becomes important to illustrate the conditions for that conflict and, therefore, the required action that is necessary to resolve it. Are those conflicting groups inhabiting the same context or do they each live in different conventional worlds? If the former is the case, then there is a common set of criteria whose mark is systematically being missed by members of one "group" or the other. But, those errors are not a reason for revision of the context or the conventional identity of members. All members of both "groups" are blindly choosing to live in the same way. But, if the latter is the case and each group is living in its own conventional world, then the situation is much more serious; and the requirements for resolving these issues are more elaborate. The resolution of these issues requires that one find a way to bridge the chasm that separates two contexts or two sealed conventional worlds. How does one do this? One can make a start on this by realizing that one is dealing with the latter case and not the former case. This helps in an otherwise futile situation. It also helps if one recognizes the added

difficulties that stand in the way of resolving this situation and the added requirements for that resolution.

For example, if this case holds for the problems of racism and sexism in our society, then it will not do for a white man to declare with the best of intentions, "I am not a racist" or "I am not a sexist." He is using his resources as member of the white and male group to give form to those words. Those phrases signify other things to other groups. The material underpinnings of those phrases are as liable to be ambiguous as the words "scoring," "running" and "punching." The groups might purport to speak the same language, with each understanding the other's claims. Yet, each acts in conformity with a different context that distinguishably gives shape and expression to the "same" materially-available world, including language's underpinnings. The previous experiment demonstrated how this could happen with words. The next experiment demonstrates how this can happen with pictured items. It also attempts to demonstrate how, under some circumstances unlike those in the previous experiment, language can help serve to redirect the actions of different groups that would otherwise pass blindly by each other.

Wittingly or not, the demand to abandon racism and sexism is, in part, a demand to abandon a portion of one's conventional identity. Some whites and men don't realize this and so they can easily say "I am not a racist" or "I am not a sexist." Other whites and men do realize this, in a sense, and so they do resist attempts to alleviate discrimination. After all, they are attached to themselves. Other whites and men do realize this, in a sense, and so they attempt the difficult process of altering themselves. But the enormity of the task that attempts to

eliminate racism and sexism is staggering. Who knows what a world looks like in which this blight does not appear and how a human should or could act with indifference to sex or race, in self or other? Blacks and women also bear the mark of living in a world that has never been free of sexism and racism. Now, however, at least we aspire to that world. What is the character of that context that would thus differently give form to the world? Surely, it is not necessary to stumble from object to object, refashioning each one as we are held to the principles in our words, thereby only indirectly working in a piecemeal fashion towards a refashioned context. Obviously, a new context must be forged. It would help if social scientists had an articulate grasp on the abstract character of this enterprise and the manner in which it would be deployed in dealing with the situated problems of this society.

Materials, Procedure and Measures. This experiment follows the same general procedure as Experiment 1 with some adjustments. Each of four groups of 14 subjects received two problems to solve. For all groups, each problem consisted of a list of 11 objects which are members of a category. As was the case in the original Rosch procedures, subjects were asked to judge how good an example of the category that object is on a scale from one (very good fit) to seven (very poor fit). Again, subjects were not to be told what the category is. Rather, they had to look at examples of the category, assess what the category was, and then rate each object as a good or bad example of the category. Subjects were college students at a Northeastern university. Twelve of the subjects in each group were tested, en masse, in a classroom setting. Two subjects in each group were tested individually so as to allow for extensive

debriefing and feedback. There were an approximately equal number of men and women in each group.

For Group C (Appendix C) and Group D (Appendix D), the objects were presented in picture form rather than the word form presentation of the first experiment. For Problem 1, there were five pictured objects than can be "seen" in one of two ways (tweezers/pliers; shaver/pick axe; pick comb/paint brush; scissors/scissors; aerosol can/aerosol can). Other items in each list "led" subjects to believe they were either looking at bathroom items (Form C) or carpentry tools (Form D). For Problem 2, there were also five items that can be "seen" in one of two ways (pitchfork/fork; shovel/spoon; watering can/measuring cup; bucket/bucket; stool/stool). Other items in the list "led" subjects to believe they were either looking at farming tools (Form C) or kitchen items (Form D). Each group received only one type of tool (i.e., carpentry or farming) and one type of functionally defined situation (i.e., bathroom or kitchen). The questionnaires that subjects answered after completing the rating procedure were basically the same as the questionnaires in Experiment 1 (as can be noted in Appendices C and D). Before debriefing began, the problem sheets were returned to subjects and they were asked to write the name of the object next to its pictured representation. Thse subjects' responses were analyzed in Experiment 2 as they were analyzed in Experiment 1.

Group E (Appendix E) and Group F (Appendix F) were added as sorts of control groups. Each of these groups was paired with one of the groups that received the pictured items. However, these groups received the same problems as worded (rather than pictured) representations of the items, on the basis of which they made judgments. Their ratings on items

were statistically compared (using chi-square analysis) with their cohorts' ratings on those same items to see whether there is any difference of rating based on medium of representation (lexically or pictorially). No differences were expected on this item by item comparison. But this "control" procedure is meant to be suggestive of another way in which "invisible" differences among members of the "same pool" of subjects can be made visible. That is, there is obviously no ambiguity for the subjects who receive worded problems (i.e., they can tell the difference between worded "tweezers" and "pliers") in the way that there might be ambiguity for subjects who received pictured problems (i.e. can they tell the difference between pictured "pliers" and "tweezers," if in fact they can tell that there is even a problem). It suggests that when one medium of representation fails to distinguish between two same groups, another medium of representation might make those differences visible. That is, the chi-square analysis, as a mathematical means of representation, may fail to distinguish between the sights of "tweezers" and "pliers," or the statistician who analyzes these data might fail to realize the significance of the "bi-modal distribution" that these data yielded. But, then a verbal medium of representation might make those differences unavoidably clear.

Hence, the analyses performed include:

1) The mean ratings of goodness of fit for each of 22 items (eleven for each problem) for each of four groups.
2) A chi-square analysis assessing the distribution of each of those ratings.
3) A chi-square analysis that analyzes the pooled distribution of ratings for each of the ten pictured common items (e.g.,

pliers/tweezers). This pooled distribution combined the responses of Groups C and D for "items" that appeared in both versions of either the first or second problem. Again, this is just to demonstrate how spurious statistical significance can be achieved by an experimenter who is blind to the social differences in "materially-identical" experimental stimuli.

4) A chi-square analysis that compares the two distributions of ratings for each of the ten common pictured items, that were engendered by one setting or the other.

5) A chi-square analysis that compares the distributions of each item (N=44) when it is pictured versus when it is worded. Hence, this between groups analysis is within context but across medium of representation. That difference in medium of representation is not expected to yield any significant differences.

Also, the subjects' responses to the questionnaires are summarized in order too see, among other things, whether or not each setting was effective enough to engender a within group consensus about the name of each unnamed larger category; and whether or not there was a common means for mentally representing that larger activity while those problems were solved.

Results. Table 3 presents, for each group, the mean ratings for goodness of fit for each pictured item in relation to its encompassing category. It also presents the results of chi-square analyses that assessed the distribution of each group's ratings for each pictured item. Each significant result would indicate that there is a significant consensus

among subjects about the goodness of fit for that pictured object to its category. It would also indirectly indicate that there is a consensus about the character of the unnamed category which provided an organizing framework for the member-objects. More direct evidence of the latter consensus would be available in responses to the questionnaire which explicitly asked for the names of those unnamed categories.

Table 3 shows that for Problem C1 (i.e., bathroom -- Form C, Problem 1) five of the eleven distributions of ratings were significantly different. For Problem C2 (i.e., farming tools), seven of the distributions were significant. For Problem D (i.e., carpentry tools), six of the distributions were significant. Of course, again, a significant consensus for each of the eleven objects in all four problems would have been preferred. It would have indicated that (probably) each problem represented a well-organized category which dictated the goodness of fit for its eleven object members. However, the design of the experiment allowed for the possibility that subjects would reach for understandings of the category; and each subject had the "latitude" to reach for a "context" that was subtly or widely at variance with the contexts that other subjects indirectly indicated by their direct ratings. A different context (or category name) would differentially value the goodness of fit of its member-objects. It is instructive, then, to look at the responses in the questionnaires to see whether the same pictured member-objects (within each group) engendered a consensus about the name of that context-category.

For Group C, there was a relatively well-knit consensus for both Problem 1 (i.e., bathroom items) and Problem 2 (farming tools). However, reflecting the fact that there was a functional organization to the

TABLE 3

MEAN RATINGS OF EACH PICTURED OBJECT AND
ITS CHI-SQUARE SIGNIFICANCE (EXPERIMENT 2)

Bathroom (Problem C1)

Member	Mean Rating	
toothbrush	1.43	*
Q-tips	3.00	n.s.
toothpaste	1.79	*
razor blade	1.86	*
brush	2.93	n.s.
comb	2.57	n.s.
tweezers	3.57	n.s.
razor	6.21	*
scissors	3.64	*
pick comb	4.93	n.s.
aerosol can	3.14	n.s.

Carpentry Tools (Problem D1)

Member	Mean Rating	
hammer	1.29	*
saw	1.50	*
wrench	2.00	*
screwdriver	1.86	*
nut and bolt	4.79	n.s.
hand drill	2.21	*
pliers	3.29	n.s.
pickaxe	3.93	n.s.
scissors	3.50	n.s.
paint brush	4.86	n.s.
aerosol can	6.57	*

Farming Tools (Problem C2)

Member	Mean Rating	
wheelbarrow	2.00	*
axe	2.07	*
hoe	2.07	*
rake	1.57	*
ladder	3.14	*
scythe	2.50	n.s.
pitchfork	2.79	*
pail	2.29	*
stool	4.00	n.s.
watering can	3.64	n.s.
shovel	2.57	n.s.

Kitchen (Problem D2)

Member	Mean Rating	
egg beater	2.21	*
can opener	2.14	*
coffee pot	1.64	*
frying pan	1.57	*
spatula	2.79	n.s.
corkscrew	3.36	n.s.
fork	2.50	*
pail	4.86	n.s.
stool	4.79	n.s.
measuring cup	2.50	n.s.
spoon	2.07	*

For mean ratings 1 = very good fit; 7 = very poor fit. The chi-square analyzes subjects' distribution of ratings for each item within group.

* = $p < .05$; n.s. = not significant

objects that constituted Problem 1 (i.e., their coherence lies in the fact that they are all found or used in the bathroom), subjects' names for the category were lengthy and slightly at variance with each other. This stands in contrast to subjects' names for the category in Problem 2 (farming tools), whose member-objects easily lend themselves to classification in traditional class-subclass form. In the latter case, subjects' names are brief and to the point. In both problems, subjects generally obtained a well-defined and worded grasp of each category-context, early in the solution of each problem. As we shall soon see, the same results were obtained for Group E. They received the same two problems, but each item was worded rather than pictured. They too developed a sharply-defined consensus early in each problem and the substance of that consensus did not significantly differ from the consensus generated by Group C.

Among the responses provided by Group C for Problem 1, there were the names "bathroom utensils or grooming tools," "things found in the bathroom," "bath accessories-things you clean up with in the morning," "objects used in bathroom for personal hygiene," "bathroom objects," "toiletries" and "face care products." Only two subjects' names (one did not respond) departed from this consensus. Subjects' responses to other questions indicated that these wordy descriptions were formulated early in the solution of the problem. The responses of Group C for Problem 2 also displayed a consensus in naming the category and this consensus was more curtly worded. However, the subjects' consensus was slightly at odds with the name that the experimenter had assigned to the category. Subjects' names for the category included such responses as "garden care tools," "gardening tools," "things found in the shed," "things used to

work outside the house" and "all types of tools." In fact, all but one of the subjects (who didn't respond at all) agreed on the "tool" character of the category. But, six responded by explicitly including a version of the word "gardening" in contrast to the word "farming" that the experimenter had originally assigned. Perhaps, this is because subjects were historically conditioned in an urban environment (where the university that subjects attended is located). But this is also the case for the experimenter who devised these materials. Also, these results stand in curious contrast to the results for the yoked Group E, who received these objects in worded form. For them, the responses were split evenly between "farm tools" and "garden tools." It should be noted, though, that the goodness of fit or value of "pitchfork," for example, would be radically altered by the differentially named and experienced assessment of the category as "farming tool" versus "gardening tool." In any case, for the subjects in Group C, the sight of these pictured objects, by consensus, engendered an experience of a garden.

The responses of Group D similarly displayed a consensus, including the fact that their names for the category in Problem 2, which was functionally organized (i.e., kitchen), were wordier than their names for Problem 1 (carpentry tools). As a matter of fact, subjects' names for the category in Problem 1 were less wordy than the experimenter's. Nine subjects simply used the word "tools." Four other subjects included the word "carpentry" in such ways as "carpenter's tools" and "tools (i.e., carpentry)." One other subject described the category as "tools you use with your hands." All subjects seemed to have come up with the name early in the process of solving the problem. This was also the case for

this group's responses to Problem 2 (i.e., kitchen). However, their names in this case were wordier. They included "kitchen utensils," "articles found in the kitchen," "cooking utensils," "objects used around the kitchen," "kitchen tools," and "tools used in the preparation of food." The awkward use of "tool" in the latter two examples was probably a carryover from their performance in Problem 1. It would be interesting to determine whether these differences are merely a matter of words or whether they are a reflection of experience that was modified by their engagement in Problem 1. Unfortunately, the data do not help resolve this problem. In any case, all subjects agreed on the general character of this category.

An analysis was performed on the pooled distributions (from two groups) of ratings for each of the ten items that were pictorially identical in the two versions of any one problem (e.g., tweezer/pliers; spoon/shovel). All the evidence presented thus far (and some presented later) would indicate that, though these items were materially identical, they engendered radically different experiences in subjects within one context or another. Yet, these distributions are pooled and analyzed, in order to show how spurious statistical significance can be achieved when social features are ignored and material criteria are used for assessing the identical character of experimental conditions for different subjects. Table 4 presents the mean rating for these pooled distributions. As can be seen, seven of these ten spurious analyses were statistically significant.

Another analysis compared the distributions of ratings for a materially-identical figure, when that figure was placed in one setting (e.g., pliers) versus another (i.e., tweezers). As was mentioned in the

TABLE 4

MEAN RATINGS OF "SAME" PICTURED OBJECT POOLED FROM DIFFERENT PROBLEMS AND THEIR CHI-SQUARE SIGNIFICANCE (EXPERIMENT 2)

Members	Mean Rating	
pliers (C1) + tweezers (D1)	3.43	n.s.
pickaxe (C1) + razor (D1)	5.07	*
scissors (C1) + scissors (D1)	3.57	*
paintbrush (C1) + pick comb (D1)	4.89	n.s.
aerosol can (C1) + aerosol can (D1)	4.86	*
pitchfork (C2) + fork (D2)	2.64	*
pail (C2) + pail (D2)	3.57	n.s.
stool (C2) + stool (D2)	4.39	*
watering can (C2) + measuring cup (D2)	3.07	*
shovel (C2) + spoon (D2)	2.32	*

* = $p < .05$; n.s. = not significant

NOTE: parentheses indicate source of picture (e.g., 'C1' is from Form C, Problem 1)

first experiment, this procedure suggests a means for mathematically marking the distinction between two objects that by all other available criteria seem to be identical. For the ten comparisons performed, only three were significantly different at the .05 level. They were: aerosol can in the carpentry tool context versus aerosol can in the bathroom context; pitchfork in the farm tool context versus fork in the kitchen context; and pail in the farm tool context versus pail in the kitchen context.

Groups E and F were respectively presented with the same problems as Groups C and D. In the former case, however, the presentation of these items was in worded fashion rather than pictured fashion. Table 5 presents the mean ratings of goodness of fit for each of these items, within group; and the results of chi-square analysis that assessed each of the distributions of those ratings. As can be seen, for Problem E1 (i.e., bathroom) five of the eleven distributions were significant. For Problem E2 (i.e., farming tools), seven comparisons were significant. For Problem F1 (i.e., carpentry tools), eight comparisons were significant. For Problem F2 (i.e., kitchen) ten comparisons were significant. The worded presentation of these problems seemed to have engendered a more coherent consensus among subjects than the pictured presentation of these problems. More of the distributions of ratings of individual items were significantly different from chance in the worded presentation (i.e., 30 out of 44) than in the pictured presentation (i.e., 24 out of 44). But, were the differences in distributed ratings different when the item was presented in word versus picture form? Forty-four chi-square analyses were performed, each of which compared the distribution of ratings for a single item when it was worded versus when

TABLE 5

MEAN RATINGS OF EACH WORDED OBJECT AND
ITS CHI-SQUARE SIGNIFICANCE (EXPERIMENT 2)

Bathroom (Problem E1)

Member	Mean Rating	
toothbrush	1.50	*
Q-tips	2.86	n.s.
toothpaste	1.79	*
razor blade	1.64	*
brush	3.00	n.s.
comb	2.57	*
tweezers	3.57	n.s.
razor	2.07	*
scissors	4.43	n.s.
pick comb	3.71	n.s.
aerosol can	3.46	n.s.

Carpentry Tools (Problem F1)

Member	Mean Rating	
hammer	1.14	*
saw	1.57	*
wrench	1.14	*
screwdriver	1.21	*
nut and bolt	2.29	*
hand drill	1.64	*
pliers	1.64	*
pickaxe	2.79	n.s.
scissors	4.86	n.s.
paintbrush	4.50	n.s.
aerosol can	6.71	*

Farming Tools (Problem E2)

Member	Mean Rating	
wheelbarrow	1.67	*
axe	2.71	n.s.
hoe	1.21	*
rake	2.07	*
ladder	4.43	n.s.
scythe	2.93	n.s.
pitchfork	1.57	*
pail	3.14	n.s.
stool	5.50	*
watering can	2.57	*
shovel	1.79	*

Kitchen (Problem F2)

Member	Mean Rating	
egg beater	1.64	*
can opener	2.29	*
coffee pot	2.07	*
frying pan	2.29	*
spatula	1.93	*
corkscrew	3.29	n.s.
fork	1.50	*
pail	5.69	*
stool	5.79	*
measuring cup	2.07	*
spoon	1.64	*

* = $p < .05$; n.s. = not significant

it was pictured. In all cases but two, distributions of ratings are insignificantly different from each other -- the razor in Problems C1 versus E1; and nut and bolt in Problems D1 versus F1. The latter case is not easily explicable. The nut and bolt, by consensus, seems to be a better example of a tool when that item is worded ($\bar{X}$ = 2.29) than when it is pictured ($\bar{X}$ = 4.75). The former case is more easily explicable. The picture of a razor does not suggest a razor. Perhaps, this picture should have been eliminated or altered, as a result of indications from piloting. In any case, it was not. (Among other things, the experimenter became attached to that picture). This was the only figure that created any difficulty for subjects in Group C (or D) when they were asked after the experiment, but before the debriefing, to write the name of the object next to the pictured object. They didn't know what to make of it. Many of them wrote "T-square" with a question mark next to it. It should be noted, by the way, that subjects in Group D had no trouble naming the "same" figure as a "pickaxe" under other conditions. This example will be even more instructive in Experiment 3 where this figure again appears in two distinct conventional guises.

Subjects in Groups E and F provided essentially the same responses to the questionnaires as the subjects, respectively, in Groups C and D. The names of category that Group E (worded condition) provided for Problem 1 (i.e., bathroom) included "things in the bathroom," "bathroom accessories," "items in a shaving kit or things you'd find in a bathroom," "hygienic utensils," "articles for personal hygiene" and "toiletries." As was mentioned earlier, the responses to Problem E2 (i.e., farming tools) split into two groups. Five of them named "garden tools" or some version of that. Six of them named "farm tools" or some

version of that. Others named "tools" or some version of that which is indifferent to gardening and farming. For Group F, Problem 1 (i.e., carpentry tools) engendered the following names for the category: "tools" (for six subjects), "tool box," "building tools," "hand tools" and "tools you would find in a workshop." Problem F2 (i.e., kitchen) generated a similar, though wordier, consensus. The names for the category included the following: "kitchen utensils," "kitchen appliances," "what you use for making breakfast," "objects relating to making breakfast," "things in a kitchen," "cooking utensils," and other such versions. One remarkable subject named the category as "things females used." Yes, the subject was a male. (Did he share in the group's consensus of the category name?) In all four problems for Groups E and F, subjects seem to have generated rather quickly a name for the category while they were working on the problem's solution. In this respect and with respect to the substance of their responses, they seem to be similar to their yoked cohorts who received pictured versions of these problems.

Discussion. For the duration, the convention will be adopted whereby the thing that serves as a material underpinning in the experiment for either the pliers or the tweezers is referred to as the "pliers/tweezers;" and so, for the "pickaxe/razor," "etc./etc." When a person looks at the "pliers/tweezers" and attempts to name it, there are times when it is true to name it a pliers and there are times when it is true to name it a tweezers. Those times are socially and historically conditioned. The design of this experiment makes clear the social and historical conditions under which the names "pliers" or "tweezers" are true even as,

at the same time, it makes clear that these truths are provisional. The case is less clear in the famous examples of the Necker cube or the "duck/rabbit" where the same material underpinnings engender not just distinctive descriptions but also radically different experienced sights. But the claim is made that the experience of these latter examples is just as socially and historically conditioned as the subjects' experience of the experimental stimuli. The claim is made that all human experience is socially and historically conditioned. Despite the fact that these conditions are provisional, they don't just lend color to human experience. They give form to human experience. It is just that in this experiment it is easier to locate more of the elements of this operation.

When it is truly said, under certain circumstances, that this "pliers/tweezers" is a pliers, this is not just a truth about the name of an object. It is also a truth about the experience of persons, within this conventional world, that is "caused" by the exposure to their retinas of the "pliers/tweezers." They see a pliers. They experience a pliers. The coherence of that experience is indebted to social and historical conditions (i.e., context). Traces of those conditions can also be found in the conventional identity of observers who inhabit that world. The regularity of human (social) behavior and human (social) perception and human (social) experience is indebted to the conditions of context. That regularity is a product of the conditions of context. The quickest way to get a handle on those regularities and to open up the possibility for "predicting" (social) human behavior is to excavate the social and historical features that condition that behavior. However, this would be a qualified sort of "prediction," since the regularities of

human behavior that put "prediction" within reach are held in place by forms that have only provisional existence. The usefulness and reliability of those "predictions" (which, in turn, are based on the observation of earlier human behavior that was conventionally-formed) last only as long as those forms are used by conventionalized humans as a means for giving form to their behavior. Some social scientists are liable to forget this; and so they operate under the impression that the laws of human (social) behavior which they have discovered will continue to last forever. These forms that give shape to human (social) behavior, especially more abstract and generalized forms, are not easily shed. One good reason for this is the fact that the forms of context do not often directly occupy the attention of conventionally identified humans. Rather, humans focus on the objects that are given shape by the context, constantly strengthening that context by reiterating its validity in gazing at each and every object that takes shape in that context. A related reason stems from the fact that they find themselves staked to these forms of context by virtue of their conventional identify. No one wants to lose their identity and so they hang on for dear life.

However, those socially and historically conditioned forms can change; and so, too, can the character and regularity of human (social) behavior. When empirical traces of this show up in the psychological laboratory, these are one of two usual responses. The natural scientists of psychology either conclude that they got it wrong before, but now they've got it right. Or, they conclude that these subjects, who provided the means for expression of these data, are irrational. How can an approach like this be expected to cope with or resolve problems like bias and prejudice that exist in our society?

The design of this experiment makes clear how one person can say "A" (e.g., pliers) and another person can say "not A" (e.g., tweezers) and, yet, how both can be telling the truth. They are not only telling the truth. For each of them, their actual experiences testify to the truth of their assertions. Is there a more natural or rigorous or logical kind of truth than the sort that is expressed when only truly asserts that this subject experienced a pliers? There might a fruitful distinction to make here. There is a kind of truth expressed when one truly asserts that this empirical fact happened, that this subject experienced a pliers. But, this is a contingent truth that depends in part on the psychological operations and activities of the subject. There is another kind of truth that is expressed when one truly asserts things about the relations between pliers and pickaxes and the general coherence that they lend themselves to within the encompassing context of tools. This kind of truth is also displayed when one points at this "pliers/tweezers" and finds it to be truly a pliers; or, when one asserts that the invocation of a tool context has ruled the pliers into existence and ruled the tweezers out of existence. (This will be discussed at greater length in the next experiment). Possibly, there are truths to be expressed if one takes each of the problems in these experiments to be generalizable examples of, among other things, the relation between object and context, the coherence of context, the context-dependent character of human perception, etc. The truth of these matters does not depend on the empirical psychological operations and activities of individual humans, or a group of humans. The truth of these matters depends upon the massed accumulation of activity whose products (e.g., contexts) have taken on a quasi-autonomous existence. In some sense, these massed products dictate

human social action. But, the lessons that are drawn from the discovery of these truths (whether more abstractly general or less abstractly particular) have only provisional usefulness. They are useful for understanding and/or predicting behavior, only so long as those social and historical conditions remain unchanged.

Is there yet a more rigorous, natural and logical kind of truth whose rigor is vouched for by Nature or Logic and which does not depend at all on human activity, surviving independently of human activity? I don't know. Even the notion of relation may be liable to change. It is not the most important thing on the mind of a social psychologist whose foremost concern focuses on the diverse patterns of regularity in human social behavior. That diversity is allowed within the "bounds" of Nature or Logic (that possibly exist). The social psychologist is interested in how and why things go this way rather than that way when they could have gone either way; and in how and why they stay this way or change. The "tweezers/pliers" stands for what Nature is all about in somehow retaining a material integrity yet allowing for social diversity. It is not clear that when natural scientists propound the Laws of Nature or when logicians propound the Laws of Logic that they offer any more than this. After all, they are also human. They do not grasp naked Nature or Logic. They grasp what stands for Nature or for Logic.

When, in one of the experimental problems, the subjects first see a hammer and a context of "carpentry tools" has been effectively invoked, then there is a sense in which the rest of that conventional world already has been effectively given form, even before the subjects have laid eyes on it. The rest of that conventional world includes a pliers and an observer, whose conventional identity can only clumsily be put

into words. In this world, the sight of a pliers will strike observers' eyes. That pliers already exists outside the confines of their skins. In this sense, then, observers are struck by things of their own making. This sort of thing provides the possibility for the regularity of human social behavior. It regulates social behavior. And it provides the possibility for the predictability of human social behavior. It predicts and can be used to predict human behavior. But, it isn't necessarily the case that, when subjects' eyes travel down the page toward the "pliers/tweezers," they will be "caused" to see a pliers. Perhaps, as a result of their own personal circumstances of sociality and history, they are suddenly possessed by a sense of "bathroom" and instead they are struck by the sight of a tweezers. (However, this too expresses a social coherence, albeit unexpected). The chances are, however, that these subjects will be struck by the sight of a pliers. And for those subjects who first see a toothbrush and for whom the context of "bathroom" has been effectively invoked, the chances are that as their eyes travel down the pages they will be struck by the sight of a tweezers. These chances, that pervert the random character of the natural world, are indebted to social and historical conditions and to the intentions that use those conditons as a means for expression.

There are two points to make in this regard. First, it makes little sense to say that any particular regularity of social behavior is naturally caused. Blindly or not, to have regularly engaged in a social behavior is to have "opted" for doing things one way when, by definition, they could have been done otherwise. Of course, one could argue about the social character of some feature of the world and say, for example, that "intelligence" is a natural form. There are arguments to be made

against this claim, but this is not the place for them. However, this strategy of arguing that "intelligence" is a natural form will only work for the short run. In some sense, the sources for the regularity of social behavior still must be explained. And when the sources of regularity in social behavior are fixed, those results will probably be applicable without difficulty to the character of, e.g., intelligence that now seems natural. Of course, one could say that all human behavior is natural and, by implication, this would rule out of existence any specifically social features of human behavior. Claims like these have a strange grasp of the notion "social" and a strange view of this world of social diversity.

Second, if indeed the course of human social behavior, perception and experience is regulated by the social and historical conditions that are packed into context, then problems of conflict in bias and prejudice that spring from the meeting of incommensurable contexts (perhaps, for example, racism or sexism) require a distinctive approach for their resolution. These are more than differences of opinion. These are differences of truth that respectively hold the warrant for their validity in distinctive conventional worlds. Perhaps, the respective members of each conventional world do not want to come out of their habitat. But, if they do want to (or if they say they want to) they should realize what this endeavor entails. Among other things, that final achievement would come in the aftermath of a newly existing context that both preserves features of each of the earlier incommensurable ones and discards other features of each of those earlier contexts. And it follows from this that there would be alteration in the conventional identities of all persons and in the conventional objects that are

sighted. Who knows if such an accomplishment is possible, as a programmatic aspiration. But this perspective provides guidelines for less ambitious aspirations that would operate in a more piecemeal fashion. On the one hand, when one renounces one's own prejudice, there should be a realization that this commitment amounts to more than mouthing words with good intentions. The means for mouthing those words might still display traces of prejudice. It is the height of egocentricity to say, at first, "Yes, I am prejudiced" and then, relying on one's own resources, to say, "No, now, I'm not prejudiced." One must take guidance from members of the alter-conventional world, even if one does not put one's self completely in their hands. On the other hand, when one accuses the other of prejudice, there should be a realization that it is not easy to abandon this prejudice. One is attached to one's conventional identity. And besides what will take the place of this discarded conventional identity and its repertoire of behaviors, perceptions and experiences? Does anyone expect another repertoire to spring "naturally" up in its place? Surely, members of the alter-conventional world do not expect the prejudiced person to adopt their conventional identity. These problems could be worked out among people as they communicate with each other in an atmosphere of trust. But, who trusts anybody these days, especially those anybodys of another kind? In these times, there are good, pragmatic reasons for not trusting anybody completely. A large measure of trust is required for this operation. In principle, social scientists are in a unique position for mediating this situation, since they operate from a detached position that does not exercise greater bias against one group or the other (in principle). But first social scientists must fully appreciate the

general character of bias and how it works in any one particular situation that constitutes the problem at hand.

In one of the experimental problems, two contexts were available for giving form to a circumscribed set of "objects." For the alternative contexts of bathroom and carpentry tools, there was a "pliers/tweezers" which could truly and accurately be said to be a tweezers (under one set of circumstances) and a pliers (under another set of circumstances). Subjects are each telling the truth that is coherent with their experiences. But it is almost as accurate to say that each is biased and telling a falsehood. If each group is firmly entrenched in their "own" conventional world and does not have access to the other's context that gives form to the other conventional world, then there is a problem. For one who is entrenched in the bathroom, the claim that "this" is a pliers is senseless if not preversely irrational. (The latter feeling would follow if the other's gesture went beyond naming, and had more lasting implications). Conversely, for one who is entrenched in the world of carpentry tools, the claim that "this" is a tweezers is senseless if not perversely irrational. Each is resolutely certain about the other's bias and they both have the testimony of their experience that "proves" it. There are two broad categories into which one can classify episodes of this sort. Either, members of one or both groups do have access, in principle, to the conceptual equipment that would materialize for sight the other's conventional world. For some reason, however, the deployment of that equipment is being forestalled. In that case, a "mediator" must eliminate the obstacles that forestall this conceptual equipment's deployment so that the members can experience what they "already know." This would begin to solve the problem of bias in this category. There is,

however, another category of altogether more serious problems. There are those problems which occur when either one or both groups, in principle, do not have access to the conceptual equipment that would materialize the other's conventional world. In this experiment, for example, consider the implications if one group or the other had never heard of or had experience with bathrooms or carpentry tools. In this case, it makes little sense to "call out" that context which has historically conditioned existence, since that person was never in touch with those historical conditions. Rather, a way must be found for presenting that context whole; and not just one or two facts that could be distortedly experienced through the other's context. Rather, a whole way of life must be presented. This is a difficult task. But, the chances for achieving success are infinitely greater when everyone realizes that this is what is at issue.

In this experiment, it was a relatively easy matter to resolve these ambiguities. Each historicaly-conditioned group of subjects had access to the conceptual equipment that materialized the world for the other historically-conditioned group. Once they were debriefed, they could see the entire design. Curiously, when one subject was debriefed, and shown both versions of the pictured problems, she delightedly remarked at one point, "Oh, there's a tweezers that you've gotten to look like a pliers." Obviously, the historical conditions of the experiment had not entirely worn off.

We can see the entire design of the experiment and the manner in which the social ambiguities were built into it. Perhaps, from the outside we underestimate the potency of each conventional world. Regardless of that, in this case, it is clear how a social scientist

would go about resolving the problems of prejudice and group conflict that are represented in this experiment. But how does one deal with these problems in the world at large which is not so neatly designed or easily deciphered? First, it is important to ascertain whether or not both sides in principle have access to the conceptual equipment that would materialize the other's conventional world. Do the social scientists have access to that conceptual equipment? And do they have access to it in a fashion that does not predispose them to favor one side more than the other? If the answer is yes, then a difficult "therapeutic" process can begin. If the answer is no, then an infinitely more difficult, possibly insurmountable, process can begin. It helps to know the character of that process. Perahsp it cannot successfully end. But the attempt to extract contexts and ways of living from empirical observation in co-operation with reasoned understanding cannot help but leave people in better position after the attempt than the position they were in before the attempt, probably.

VII - EXPERIMENT 3

Introduction. In Experiments 1 and 2, the instructions made it clear to subjects that all items on the page were members of a class. And though these experiments avoided some of the enforced clarity of Rosch's experiments (i.e., she named the category under which items had to be judged for prototypicality, before they looked at individual items), nevertheless subjects knew beforehand that all objects were united by membership in a single class. There may be doubt, then, that this conceptual guidance (whereby all "things" in the surround take shape through context) operates in the everyday context, "dictating" the course of social perception and social behavior. That is, if subjects weren't explicitly told that all objects were members of a group, they wouldn't go out of their way to take it that way. The implication is that subjects' consistency in their perception and behavior for the first two experiments was a matter of going "out of their way." But, otherwise their behavior is not constrained in this fashion by these factors and it is not typical of the character of regularities that constrain the course of everyday social life. Experiment 3 was designed to deal with the empirical facts of this issue.

Again each of two groups of subjects (with ten subjects in each group) were given two problems to solve. In this study, however, the problems were of a radically different sort. For each problem, subjects were presented with an elaborate drawing of a scene and they were told that there were an indeterminate number of objects hidden of those

objects in spaces provided below the drawing. In fact, eleven objects had been hidden in each of the four drawings and they correspond to the four sets of 11 objects that were graphically presented in Forms C and D of Experiment 2. Form G corresponds to Form C. (The eleven objects explicitly depicted in either Problem 1 or Problem 2 of Form C are respectively hidden in Drawing 1 and Drawing 2 in Form G). And Form H similarly corresponds to Form D. The hidden position of the "ambiguous" items (i.e., tweezers/pliers; spade/spoon) are identical in both forms of the drawing. The name that subjects give to the objects that they find would indicate the context that they are using for "seeing" it. It is predicted that the context displayed by the other hidden objects in the drawing will "determine" the sight that they see in the "ambiguous" items -- despite the fact that, in this case, there was no explicit mention that all hidden objects were united by membership in a single class. That is, the consistency of context that lends shape to each item (even the "ambiguous" items) will not be accomplished by subjects "going out of their way." Rather, it is precisely in their way to use the social resources of context and to retain this consistency in order to give shape to their material surroundings.

Procedures, Materials and Measures. Subjects were college students at a Northeastern university. Eight subjects in each condition received the experiment, en masse, in a classroom setting. The other two subjects in each condition were tested individually, so as to allow for extensive debriefing and feedback. There were an approximately equal number of men and women in each group. All instructions to subjects were given on a cover sheet. After subjects had completed the problems, they were given

questionnaires to complete. Subjects were asked if they noticed that all the hidden objects were of a single category; if they did, what the name of that category was; when they noticed this categorical nature; when they came up with the word describing the category; to list the names of hidden objects they remembered; and, finally, how they knew which objects were hidden in the picture as opposed to unhidden. With regard to the latter question, subjects' ability to distinguish the 'hidden' from unhidden objects in a single, thematically defined picture itself marks the capacity for sensitivity to context. Subjects' own descriptions, in their own words, of how they managed this are of interest. The entire protocols for each of the two conditions are given in Appendices G and H.

Subjects' naming responses to the drawing were analyzed by classifying each name-response in one of four categories: context-consistent (where the given name of the item is consistent with the context that is implied by the preponderance of "unambiguous" items); context-inconsistent (where the context implied by the given name of an item contradicts the context given by the other items; where perhaps it is consistent with the ungiven context); context-ambiguous (where the name given is consistent with, and indifferent to, both contexts); unnoticed (where the subject failed to notice the object hidden in the picture).

First, each group's responses were analyzed separately and two chi-square analyses were performed on each group's data. The first analysis, for each item, examined the distribution of subjects' responses among the context-consistent, context-inconsistent and context-ambiguous categories to see if that distribution is significant. The second analysis collapsed these latter three categories and analyzed the

distribution of noticed and unnoticed items. This was also assessed in light of subjects' responses in Experiment 2 (for Forms C and D) when subjects were asked, on the return on their rating sheets after the experiment, to name the pictured objects. Those objects which Experiment 2 subjects had difficulty naming (or displayed a lack of consensus in naming) might be more likely to be completely unnoticed in the "hidden objects" form of the problem. Second, two chi-square analyses were performed that related the two groups' naming responses to each of the ten ambiguous figures (five in each Problem) as a function of manipulated context. The first of these analyses disregarded the context in which that name was generated and pooled the responses of that group to see whether the distribution differed significantly from chance. This one by three chi-squre classified names, as, e.g., bathroom consistent, carpentry tool consistent or ambiguous, since in this pooled perspective neither context is appropriate or encouraged. A lack of statistical significance would indicate nothing interesting since this might indicate an "even" distribution of "bathroom response" (e.g., tweezers) in a bathroom context and "carpentry tool response" (e.g., pliers) in a carpentry tool context. The flat distribution is to be expected. The achievement of statistical significance in this case, however, is significant and it indicates one of two things. Either the pooled responses are all located in the context ambiguous category, which is to be expected in some cases (i.e., aerosol can, scissors, pail, stool) -- these were included to show how the differential sight of an object is not necessarily revealed by the word used to name it; or, achieved significance in this pooled analysis might indicate that this analyzed object (e.g., "tweezers/pliers") retained enough conventional integrity

so that it resisted the influence of context. That is, the sight of it did not flip one way or the other unilaterally with the manipulation of context. It had "its own mind."

The second analysis distinguished between the two groups of subjects and compared the respective distributions of their responses to the "same" object. This two by three chi-square analysis would reveal whether the patterns of naming were distinguishably different from each other as a function of the context in which that naming activity took place.

Subjects' responses to the questionnaire were analyzed to see whether they realized that all the objects hidden in any one picture were of a class, whether there was a context-consistent consensus about what that class was, and how they each went about realizing this.

Results. Table 6 presents a frequency classification of names for objects in the pictures that constituted Problem 1 for Form G (i.e., bathroom). The subjects' responses by which they named the "ambiguous" objects were classified on the basis of whether that name was consistent with (and indirectly named) a bathroom context, whether that name was inconsistent with a bathroom context, or whether that name was ambiguous (that is, indifferent with respect to this context or its alter-context of carpentry tools -- as possibly, for example, with "scissors" and "aerosol can"). Table 7 presents a similar classification for the responses to Problem 1 of Form H (i.e., carpentry tools). In this case, however, a bathroom-consistent response was scored as context-inconsistent and a tool-consistent response was scored as context-consistent. Ambiguous names were still ambiguous.

TABLE 6

FREQUENCY CLASSIFICATION OF RESPONSES TO FORM G, PROBLEM 1 (BATHROOM) (EXPERIMENT 3)

Context encouraged name	Related to bathroom names (context consistent)	Unrelated to bathroom names (context inconsistent)	AMBIGUOUS (name doesn't distinguish whether or not context consistent)	Unnoticed
tweezers	4	5	1	0
pick comb	9	0	0	1
razor	0	1	4	5
aerosol can	1	0	1	8
scissors	0	0	9	1

TABLE 7

FREQUENCY CLASSIFICATION OF RESPONSES TO FORM H, PROBLEM 1 (CARPENTRY TOOLS) (EXPERIMENT 3)

Context encouraged name	Related to carpentry tool names (context consistent)	Unrelated to carpentry tool names (context inconsistent)	AMBIGUOUS (name doesn't distinguish whether or not context consistent)	Unnoticed
pliers	10	0	0	0
paintbrush	5	4	0	1
pickaxe	10	0	0	0
aerosol can	0	0	2	8
scissors	0	0	10	0

For the duration, the convention is adopted of calling the "ambiguous" object (e.g., "tweezers/pliers") by its given, conventional name (e.g., tweezers) when the analysis that is performed on it is within group (that is, within context). As can be seen in Table 6, the tweezers were equally likely to be called a tweezers as a pliers and the chi-square was not significant. Table 7 shows, however, that the pliers was always named a pliers. No one, in his context, named it a tweezers and (probably) no one experienced it as a tweezers. The chi-square was significant ($p < .05$). The pooled analysis indicated the context-resistance of this "tweezers/pliers." The pooled frequency of tweezers (N=4) and pliers (N=15) as offered names and the significance of this chi-square ($p < .05$) indicated this context-resistance. However, the analysis that compared the distribution of names as a function of manipulated context was also significant ($p < .05$). This indicated that the manipulated context did influence the pattern of groups' naming of the "tweezers/pliers."

Table 6 shows all nine people who noticed the comb named it a comb and this was significant ($p < .05$). Table 7 shows that the names of the paintbrush were evenly distributed among context consistent and context-inconsistent categories. Subjects, however, came up with their own context consistent name, "rake," which was not used at all in the bathroom context. The pooled analysis showed that there was a significant ($p < .05$) tendency to name "it" a comb regardless of context. But, a between context analysis revealed that there was significant difference ($p < .05$) in the pattern of naming the "comb/paintbrush" as a function of encouraged context.

Table 6 shows that subjects had difficulty naming the razor. One called it a pickaxe and four provided ambiguous names. This pattern did not differ significantly from chance. Five subjects did not notice the razor. Table 7, on the other hand, shows that tooled subjects had no difficulty locating and naming the pickaxe. All ten subjects named it this way and this was significant ($p < .05$). The pooled names for the "razor/pickaxe" again indicated a significant tendency ($p < .05$) to name this a pickaxe regardless of context. This was again demonstrated in the significance ($p < .05$) of the between context comparison. Context influenced the pattern of naming, insofar as it was a pickaxe in one context and hardly named at all in the other context. One could say, in the latter case, that the object didn't exist at all. The effect of context could be seen in this case in the fact that "bathroom" subjects didn't recognize the thing-ness of the "razor/pickaxe" at all. The subjects' emplacement in the bathroom context forestalled access to another context (i.e., tool) that would materialize the object as a pickaxe and make its sight readily available. This recalls the difficulty encountered by subjects in Group C, where they went back to the clear class of bathroom objects and were puzzled by the sight of a "T-square." They couldn't, for their conventional lives, see the pickaxe that was readily available to the other group that had been historically conditioned otherwise.

Tables 6 and 7 show that the aerosol can and the aerosol can were not noticed as hidden objects by either group. If one looks at where the can is "hidden" (in Problem 1 of either Appendix G or H) in the lower left hand corner, the reason is evident. This object might be taken to be an "unhidden" trashcan or something of that sort.

Table 6 shows the scissors recognized by all as a scissors. But this name does not differentiate between bathroom and tool. Table 7 shows a similar recognition in the tool context. In each case, the chi square is significant ($p < .05$), as it is in the case of the pooled analysis. But, this is because all responses get tallied in the ambiguous category since the name does not differentiate between the two contexts. If there is a difference in the experienced sight of a scissors as a tool and a scissors as a bathroom item, this analysis doesn't pick it up. This point is emphasized in the fact that the between context comparison was insignificant. In either context, it was called a scissors. Of course, subjects could have chosen names that would have differentiated between the two (e.g., shears versus nail-cutters) but they didn't.

Table 8 presents the frequency classification of names of objects that appear hidden in Problem 2 of Form G (i.e., farming tools). Names that indirectly point to a farm tool context are scored as context-consistent. Names that indirectly point to another context (e.g., kitchen) are scored as context-inconsistent. Table 9 presents the frequency classification of names of objects that appeared hidden in Problem 2 of Form H (i.e., kitchen). Here, names that indirectly point to another context (e.g., farm tools) are scored as context inconsistent. For both Tables 8 and 9, any name that did not differentiate between kitchen and farm tool contexts (e.g., pail) were scored as ambiguous.

TABLE 8

FREQUENCY CLASSIFICATION OF RESPONSES TO FORM G, PROBLEM 2 (FARM TOOLS) (EXPERIMENT 3)

Context encouraged name	Related to Farm names (context consistent)	Unrelated to Farm names (context inconsistent)	AMBIGUOUS	Unnoticed
shovel	9	1	0	0
pitchfork	5	5	0	0
watering can	4	6	0	0
pail	0	0	10	0
stool	0	0	10	0

TABLE 9

FREQUENCY CLASSIFICATION OF RESPONSES FOR FORM H, PROBLEM 2 (KITCHEN) (EXPERIMENT 3)

Context encouraged name	Related to kitchen names (context consistent)	Unrelated to kitchen names (context inconsistent)	AMBIGUOUS	Unnoticed
spoon	9	1	0	0
fork	10	0	0	0
measuring cup	10	0	0	0
pail	0	0	10	0
stool	0	0	10	0

Table 8 shows that nine subjects named the shovel as a shovel, while one person named it as a spoon and this was significant ($p < .05$). Table 9 shows that nine subjects named the spoon as a spoon while one subject named it as a shovel and this was significant ($p < .05$). The analysis of the pooled namings of these two groups, which exhibited an "even" distribution of ten spoons and ten shovels, was significant ($p < .05$). This was due to the fact that the cell tallying ambiguous names was empty, insofar as all offered names clearly, though indirectly, pointed to either a kitchen or farm tool context. The between group analysis was significant ($p < .05$), showing that the particular context that was in place for each group significantly influenced the pattern of naming for that group.

Table 8 shows that five subjects named the pitchfork as a pitchfork while five subjects named it as a fork. This distribution of responses was not significant. In part, this is due to the fact that a scoring decision was made to regard the name "fork" as consistent with a kitchen context even though the written word is ambiguous and may have been intended to convey a farm tool. Five of these subjects explicitly included "pitch" in their naming of the "pitchfork/fork" which was not the case for the other group. Table 9 shows that the subjects named the fork as a fork while none named it as a pitchfork and this was significant ($p < .05$). The analysis of the pooled namings of these two groups was significant ($p < .05$) and (possibly) showed the context resistance of this object. That is, it was likely to be named a "fork" (whatever that signifies) regardless of context. The between group analysis was significant ($p < .05$) showing that the particular context that was in place for each group significantly influenced the pattern of naming for that group.

Table 8 shows that four subjects named the watering can as a watering can while six named it as a measuring cup and this was not a significant difference. Table 9 shows that all ten subjects named the measuring cup as a measuring cup while no subjects named it as a watering pail and this was significant ($p < .05$). The analysis of pooled names was significant ($p < .05$) and this showed the context resistance of the "watering can/measuring cup"; and in a sense this pattern of responses was similar to that obtained with the "pitchfork/fork." In this case, however, the "integrity" of the "watering can/measuring cup" was so strong that the between group analysis of pattern of response did not reach significance. That is, the emplaced context did not significantly influence the pattern of naming between groups. However, it should be noted that no one in the kitchen context called "it" a watering can.

Tables 8 and 9 show that for both the "pail/pail" and "stool/stool" all subjects in both groups named the items respectively as a pail and as a stool. For each of these items, therefore, the pattern of naming was significantly different ($p < .05$) from chance both within context and when those context-dependent responses were pooled. But this was because all responses were tallied in the "ambiguous name" category, just like the "scissors/scissors" of the previous problem. If there are differences in the experienced sight of these objects as a function of context, they were not distinguishable on the basis of names that subjects provided. And this was borne out by the lack of significance in the between groups analysis of naming the "pail/pail" and "stool/stool." In either case, subjects named the items respectively as a pail and a stool, regardless of the context that was in place.

In naming any hidden objects, the subjects also showed that they noticed it. Hence, these responses were collapsed for each object and compared to the number of times it remained unnoticed. A significant chi-square would indicate that the hidden object was more likely to be noticed than unnoticed or vice versa, depending upon the frequencies in the cells. This analysis was performed for each object-in-context (e.g., for pliers and for tweezers), for each object-regardless-of-context (e.g., "pliers/tweezers") and a between group analysis for each object as a function of context. In almost all cases, an object-in-context was more likely to be noticed than unnoticed ($p < .05$). The exceptions were the razor, which was just as likely to be noticed as it was unnoticed (as opposed to pickaxe which was always noticed); and the aerosol can, in both contexts, which only elicited a few cases of noticing it as a hidden object. One must infer that many subjects did not regard this object as "hidden" even though they saw it and therefore "did not notice the hidden object."

This raises another issue. In almost no case did the subjects in the experiment "notice a hidden object" in the drawings that the experimenter, in designing the experiment, regarded as unhidden. That is, everyone knew which objects were hidden and which ones were not hidden. This might seem trivial but it requires a well-honed sensitivity to context. How <u>does</u> one know whether or not an object is hidden? (Children's capacity to do this at a certain point in their development signifies their capacity to deal with the features of context). Hence, the capacity to systematically "detect" the hidden objects (regardless of the name that is given) and to leave the unhidden objects "undetected" itself demonstrates the context-dependence of perception. How is this

context-dependent activity accomplished? This text attempts to make headway on that issue. It is interesting, however, to hear subjects' responses to this question when they were asked at the end of the questionnaire how they knew which objects were hidden.

The almost unanimous response of subjects amounted to an assertion that the hidden objects were out of place or didn't belong there. But it is instructive to hear how subjects phrased the character of that inappropriateness. The following are some of the subjects' responses:

> They were out of context with the rest of the picture.
>
> Because they didn't fit the context of the picture. They didn't belong.
>
> They seemed to be out of place. (ex. scissors don't belong in a tree and they contrasted with the pattern of the object they were hidden in). (subject's emphasis)
>
> Because they didn't belong with the setting of the picture.
>
> They were not in a "normal" place. (subject's quotation marks)
>
> They were in dumb places and not in proportion with the picture.
>
> I assumed the most abstract things were hidden.
>
> Out of scale. Also most objects defied gravity.
>
> Most objects had no reason for being where they were. Not consistent with room's decor.
>
> The other's seemed to go with the environment.
>
> Out of proportion to scale of real life.
>
> Appeared to be very implausible.

And as one subject most accurately put it in his first response and reiterated in his second response:

> They weren't hidden. They just didn't belong in the setting they were in.
>
> The objects weren't hidden, otherwise I wouldn't have seen them.

The subjects were saying that the "hidden" objects didn't belong there. But, ion order to exercise a judgment of inappropriateness, subjects somehow had to have a grasp on the criteria of apprpriateness that were relevant for this particular situation. They might not have been able to express their grasp of those criteria in so many words, but each time they detected a hidden object they tacitly displayed that grasp. And, almost every time an "unhidden" object remained undetected they also tacitly displayed that grasp. (In a few cases, they might have missed a "hidden" object). In some sense, their grasp of the criteria that had given meaning to the picture regulated each and every "discrete" act of perception that took place as they looked at the picture.

This demonstrates the fact that a set of criteria, per se, governed their perception of the manifest scene. Their grasp of the substance of those criteria might not have been put into so many words but it was sufficient to reject the hidden objects as negations of those criteria. But, within the bounds of this general process of negation, were there differential forms of identifying those negative instances, each of which takes social shape as a function of an even more deeply hidden social framework? That is to say, the general process of negation allows for more than one way to be negative. The design of the experiment allowed subjects to be negative in one of two ways and each took its form from the "surrounding" social conditions. That is, subjects could have "chosen" to have their perception regulated by the social shape of the other hidden objects that were "clearly" any one thing. There was no requirement for them to take guidance from the other hidden objects. There wasn't even mention of the fact that all the hidden objects in any one picture were of one class. Despite this, was there perception

regulated by these "deep" social forms? The data indicate that their perception was regulated. In five instances (i.e., "pliers/tweezers," "spoon/shovel," "razor/pickaxe," "comb/paintbrush," "pitchfork/fork"), the between groups chi-square analysis revealed that each group's pattern of naming was significantly ($p < .05$) influenced by the context that was "deeply" there. Only one stimulus object designed to demonstrate this phenomena (i.e., "watering can/measuring cup") failed to do so.

Did subjects "know" what was going on? That is, were they aware of the fact that all hidden objects were of a kind? There was no explicit mention of this so that this awareness would be a spontaneous realization. Further, even if they did realize this, there would be no reason for them to adopt this as guidance for perceiving and naming the hidden objects, since nowhere was the criterion of appropriateness even tacitly invoked as it was tacitly invoked when they were asked to find the objects that were "hidden" in the larger picture. Subjects' realizations could take one of several forms. They could have realized this after finding the first few objects in the first picture or after they finished the first picture. In either case, they could then apply this "algorithm" to the second picture. Or they could have realized this in the second picture and then retrospectively applied it to the first picture. In all these cases, they could have sensed the notion that all objects were of a kind but not give a name to that kind. Or they could give a name to that kind. Or, this realization could have escaped them until they were explicitly asked this question in the questionnaire (even though their perception and behavior had been guided by this "knowledge"). Or, this realization could still have escaped them, but when they started listing from memory the hidden objects that they had

found (which the questionnaire requested they do), they could then have realized it. Or, to this day, they could still not realize that the objects that they found were of a kind (even though they were guided by this knowledge). It would also be interesting to see, for those people who recognized the class, whether they worked with an idea of the class or whether they had a specific word for the class; and whether the names that they generated for the class corresponded to those names that were offered by subjects in Experiment 2 (Groups C and D) where they were explicitly told of the class nature of these objects. Let's see.

By the time that subjects were finished with the questionnaire (which they only began answering after no longer having access to the picture problems), all of them were aware of the class nature of the hidden objects that they had found in both of the problems each had solved. The consensus each group displayed about the names of those classes was even more coherent than that provided by Groups C and D, in Experiment 2, where subjects were explicitly told of the class nature of the objects. For Problem G1 (i.e., bathroom), subjects' names for the class included "bathroom materials" (there were three subjects who explicitly named the bathroom), "grooming equipment," "toiletries," "hygiene products" and "cleanliness." All ten subjects shared in this consensus that was just as coherent (if not more so) as the one reached by Group C. For Problem G2 (i.e., farming tools), nine of the subjects named "garden tools" or some such equivalent and one said, "tools to work with farming." For Problem H1 (i.e., carpentry tools), six simply named "tools," three named "carpenter tools" or some version and one named "garden tools." For Problem H2 (i.e., kitchen), eight named "kitchen utensils," one named "kitchen appliances," and one named "cooking

utensils - eating." After the fact, there was a remarkably coherent consensus explicitly available about the names of the classes that had earlier been only indirectly available in the context-sensitive namings of the hidden objects they had found. But, were subjects aware of the class nature of these objects, even as that knowledge guided their naming? And if so, how were they aware of this and when did they become aware of this? The data in these questionnaires are rich and varied but the attempt will be made to summarize them.

Four of the twenty subjects were not aware of the class nature of the objects in either problem (i.e., that this was an issue at all) until they attempted to respond to the first question which asked if they were aware of this class. Yet, their namings were guided by context and in retrospect they were able to provide coherent names for the classes that shared in the consensus of the rest of the group which was more aware. For example, one of these subjects in response to question C (on the questionnaire for Picture 1) which asked "when did you first notice that all the objects were of a category," simply answered,

> After trying to respond to the first question on this sheet.

In response to question D, which asked "when did you come up with the word naming this category?", the subject answered,

> I didn't even realize they were in categories until I read this first question.

Similar responses were made by this subject on the questionnaire for Picture 2. (And similar responses were provided by the other three subjects who didn't realize the class nature of the hidden objects). Yet, in response to question B on each of the two questionnaires, which asked for the name of the category, this subject answered, "bathroom

materials" and "garden materials." This subject was able to "retrieve" the names of the categories; and her perception during the problems was guided and constrained by "knowledge" she was not aware of -- knowledge of a totally social character.

The responses of the rest of the subjects are harder to summarize concisely. Some of them noticed "something" after they found the first few objects in the first picture but didn't pay any attention to it until they sensed the same "something" in the second picture; and thereupon retrospectively applied it to the first. And, under these circumstances, subjects just had an "idea" of the substantive class-nature as they worked through the problems. They didn't have a clear or worded representation of that class until they were asked to give it in the questionnaire. For example, here is one subject's response to question C on the questionnaire for Picture 1.

> I began to notice a resemblance after the first few and once I got to the second picture I figured that the same applied there also.

And in response to Question D for the first picture, this subject said,

> I think I was thinking of an idea not a specific word. But once asked the question (B) that's when I thought of a specific word but the idea was already in my head.

Other subjects grasped rather quickly in the first picture the sense of the class nature, applying this throughout, but not coming up with a clear and/or worded representation of that class till they were asked for it. Still other subjects reached a clear and worded representation of the class nature in the first picture and looked forward to seeing it in the second picture. One subject even took this knowledge as an indication of the inappropriateness of some of the names she had given to some of the hidden objects; and took it upon herself to "correct" those names. As she said, in answer to question C,

> After I found two combs and, finally, the brush I realized that I had mislabelled some objects.

But this was the most extreme response to the realization of the class nature of the hidden objects. Most of the subjects had a sense of the class nature, per se, of objects that slowly developed over the course of their performance; and concurrently they developed a sense (clear or not) of the substantial nature of those classes. Here, for example, are the answers for questions A through D for both Picture 1 and 2 from a single subject. This subject may have been a bit more articulate in describing the process that had been going on, but the responses are representative of all subjects' responses.

Picture 1

A. Yes, except for the objects I was unclear on.

B. Toiletry items.

C. I was vaguely aware they belonged in the same category by the second or third item. But I really wasn't fully cognizant, or perhaps more specifically didn't think it at all important, till I saw the first question.

D. I came up with an idea first, namely -- things to be found around a bathroom sink -- then thought a few seconds and came up with a fairly accurate category.

Picture 2

A. Yes, the ones I could identify.

B. Garden tools. (The subject wrote "farm implements" and then crossed it out).

C. By the second or third object it seemed pretty clear to me. I was sure of it when I answered the last page, when I also first came up with a "placing" of them -- things to be found in the yard.

D. I first thought of the word (farm implements) while answering the last page, very soon after I "placed" them. Then while answering the last question I thought of a more accurate description.

All of the subjects' behavior, perception and experience was accommplished, both in solving the pcitures and answering the questionnaires, without any explicit instruction that hidden objects would all be of a kind. Yet, their actions were guided by the class nature of the objects. Those actions took on meaning, for them and for us, through their context-dependence, through the way they were organized and given form via the context. Those actions took on organization through the contexts that were accessible to subjects in one way or another. But despite the fact that those were social contexts with provisional existence, they still had the potency to regulate subjects' actions. However, these regularities of action (and the possibilty for "predicting" that action) last only as long as first, those substantial contexts are in prevalent use among society's members as a means for giving shape to action; and, in a larger sense, they last only so long as the more abstract, formal features of context-dependent activity that are herein featured remain in use. Surely, the contexts employed in this experiment are social constructions and, as such, subjects' actions were socially and historically conditioned. Are the more abstract, formal features of context-dependent activity a function of social or historical conditions or do they transcend the particularities of any historical and social conditions? I can't say. But I see that specific patterns of human activity are at least in part organized as a function of social and historical conditions; and they change as a function of those conditions. This stability and change is a matter of interest.

Were the subjects inescapably displaying a "natural" proclivity when they spontaneously realized the class nature of the hidden objects? There was certainly no proclivity to be "aware" of that class nature

since some subjects were never aware of it until they were specifically asked for it. It also wasn't necessary for them to be aware of it in order for their behavior to be regulated by it. But, was it "natural" on some tacit level for them to "know" or be sensitive to it. I don't know. But, certainly the form that this possibly natural proclivity took was of a completely social character. If they had never had experience with bathrooms, kitchens, farming tools or carpentry tools -- the least we can say is that their action would not have taken this form.

Discussion. When a subject's eye lit on the drawing and first noticed, perhaps, a wheelbarrow, a context of "farming tools" was indirectly invoked in that moment. As the subject saw, in turn, an axe, and a hoe and a rake, that context gained "reality;" and, if not that, it gained more strength to regulate the subject's actions. Each new sight indirectly reiterated and reaffirmed the character of that context and each sight gave greater coherent rigor to the social shape of objects that the subject had not yet "seen" (e.g., shovel). There is a sense, then, in which, when that context was invoked, the shovel was ruled into existence and the spoon was ruled out of existence. The "observer," too, took on a certain shape that would have been otherwise, if an egg beater, can opener and spoon were there to be seen. Even as observers are looking at this conventional world (preserving the appearance of being at a distance from it), they are a part of this conventional world. All parts take shape through their common conformity to context; and, by way of their attachments to each other through context, all parts are intelligible to each other. The same is the case, as we shall soon see, for two humanms who both inhabit the same conventional world and both

take shape by conforming to the same context. That doesn't mean that these two humans are identical. After all, "scoring" does not mean "running," within any one conventional world. Each takes peculiar shape, as a function of the material underpinnings, even as they all conform to context.

In the aftermath of invoking the context of farm tools, after the wheelbarrow has been seen, all objects take a certain shape in that conventional world. The shovel exists in this world and the spoon does not. Hence, when the eyes of this conventional observer shift to the "shovel/spoon," it becomes important to distinguish between the cognitive activity that takes place if that observer sees a shovel and the cognitive activity that takes place if the observer sees a spoon. There is a sense in which the former does not deserve the name "cognitive activity" in the way that the latter does. There is a certain absence of activity in the former case, unlike the latter case. The sighting of the "shovel" is a function of context remaining unchanged and inactive, while the sighting of the "spoon" is a function of a changing and an active context. In this sense, the sighting of a shovel does not require explanation in the way that the sighting of the spoon requires explanation. The shovel was sighted "because" things remained the same. By a similar token, within the conventional world of tools, there is a difference in the oversight of the "shovel/spoon" by the subject when that tooled conventional subject overlooks the shovel and when that socially same subject overlooks the spoon. Even though the subject has overlooked both the shovel and the spoon by the absence of the "same" single gesture, the subject would have to traverse over different sorts of distance in order to reach the sight of the shovel versus the spoon.

Without pretension, there is an analogy to be drawn between this point and the point that Galileo and Newton were making in trying to come to grips with the problem of motion. Aristotle was aware that the key to understanding nature lay in explaining the causes of motion. Part of Galileo's and Newton's achievement lay in distinguishing between what was truly motion and what only "looked" like motion. Motion that was a function of inertia only looked like motion. Its continuing "movement" was not caused and it did not have to be explained. That "motion" was a function of things remaining the same. Acceleration, on the other hand, was caused by the application of force to an object. It had to be explained. Things that are left to their own devices do not accelerate. If we are witness to an accelerating object, then that acceleration must be explained. It was a function of things not having remained the same. To explain that acceleration, in their case, one would have to look for the source of that force in another body that had entered the system to apply that force. It is not clear that this is the way to explain "activity" in our case.

In any case, this analogy should help make clear what is meant when it is asserted that in a sense the sighting of a shovel (as opposed to a spoon) doesn't have to be explained. There isn't really any interesting cognitive activity going on here. No "processing" must be invoked in order to explain how the observer was able to see the shovel. But, there is interesting cognitive activity to explain if the observer saw a spoon. This point is general. But the facts are relative. That is, it isn't the sighting of the shovel or spoon, per se, that is interesting and requires explanation. Rather, it is the sighting of the spoon when, a moment ago the observer was in the conventional world of farm tools, that

is interesting and requires explanation. And it is the sighting of a shovel when, a moment ago, the observer was in the conventional world of the kitchen, that is interesting and requires explanation. These socially and historically conditioned facts need to be verified in order to know whether anything interesting has happened that requires explanation, with regard to "cognitive activity." How can we begin on such a project of explaining cognitive activity, when we still don't have the means for identifying and distinguishing it when it empirically happens? That is, we must have the means for distinguishing between cognitive activity and that which only looks like cognitive activity. Without this, we cannot begin controlled empirical observation of cognitive activity that would in part contribute to a "science" of that activity. This knowledge of social and historical conditions is required, if for no other reason than to locate the empirical instances that could be observed for their instructiveness in the effort to "build a science." But, these points also allude to the inescapably social roots and conditions (of some sorts) of cognitive activity. They contribute to the constitution of that cognitive activity.

When a human has been in the conventional world of kitchens and, then when faced with the propsect of a "shovel/spoon," is struck by the sight of a shovel, there are two features of change that can be remarked upon. The spoon has "turned into" a shovel and the conventional observer of kitchens has turned into the conventional observer of tools. (Of course, there "also" has been a change in conventional worlds). From our perspective, it should go without saying that the change in conventional observer is accompanied by change in the biological substrate that, as material underpinning, contributes to the constitution of the

conventional observer. Under the right conditions, these changes in the biological substrate would be interesting to study. But, that biological activity must be distinguished from the biological activity that occurs when the conventional observer of kitchens is struck by the sight of a spoon. In any case of perception, of course there are transactions in the material underpinnings of the conventional objects whose regularity is vouched for by "nature." But, it is misleading to say that those underlying processes, within the conventional world of kitchens, solely cause the sight of a spoon. And it is certainly misleading to say that those selfsame processes, in that same conventional world, cause the sight of a shovel. The regular and predictable sight of a spoon was, in part, a function of the necessary presence of the conventional world. The same, somehow, goes for the irregular and unpredictable sight of shovel.

When as a function of the sight of the shovel the conventional observer has flipped into the world of tools and all of the world has taken shape in conformity with the context of tools, it is too simple to say that the material underpinnings of that process (that directly negotiated the transaction whereby the sight of a shovel was available) entirely caused that flip. Rather, the sight of the shovel spurred a process of conceptual reorganization (which itself has a biological constituent). Or the process happened in reverse order. Or the two processes happened in tandem. In any case, the two processes are distinguishable. And in any case, it is misleading to say that a simple uncompounded "empirical" process that underlay the sight of a single object was the cause or the material counterpart of a conceptual reorganization that, in one moment, gave entirely different shape to the

whole world. There is more to a "smoking gun" (i.e., a final irrefutable piece of empirical evidence whereby we change or minds) than meets the eye.

There is no denying that a human can intentionally be intruded upon on a biological level (e.g., drugs) and that this will influence the course of cognitive activity and the sights that will be seen. But, that is not of interest in this context, where we wish to get a track on the human move to freedom as the capacity for choosing becomes more fully developed. That other strategy moves in the other direction looking for ways to cut down the avenues of human movement, even if it is motivated by a desire to help people. In any case, it is not clear that this strategy alone would explain how it is, e.g., that some people dream and hallucinate while others only dream.

In the practically-oriented stream of everyday life, each encountered object offers the observer an opportunity to reiterate the context that is already in force which gives shape to the conventional world. This, in turn, strengthens the rigorous shape of all conventional objects that are in that world. But each encountered object also offers the opportunity for a radical alteration of the context and world, if that object is irregularly and unpredictably named. Then, indirectly, the world is radically changed. There is the middling course where, time after time, the sight of an object is slightly altered and these changes accumulate even as they might remain unnoticed by the observer who is accomplishing them. The altering sight of this object alters the context that overhangs. This, in turn, alters the sight of every other object in that context. But, all those other objects also have a history of exchange with the observer. And so, we might have a drift of development

as all these objects "communicate" with each other through the route of context, with their massed effect on the conventional observer. However, this observer has many roles (i.e., conventional identities) which on a larger scale might contribute to the massed, drifting development of that person. When conventional observers don't see how their world could be otherwise, this drifting continues "on course." Its continuity is vouched for by the self-evident personal history that has accumulated in each human's conventional environs.

When the conventional human attempts to alter the environment and arrange it in another way, the form of those very gestures is itself arranged by the pre-existing social and historical conditions. New things in the world inherit at least traces of those prior forms since their human creators were subject to and shaped by those prior forms, even as they created these new things. And so, social ad historical continuities are preserved. The disruption of these continuities might even be resisted by the conventional objects themselves which resist redefinition when they are placed in another context. These objects seem to have minds of their own (e.g., the "watering can/measuring cup" in the experiment). In part, this may be what is intended by the commonly understood distinction between objects and/or activities that are context dependent and those that are context independent. (From our perspective, of course, it can make no sense to assert that any social object has form, independent of context). The appearance of context dependence is most easily accessible when the observer is puzzled by the meaning of an object and must fix on other elements of that environment in order to understand what the object, that is the focus of attention, means. Usually, the realization that "this object" could mean other things is a

concurrent part of this process; and, hence, there is the realization that the meaning of "this object" in this situation is fixed by this context and depends on this context that "surrounds" it. There are other objects, however, that do not require an appeal to the rest of the environment in order to see what they mean. They clearly and "unambiguously" announce what they mean without regard to their environment. And they seem to retain that meaning when they are placed in foreign environments. But, that doesn't mean that its social form is independent of context. Quite the contrary. A singular context is so firmly emplaced in this material underpinning (i.e., we are so "used" to seeing it this way) that it resists the attempts of other contexts to give it other forms.

But, how can radical (and perhaps motivated) discontinuity in cognitive activity and social action be put into effect? Two possibilities come to mind. For the conventional observer in a well-known environment, the practically-oriented stream of everyday life offers up a collection of easily recognized objects. Within context, the recognition of each object as it has been known indirectly reiterates that context and renews the integrity of that object's social form. But if that observer has access to other contexts, through other conventional identities that are possessed, and if that observer can be "persuaded" to invoke another context, then the presented material will take on different shape and significance. Radical change will have occurred when the observer sees "another side" to this object that has never been seen before. Often, this experience is imemdiately followed by a comparison between the newly afforded sight and the way it is used to be sighted. And this, in turn, spurs more cognitive activity. Such events might

occur when one person hasn't seen another person or a particular locale for many years. The new sight of that place or person is radically different from what is remembered or expected. An ensemble of new features is visible that was not seen before. The usual response to this experience is that the object of attention has changed; but just as likely is the possibility that the observer's form has changed between now and then, so that the sight afforded back then (and presently "retained" in memory) is at odds with the sight that is now afforded. But, one doesn't have to rely on history and the passing of time for the working of these effects. If one suddenly comes across a person in a context where one wouldn't have expected to see that person, then the sight of that person is radically different from the sight of that person that is available when one is "ready" to see that person. New sides of that person are seen that are not necessarily inconsistent with one's retained impressions, but one never had thought about it one way or another. But, this now changes our impression of the person.

The implication of this latter example is that, ordinarily, we are "ready to see" in a certain way most of the people that we encounter everyday and that, consequently, we recognize them in a certain way (e.g., for their known character, sex or race); even though we do not know exactly who it is we will be meeting next. The heterosexually-oriented man, for example, is not as vulnerable to "love at first sight" when he is looking at men as he is when he is looking at women -- even before it has registered upon him that he is now looking at a man or a woman. There are different sorts of distance to traverse in order for this man to be struck by love in one way or the other. Under these circumstances, it is a different sort of "accident" for him to fall

in love with a man when it is opposed to the "accident" that occurs when he falls in love with a woman. In his attitude, this man (by somehow blindly choosing) shields himself from one possibility and finds himself open to the other possibility.

In any case, radical discontinuity in the conventional observer is possible when that observer has access to other fully-developed contexts that, at the moment, lie dormant. The invocation of those other contexts might occur fortuitously, thus yielding unexpected sights. Or there might be a more planned character to the attempted elicitation of these other contexts; as when observers themselves attempt to see things from the perspective of others, or when others encourage the observer to do this. There is another way in which these continuities can be disrupted, which does not rely on the ready accessibility of developed contexts. That is, the observer might engage in the project of developing a new context. The conditions for initiating such a project are diverse. One could have a collection of facts that do not have a hitherto available coherence. Or the actions of others, in one way or another, might demand the initiation of such a project by the observer. Generally, however, there is a single feature available at the beginning of these projects (in one degree or another) that, on the one hand, provides the impetus in the observer for engaging in this project; and, on the other hand, provides the promise of a criterion (in principle if not in practice) by which the observer can assess whether the new context has been successfully developed or whether effort must continue for developing that context. This feature is the <u>desire</u> for something else that is at present absent and/or at odds with what is present. There is a desire for change (in the context) which would yield what is absent. At

present, there is a sense of dissatisfaction or unsatisfaction in the observer. The successful completion of the project would be accompanied and signified by a sense of satisfaction.

These two possibilities come to mind in contemplating the means for disrupting continuity. There is a more mundane feature of the practically-oriented stream of life, however, that in its way is a more potent force for disrupting the continuities of social life. This concerns a general feature of the conventional observer's attitude during the course of the practically-oriented stream of life. Within that stream, each presentation of an object can be regarded as an occasion for reiterating context or it can be regarded as an occasion for revaluating context. Needless to say, there would be much more cognitive activity and social development under the auspices of the latter circumstances than under the auspices of the former circumstances. The latter approach, in one form or another, is often disparaged or feared because it is said that this would result in anarchy. However, this claim loses some of its validity when it is recognized that human efforts to rearrange the world are (at least in part) inescapably arranged by the social and historical conditions of those efforts. Some continuity is guaranteed. Most conventional observers, however, do not take the presentation of objects as an occasion for either reiteration or revaluation. Rather, they find it as an occasion for reiteration. This seems to be a rather pervasive and general feature of our society that is perhaps encouraged by the powers that be.

The attitude of the conventional observer that takes each occasion, through the presented object, to reiterate the context that is already in place could be called the natural attitude. It operates under the

impression that nature is given shape by timelessly existing essential forms which by definition remain unchanged; and these essential forms vouch for the continuity and stability of the word. It stands to reason, then, that humans would take their place in this world by constantly reiterating what is always there. They take part in this world by reiterating the identity of a world that will always be there. On the other hand, the attitude that takes each occasion, through the presented object, to revaluate the context that is already in place could be called the critical attitude. It operates under the impression that "nature" takes shape through the interplay (and, perhaps, dialectical progression) of provisionally existing forms which by definition are constantly changing; and the shifting of these forms vouch for the continuity and stability of the world. It stands to reason, then, that humans would take their place in this world by constantly revaluating what is presently there. They take part in this world by revaluating the provisional identity of this world, directing it toward where it will be. Some would say that the natural attitude should thus be called because it is only natural to take that perspective. But, it is only natural to take that perspective from the natural perspective.

When a conventional observer intends to see something, that gesture of intention can take one of two forms. The characterization of these two forms of intention holds as well for long sequences of "behavior" as they do for a single act of perception; but this characterization will focus on the distinctive forms of that gesture when it is an act of perception. One of these two forms is actually less qualified to go by the description of intentional, as that word is colloquially used, yet it displays traces of what is usually meant by intention. And its products

must be assessed just as if they were the products of intention, even as we mark the distinction between this diminished form of intention and a truer form of intention.

In this last experiment, when the wheelbarrow was sighted and the conventional world of farm tools was employed and the eyes of the conventional observer faced the "shovel/spoon," there is a sense in which it is inaccurate to say that the observer intended to see the shovel. And yet there is a sense in which the sight of that shovel was the product of intention. The shovel would not have been visible without some exercise of organized willfulness that is associated with the notion of intention. Yet, the active exercise of that willfulness (probably) was not present during the time-bounded empirical process that accomplished the sighting of that shovel. The active exercise of willfulness that is responsible for sighting the shovel can be traced back to (though, perhaps, not pinpointed in) the process by which the wheelbarrow was sighted and the context was emplaced. In one sense, then, the sight of the shovel was intentional and in another sense it is unintentional. But, in either case, it is the product of intention despite the fact that observers might examine every shelf of their mental inventory and certainly conclude that they did not intend to see the shovel. This is to be contrasted with a truer form of intention (which the observers examining their mental inventory were employing) where observers have on their mind the full awareness to do or see something as they begin the project. Are observers equally responsible for the upshot of activity in both cases of "intentional" activity?

It may depend. With regard to "intended" behaviors or actions, the actors might not be aware of the earlier, fully-intended action and its

connection with this "intended" action. Or, they might not be able to locate the specific act that constituted the initially full intention. Or that act might not have been available to them as a matter of choice. That is, they didn't see how it could be done otherwise, either from a lack of access to other contexts or a lack of imagination. And all of these reasons would hold with regard to "intended" perceptions and experiences with the addition of one other. That is, it might not be clear to them that perception or experience, per se, is the sort of thing that can be intended; or the manner in which that intention can be executed. This experiment sought, in part, to demonstrate how it is sensible to speak of perceptions and experiences as the sort of thing that can be intended. Subjects "opt" for a farm tool context or a kitchen context and, hence, see and experience either a shovel or a spoon. The fact that subjects, in this case, did not fully make a "choice" is not a function of the fact that the act was one of perception or experience rather than behavior. Rather, this was a function of the other factors that were listed above with regard to behavior and action. Once it becomes sensible to speak of choice, with regard to perception and experience, per se, then it becomes possible to assert the responsibility that persons have for their perceptions and experiences. If all the factors herein listed are pointed out to the actor that "intends" activity, then in answer to the above question it is plausible to answer that the persons are equally responsible for the consequences of either form of conventional, intentional activity. But regardless of whether or not persons are held responsible for their "intentional" activity that results in discrimination between, for example, black people and white people, there can be no doubt that discrimination has

taken place that can be traced back to (if not pinpointed in) some earlier act that displayed fully organized intentions. In this sense, it is entirely beside the point to make the effort to verify whether or not there was a full-blown expression of intention that accompanied documented instances of discrimination. Those intentions are not just hard to prove. They might not be "there." But that does not mean that they are not the product of intention.

When the wheelbarrow was sighted and the conventional world of farm tools was emplaced, there is a sense in which one can say that the sighting of the shovel was intended. And, in a sense, it might not have been intended. The emplacement of that context also gave shape to conventional observers. That shape amounts to their conventional identities. One can say that the observers used the resources afforded by their identities to make the sight of the shovel visible. Each of the ten subjects, that were inducted into the context of farm tools, were possessed by the "same" conventional identify insofar as it offered each of them the same resources whereby the sight of the shovel became visible. These ten subjects, then, can be called a group with each of them being a member. By the social orientation and calibration of their "senses" that have material underpinnings, each of them uses their resources as a member to make visible an object that has reality, by definition, within the confines of that group's conventional world (i.e., a shovel). None of the subjects may have fully intended to see the shovel, but each of them understands the significance of the "shovel/spoon;" and each would understand what was signified if another member of the group pointed at it -- by virtue of the common resources that each of them has as a member of the group. And we, as outsiders,

might grasp that a misunderstanding has occurred if a member of another group, that had been emplaced in a kitchen context, wandered onto the scene and after silently greeting the member of a "tool" group pointed at the "shovel/spoon;" with the "tool" group member nodding in return. We would grasp that there had been a misunderstanding, but they might not grasp this. They might believe they had reached an understanding. Subsequent events might lead them to conflict, but they each would regard this as a betrayal by the other of the earlier understanding. Among other things, resentment would ensue. In this case, our easy understanding is a function of our facility with all of the contexts (in their articulate form) that constitute the design of this experiment. An effective approach, by social scientists, to society's problems of bias and prejudice would require as easy a grasp of and facility with the contexts that situate those problems.

The conventional identity, through which one becomes attached to a certain conventional world, is another way of making reference to one's status as a group member. One could be the only member of that group and yet that member's resources are structured in such a way as to allow for more than one member who can share in the use of those "same" resources. The conventions that confer social significance on the materially available world are not dictated by nature. They are reached for by humans. And, as such, they are within the reach of other humans. There are other ways in which to amplify on the unavoidable accessibility that one human has to the social products of another human, but this is not the place for that. But, just because this accessibility is provided for, in principle, does not mean that "intersubjective understanding" and the coupling of minds is routinely accomplished. Far from it. In fact,

in some senses, it doesn't begin to take place until each person recognizes, in themself and other, their status as members -- limbs of an organic space. Then, they can use their resources as members for an even more well-organized and orchestrated interplay of activity whereby they reach for a greater and more coherent understanding. Thereby, too, the organism that they are both part of attains greater coherence. But in some sense, it is a never-ending process. Because running is not scoring.

VII - ON THE CONTEXT-DEPENDENCE OF PERCEPTION

As members, we use our resources to make a certain conventional world available to us. As members, at the same time, we use our resources to make a ceratin conventional world. And, as members, we use our resources to make the actions of other members understandable to us. But, do the other members use the "same" resources? The coherence of group activity tells that story. In many instances, the members of the group are in each other's presence and we can see the attachments that they have for each other. Often, however, they each go their own way within the spatial confines of the extended conventional world. Even as they do this, each retains the resources whereby the whole "world/world" is given shape. And it is a constantly developing process.

The serious and consequential import of this has somehow been lost in the practice of social science. Concepts like "attitude," "role," "member," and "social interaction" have lost their potency. They have become used as cold, abstract entities with indifference to the detailed consequences that their operation does have in the flesh. Some social scientists may leave these considerations unincorporated as they design models that will account for the rational features of human activity and that can then be interfaced with the human body. It will not work, if each and every part of the human being is not somehow considered part materially endowed and part contextually endowed. In coming to terms with the character of regularity in human action, natural scientists somehow find unbelievable those assertions that claim an awesome power in

the gestures of human willfulness which is capable of wholesale creation or destruction -- at the very least in the world that is inhabited by and experienced through human beings. In fact, they see little potency at all in the potency of willful, human gestures. Rather, it's easier for them to see how human behavior is almost wholly caused by the impressions of an external Nature, with its independent orderliness, through the mechanical principles. Nature forces the issue and the manufactured regularities of Culture have little effect on the operations of Nature that retains a timeless orderliness unto itself. The relation between Nature and Culture is more incestuous than they would suspect. Their attitude, in part, indicates some measure of a lack of respect of human beings. It implies a certain lack of capacity in human beings that Nature must instead supply. But, even if human beings were paid respect, the potent character of intentional human activity and the sources of regularity in that activity would still be mysterious. Even if one took seriously the hypothesis about the genuinely creative character of human action, though a start would have been made, it would still be unclear how this is precisely done; and claims of this sort would still be considered extravagant, and would be greeted with disbelief. The person takes an attitude and then the whole world, including the person, takes a certain shape as a result of that gesture! How could that be done? In part, these experiments sought to demonstrate how that could be done. But, perhaps they can be considered cutely designed situations that do not really provide instruction about the character of regular human activity in the real world. So, here is another example that might make the proposal a little bit more believable.

Consider the case of a jury who, at the end of the trial, will have to come to a decision. There is more than one way to understand the manner and mechanisms of the process by which they come to a decision. One can understand that they are listening to all the evidence and, on that basis, they are going to decide whether or not the defendant is guilty, for example, of murder. But, there is another way to regard this whole procedure. The jury is exposed to all the material traces of an irretrievable act that has occurred in the past (i.e., evidence); not copies of the material, rather the actual material. And, in extreme cases, this jury is sequestered so that they will get no information about the act under consideration from any place else. The prosecuter provides an account that would give one sort of shape to each material trace. The defense attorney provides another account that would give another shape to each and every material trace. The jury must decide which account gives the greatest coherence to the entire set of material traces. If the prosecuter's account gives greater coherence, then a part of that coherence is the shape of the defendant as a guilty person. If the defense attorney's account is more coherent, then a part of that coherence is the shape of the defendant as a not guilty person. As the trail progresses, jurors accumulate provisional judgments of coherence. Sometimes, a smoking gun appears which makes it clear that the defendant is guilty. But the sight of that one thing didn't cause the jury to decide "guilty." Rather, it spurred a contextual reorganization whereby all the material evidence was revaluated, including the status of the defendant's shape. At other times, the smoking gun may be within reach, but the judge denies the jury access to that actual evidence which is a material trace of the past act that indisputably, though indirectly,

points to a certain coherent account; and thus, indirectly, the judge denies the jury access to the viability of a whole world of information that would have been spurred into existence by that "fact's" presence and by the subsequent reorganization of the world, so as to have all of that world in as much conformity to the coherent context as that "fact" is in conformity to the coherent context. (This process features the way in which people in everyday life can be denied access to worlds of information without denying them access to all the wordly empirical events that help constitute those worlds of information. One simply denies them access to the few smoking guns that would spure an entire conceptual reorganization. In this way, one controls the flow of information. By a similar token, the crucial experiment in the tradition of Newtonian natural science that "decides" between competing theories can be regarded as providing access to a sort of smoking gun, whose single, empirical upshot spurs the reorganization of an entire domain through the route of a reorganized, theory-context that gives shape to each of the domain's elements).

In most cases, however, there is no smoking gun. Rather, the jury retires and decides which account is more coherent. Society has given the jury the latitude to decide reality and, for the purposes of public account, their decision is reality -- no matter what "actually" happened. Society will continue to operate with respect to what the jury has decided. They give "final" shape to all the material relevant to this episode. It goes without saying that the juror-observers themselves have taken shape in one way or the other by the light of the trial's final outcome. (There are extensive comparisons to be made between the situation of jurors and the situation of subjects. In the laboratory,

however, subjects are not allowed the latitude that jurors are allowed in the courtroom. Though they too are sequestered and exposed to only relevant material, subjects can only announce the possible forms of social reality. They cannot decide those forms. But there is more than one way to take subjects' indecision).

However, in the practically-oriented stream of everyday life, things are not so neat for human beings. We are told that now or then is the time for choice, nor are we clearly told what those choices are. But, we should not have to be told. We should know this for ourselves. We shouldn't constantly find ourselves in a world which shows the aftereffects of choice. Of course, it is not easy to constantly choose. In some sense, it is impossible to constantly occupy ourselves in the exercise of choice. That might simply forestall action. There is an overwhelming dimension to the world at large that one human or even a group cannot hope to digest in one choice gulp. As outlined earlier, each object within a context subtly reiterates or alters that context which, in turn, reiterates or alters everything else. And we live through a multitude of contexts. We cannot hope to cope with the flood of objects and the cross-currents of contexts, considering for each of them the instruction and/or reform that it might provide for the whole of our lives. However, it is not a necessary consequence of this fact of futility that we should allow ourselves to drift by the course provided through natural, social or historical conditions and principles. This "natural" attitude only underlines the impotency of human beings that deeply informs the approach of many social scientists. Among other things, this provides them with more "evidence" of the correctness in their perspective.

In the practically-oriented stream of everyday life, the constant employment of a critical attitude would reduce the activity necessary for looking at each one of a flood of objects to manageable proportions. It recognizes ourselves to be morally responsible agents with the form of each one's conventional identity subject to each one's control. One has chosen this identity in light of the alternatives that (hopefuly) one was aware of but discarded. All actions, then, are the product of intention that was fully exercised at this point and subject to revision as one comes to terms with the world. By assuming conventional identities that incorporate features of the critical attitude, persons "find" themselves revaluating the objects they are faced with in the practically-oriented stream of life as a matter of course and context. "Inertia," then, would be on the side of change as observers, for each object "found," attempt to join the context to the materially available "external" world in a manner consistent with the already-joined, conventionally-identified observer that was produced as a matter of choice. Complete success would amount to the simultaneous satisfaction of both coherence and correspondence criteria for "truth," whereby an ideal context was wholly materialized; thus giving it the fullest expression of actual existence. This would require, in one moment, that the whole of Nature's material and all of <u>its</u> ordered chunks be commensurable with and in conformity to the more precise and manufactured kind of social standards by which human societies calibrate <u>their</u> actions. It isn't clear that such a thing could happen, but at least the effort would keep things moving; and that effort would include the attempt to keep one's moral balance, as the undesired features of one's broad choices that had been "unnoticed" became evident in the actualization of those broad choices. Even in a

society whose arrangements encourage or allow for this sort of activity, this is easier said than done. It is an altogther much harder project to strive for in those societies whose arrangements would have it otherwise.

Looking back at the 19th Century, one would have thought that a useful division of labor was being devised among scientists whose general interest was an understanding of the whole world. The objects of study for the physical sciences more easily lent themselves to understanding through an atomistic, mechanical approach. And the objects of study for the social sciences more easily lent themselves to understanding through an organic, vitalistic approach. There would be a recognition that these objects alone, in one context or the other, were ideal and unreal. They didn't exist as things in the world. To understand the things of this world and the character of their regularity, one would need contributions from each of these areas and a way in which to join them. A way of joining them must be accessible since, in the way of the world, they exist already joined. The events that are of concern to physical science require "organic" input for their happening. The events that are of concern to social science require "mechanical" input for their happening. Each event of the actual world, in each and all of its parts, is constituted of indispensable "atomistic" and "organic" parts. Each event features both mechanical nd vital processes.

Over time, however, social scientists, especially those of the laboratory variety, "chose" not to see this. The natural scientists of social life focused their research interests on the disjointed limbs of human activity that resembled the sort of things that "real" scientists studied. They entered the laboratory looking for evidence of the reality that they already know has the property of timeless existence. They

merely looked for the character of those timeless, essential forms that governed human behavior. Once they were had, they would be theirs forever. They entered the laboratory with the natural attitude. They operated with the reiterative principle, seeking verification over and over again for what they already knew existed, looking for confirmation.

There is another way to enter the laboratory, in good faith. One can enter the laboratory with a critical attitude, looking to see how things change or absent themselves from change. One can operate with a revaluative principle, looking for signs of change in the forms that subjects as a group (and perhaps as a population) are using to give shape to their world and organization to their activity. In those data, one would also see the signs of the process of change.

When patterns of social behavior are played out, one can focus attention on either the psychologists who are observing those patterns or the social individuals who are enacting those patterns. Psychologists reaching for the data on which to base a natural science will understandably search for the invariances in social behavior. Social psychologists operate under the premise that regularities in social behavior collect around socially produced contexts that may not be commensurable with each other (rather than collecting around a single set of invariant principles that operates throughout the social world). Consequently, they do not strain the data of social behavior to find the underlying unity in those disparities or the inherent irrationality in one part that would make the disparity between the two understandable. Hence, when confronted by two groups that present incommensurable accounts of "reality" and that accuse each other of bias, their inquiry aims to uncover the social and historical conditions (i.e., context) that

respectively give shape to these incommensurable accounts. This inquiry is informed by an appreciation for the conventional status of each of those incommensurable accounts of reality. It is the latter appreciation, more than any other, that must be conveyed to both of the warring parties when group conflict emerges within society. Each of the two parties may perceive threat and resist change when confronted by the other. Group members have become attached to their respective conventional worlds (and conventional identities) that took shape through deployed social contexts. But, they lose sight of its conventional character and endow their world/identity with the authority of nature; and when that world/identity is threatened they feel their very existence is threatened, while in fact it is "only" certain of their conventional arrangements that have been threatened. The social psychologist's efforts should be directed at narrowing the distance between two conventional sets of arrangements. An important part of that project should be to convey to both of the warring groups the conventional character of each world of consistency and the conventional character of the exhibited incommensurabilities. In that context and with that appreciation, the conditions are also created for functional change within each group.

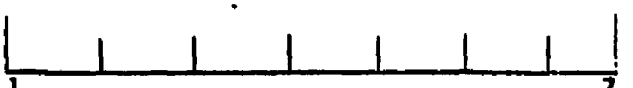
APPENDIX A- P.1 of 5

This study has to do with people's perceptions of whole, complete activities and how they perceive parts of that activity in relation to the larger, whole activity. On this form you are asked to judge how important a role the smaller activity plays in accomplishing the goals of the larger activity. There will be two problems of this sort. One is on the next page and the second is on the page after that. For each problem, there will be eleven sub-activities that you will have to judge on a scale from 1(very important) to 7(very unimportant) with regard to how important they are in accomplishing the larger goal. The other blanks represent the range between very important and very unimportant — for example, the middle blank represents moderate importance. Some of the sub-activities might describe a greater segment of the larger activity than other of the sub-activities. (You might want to take this into consideration when making your ratings.)

For each problem, the sub-activities will be listed on the left side of the page while the rating blanks for each sub-activity will be listed opposite it on the right side of the page. Check only one of the seven blanks for each of the eleven sub-activities. Before making any of the ratings, look at the list of sub-activities so that you can get a good idea of the larger activity. Then make your ratings for each of the eleven sub-activities. Go on to the second problem only after you have finished the first problem.

Don't worry about why you feel that some sub-activity is or is not an important part of the larger activity — just mark it the way you see it. These problems do not require deep thought. We are just trying to get your impressions. Okay? If you have any questions please ask them now since you won't be able to ask questions while you are completing the form. If you have no questions then just read and sign the consent form the experimenter will give you and you can go ahead and complete the form.

EDITING



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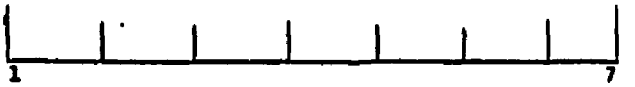

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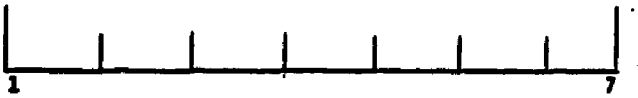

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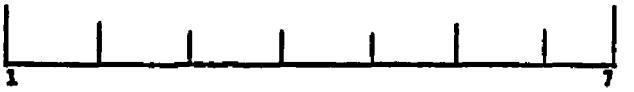

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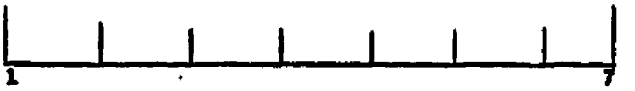

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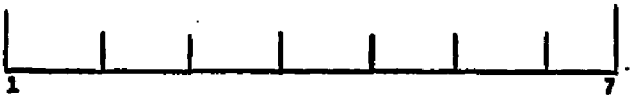

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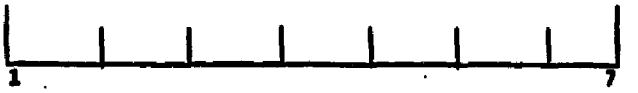

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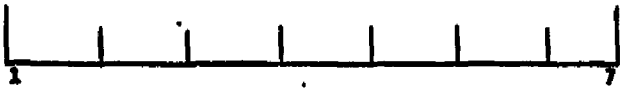

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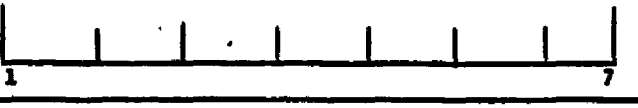

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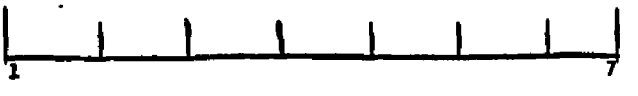

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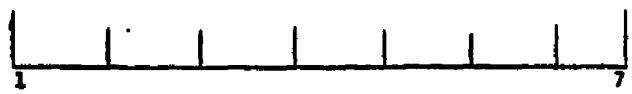
KICKING



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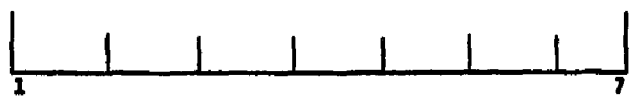

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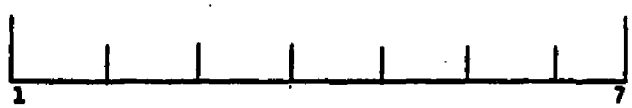

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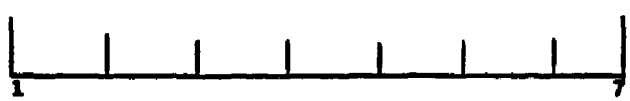
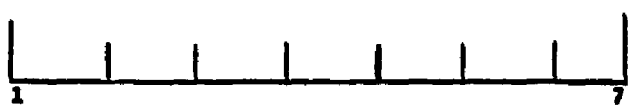
RUNNING



JUMPING



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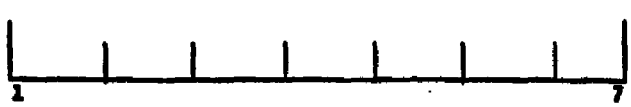

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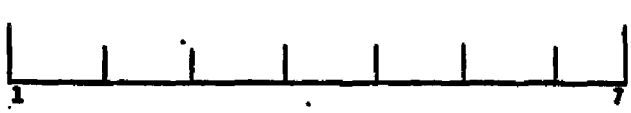
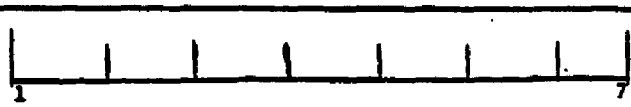


TRIPPING

SCRIPTING



Questionnaire on PROBLEM 1

NOTE: Use the other side of this page if you need more room to answer

A) What was the name of the first larger, whole activity?

B) Did you come up with that word naming the whole activity;while you were looking at the words describing the sub-activities or did you just now come up with the word while during the problem you had just worked with and grasped the idea of the larger, whole activity? Explain, if you can.

C) When did you know what the larger, whole activity was? after looking at the first 3,4,5,etc. sub-activities? after looking at all the sub-activities once,twice, etc.? Explain, if you can.

D) Can you remember any or all of the sub-activities and the ratings that you gave them? If so, write the name, rating (1=very important, 7=very unimportant) and any reason that may have occurred to you at that time for giving the sub-activity that rating. If you had no "reason", don't concern yourself with answering this part of the question. We are just trying to give you an open-ended opportunity to express thoughts that may have occurred to you at that time.

1)_____

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11)_____

Questionnaire on PROBLEM 2

NOTE: Use the other side of this page if you need more room to answer

A) What was the name of the second larger, whole activity?

B) Did you come up with that word naming the whole activity;while you were looking at the words describing the sub-activities or did you just now come up with the word while during the problem you had just worked with and grasped the idea of the larger, whole activity? Explain, if you can.

C) When did you know what the larger, whole activity was? after looking at the first 3,4,5,etc. sub-activities? after looking at all the sub-activities once,twice, etc.? Explain, if you can.

D) Can you remember any or all of the sub-activities and the ratings that you gave them? If so, write the name, rating (1=very important, 7=very unimportant) and any reason that may have occurred to you at that time for giving the sub-activity that rating. If you had no "reason", don't concern yourself with answering this part of the question. We are just trying to give you an open-ended opportunity to express thoughts that may have occurred to you at that time.

1)_____

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11)_____

APPENDIX B - P.1 of 5

This study has to do with people's perceptions of whole, complete activities and how they perceive parts of that activity in relation to the larger, whole activity. On this form you are asked to judge how important a role the smaller activity plays in accomplishing the goals of the larger activity. There will be two problems of this sort. One is on the next page and the second is on the page after that. For each problem, there will be eleven sub-activities that you will have to judge on a scale from 1(very important) to 7(very unimportant) with regard to how important they are in accomplishing the larger goal. The other blanks represent the range between very important and very unimportant -- for example, the middle blank represents moderate importance. Some of the sub-activities might describe a greater segment of the larger activity than other of the sub-activities. (You might want to take this into consideration when making your ratings.)

For each problem, the sub-activities will be listed on the left side of the page while the rating blanks for each sub-activity will be listed opposite it on the right side of the page. Check only one of the seven blanks for each of the eleven sub-activities. Before making any of the ratings, look at the list of sub-activities so that you can get a good idea of the larger activity. Then make your ratings for each of the eleven sub-activities. Go on to the second problem only after you have finished the first problem.

Don't worry about why you feel that some sub-activity is or is not an important part of the larger activity -- just mark it the way you see it. These problems do not require deep thought. We are just trying to get your impressions. Okay? If you have any questions please ask them now since you won't be able to ask questions while you are completing the form. If you have no questions then just read and sign the consent form the experimenter will give you and you can go ahead and complete the form.

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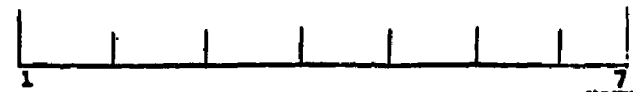

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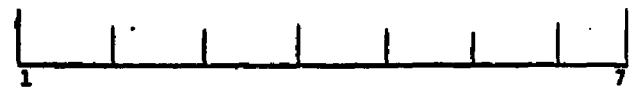

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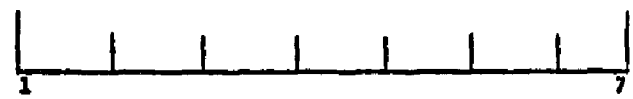


SHOVING

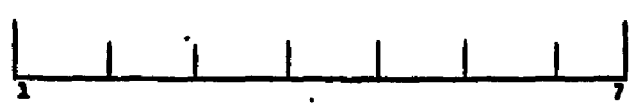
PINNING

MOVING

SHUFFLING

SNEERING

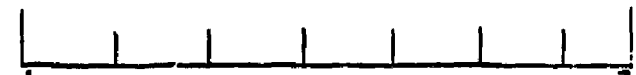
BOXING



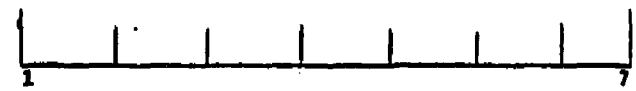
GRABBING

CLIPPING

CODING



PROGRAMMING



COMPUTING

SCORING

TABULATING

RUNNING

COLLECTING

DEBUGGING

PUNCHING

SORTING

SCRIPTING

Questionnaire on PROBLEM 1

NOTE: Use the other side of this page if you need more room to answer

A) What was the name of the first larger, whole activity?

B) Did you come up with that word naming the whole activity;while you were looking at the words describing the sub-activities or did you just now come up with the word while during the problem you had just worked with and grasped the idea of the larger, whole activity? Explain, if you can.

C) When did you know what the larger, whole activity was? after looking at the first 3,4,5,etc. sub-activities? after looking at all the sub-activities once,twice, etc.? Explain, if you can.

D) Can you remember any or all of the sub-activities and the ratings that you gave them? If so, write the name, rating (1=very important, 7=very unimportant) and any reason that may have occurred to you at that time for giving the sub-activity that rating. If you had no "reason", don't concern yourself with answering this part of the question. We are just trying to give you an open-ended opportunity to express thoughts that may have occurred to you at that time.

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Questionnaire on PROBLEM 2

NOTE: Use the other side of this page if you need more room to answer

A) What was the name of the second larger, whole activity?

B) Did you come up with that word naming the whole activity;while you were looking at the words describing the sub-activities or did you just now come up with the word while during the problem you had just worked with and grasped the idea of the larger, whole activity? Explain, if you can.

C) When did you know what the larger, whole activity was? after looking at the first 3,4,5,etc. sub-activities? after looking at all the sub-activities once,twice, etc.? Explain, if you can.

D) Can you remember any or all of the sub-activities and the ratings that you gave them? If so, write the name, rating (1=very important, 7=very unimportant) and any reason that may have occurred to you at that time for giving the sub-activity that rating. If you had no "reason", don't concern yourself with answering this part of the question. We are just trying to give you an open-ended opportunity to express thoughts that may have occurred to you at that time.

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APPENDIX C - P. 1 of 5

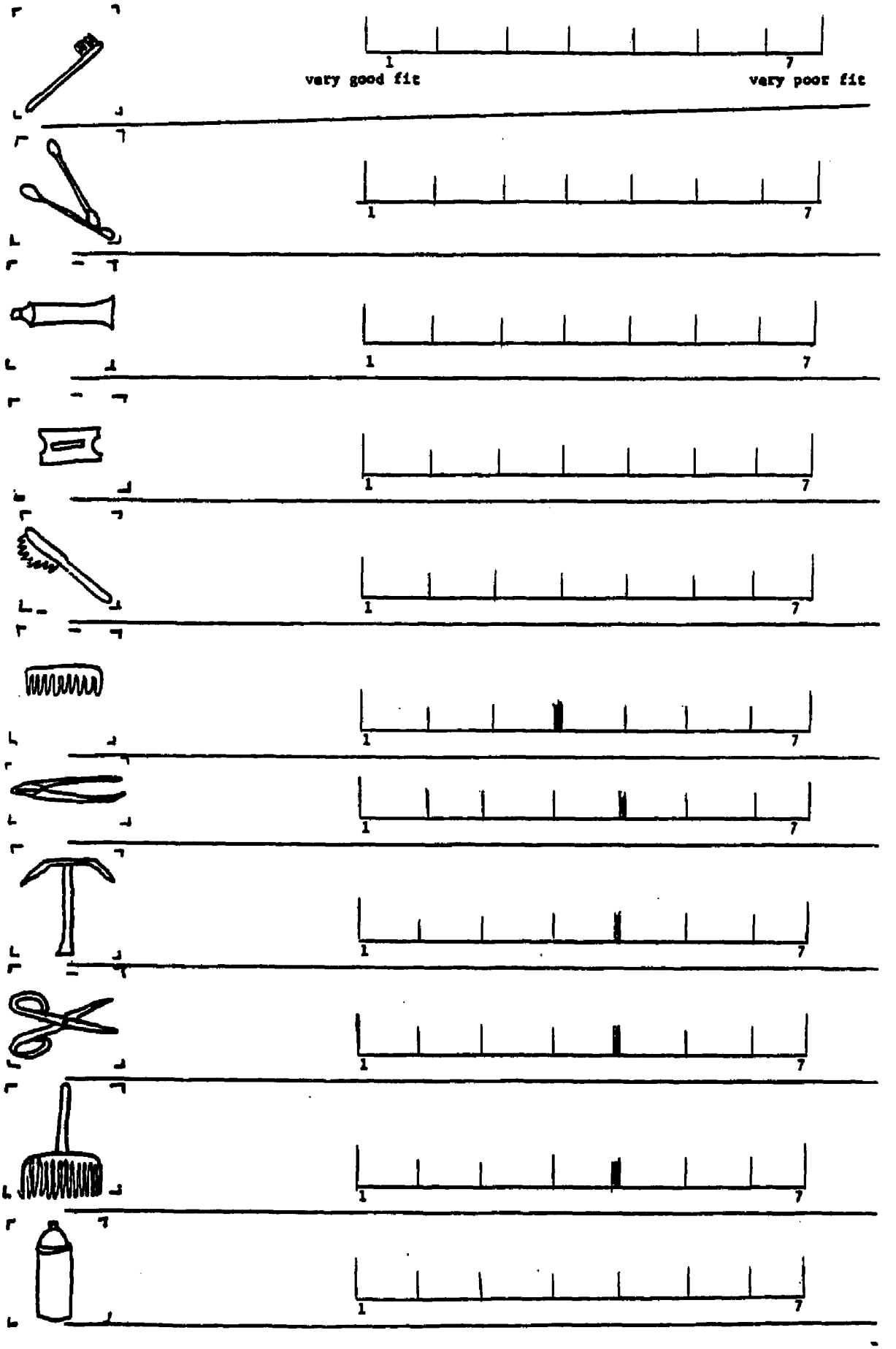
This study has to do with what we have in mind when we use words which refer to categories. Let's take the word "red" as an example. Close your eyes and imagine a true red. Now imagine an orangish red... imagine a purple red. Although you might still name the orange-red or the purple-red with the term "red," they are not as good examples of red (as clear cases of what "red" refers to) as the clear "true" red. In short, some reds are redder than others. The same is true for other kinds of categories. Think of dogs. You all have some notion of what a "real dog," a "doggy dog" is. To me a retriever or a German shephard is a very doggy dog while a Pekinese is a less doggy dog. Notice that this kind of judgment has nothing to do with how well you like the thing; you can like a purple red better than a true red but still recognize that the color you like is not a true red. You may prefer to own a Pekinese without thinking that it is the breed that best represents what people mean by dogginess.

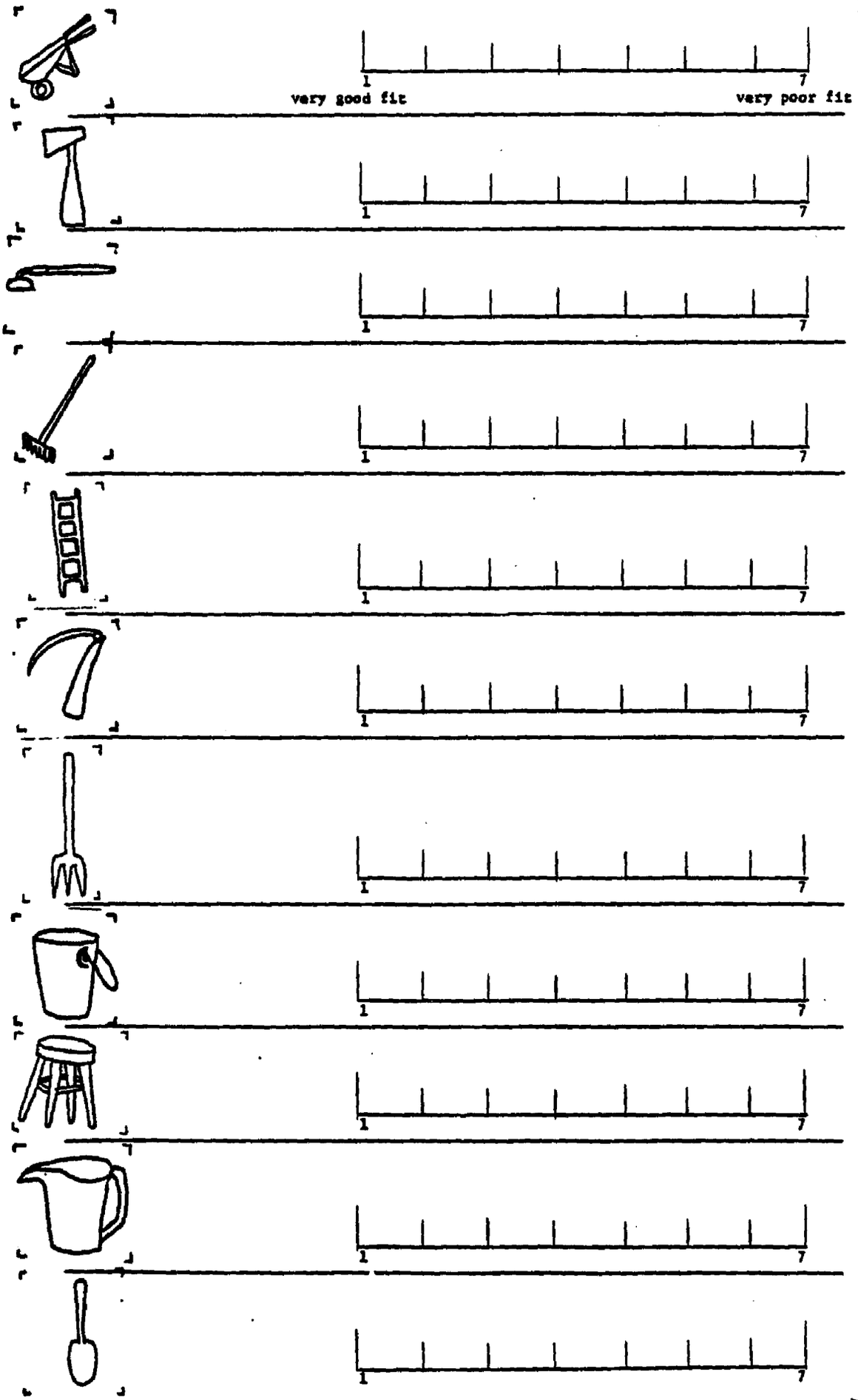
On this form you are asked to judge how good an example of a category various instances of a category are, for two separate problems. The first problem with 11 instances of a category appears on the next page and the second problem with 11 instances of another category appears on the page after. On the left side of each page you will find the instances and to the right of each instance you will find seven blanks; the blank closest to the instance should be checked if it is your idea of a good example of the category; the blank to the extreme right should be checked if it is your idea of a poor example of the category. The other blanks represent the range in between a very good and a very poor fit -- for example, the middle blank represents a moderate fit. Mark one and only one blank for each of the eleven instances for each of the two problems, so that after the two problems you will have made 22 judgments.

In order to get a good idea of what category you are making judgements about, be sure to first look at all eleven examples of the category before you make any judgments. After you have gotten a good idea of the category, rate each of the eleven instances on goodness or poorness as an example of the category. Try not to make comparative judgments for each example on the basis of goodness or poorness of the other examples. Rather, try to make absolute judgments of goodness or poorness of each example on the basis of the merits of each example. You might find that all 11 examples are poor examples or all 11 examples are good examples.

Don't worry about why you feel that something is or isn't a good example of the category -- just mark it the way you see it. These problems do not require deep thought. We are just trying to get your impressions. Okay? If you have any questions, please ask them now since you won't be able to ask questions while you are completing the form. If you have no questions you can go ahead and finish the form.

*


1
very good fit
7
very poor fit


1
7
very good fit
very poor fit

Problem 1

A) What was the name for the first category of objects?

B) Did you come up with that word naming the category while you were looking at the objects or did you just now come up with the word while during the problem you had just worked with and grasped the idea of the category? Explain, if you can.

C) When did you know what the category was? after looking at the first 3,4,5,etc. objects? after looking at all the objects once, twice, etc.? Explain, if you can.

D) Can you remember any or all of the objects and the ratings that you gave them? If so, write the name, rating (1=very good, 7=very poor) and any reason that may have occurred to you at that time for giving the object that rating. If you had no "reason" don't concern yourself with answering this part of the question. We are just trying to give you an open-ended oppotunity to express thoughts that may have occurred to you at that time.

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Problem 2

A) What was the name for the second category of objects?

B) Did you come up with that word naming the category while you were looking at the objects or did you just now come up with the word while during the problem you had just worked with and grasped the idea of the category? Explain, if you can.

C) When did you know what the category was? after looking at the first 3,4,5,etc. objects? after looking at all the objects once, twice, etc.? Explain, if you can.

D) Can you remember any or all of the objects and the ratings that you gave them? If so, write the name, rating (1=very good, 7=very poor) and any reason that may have occurred to you at that time for giving the object that rating. If you had no "reason" don't concern yourself with answering this part of the question. We are just trying to give you an open-ended oppotunity to express thoughts that may have occurred to you at that time.

1)_____

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11)_____

APPENDIX D - P. 1 of 5

This study has to do with what we have in mind when we use words which refer to categories. Let's take the word "red" as an example. Close your eyes and imagine a true red. Now imagine an orangish red... imagine a purple red. Although you might still name the orange-red or the purple-red with the term "red," they are not as good examples of red (as clear cases of what "red" refers to) as the clear "true" red. In short, some reds are redder than others. The same is true for other kinds of categories. Think of dogs. You all have some notion of what a "real dog," a "doggy dog" is. To me a retriever or a German shephard is a very doggy dog while a Pekinese is a less doggy dog. Notice that this kind of judgment has nothing to do with how well you like the thing; you can like a purple red better than a true red but still recognize that the color you like is not a true red. You may prefer to own a Pekinese without thinking that it is the breed that best represents what people mean by dogginess.

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In order to get a good idea of what category you are making judgements about, be sure to first look at all eleven examples of the category before you make any judgments. <u>After</u> you have gotten a good idea of the category, rate each of the eleven instances on goodness or poorness as an example of the category. Try not to make comparative judgments for each example on the basis of goodness or poorness of the other examples. Rather, try to make absolute judgments of goodness or poorness of each example on the basis of the merits of each example. You might find that all 11 examples are poor examples or all 11 examples are good examples.

Don't worry about why you feel that something is or isn't a good example of the category -- just mark it the way you see it. These problems do not require deep thought. We are just trying to get your impressions. Okay? If you have any questions, please ask them now since you won't be able to ask questions while you are completing the form. If you have no questions you can go ahead and finish the form.

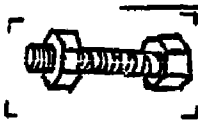
*

1 very good fit 7 very poor fit

1 7

1 7

1 7



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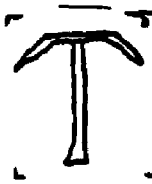

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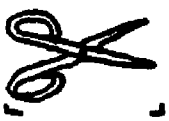

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very good fit very poor fit

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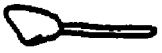

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Problem 1

A) What was the name for the first category of objects?

B) Did you come up with that word naming the category while you were looking at the objects or did you just now come up with the word while during the problem you had just worked with and grasped the idea of the category? Explain, if you can.

C) When did you know what the category was? after looking at the first 3,4,5,etc. objects? after looking at all the objects once, twice, etc.? Explain, if you can.

D) Can you remember any or all of the objects and the ratings that you gave them? If so, write the name, rating (1=very good, 7=very poor) and any reason that may have occurred to you at that time for giving the object that rating. If you had no "reason" don't concern yourself with answering this part of the question. We are just trying to give you an open-ended oppotunity to express thoughts that may have occurred to you at that time.

1)_____

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Problem 2

A) What was the name for the second category of objects?

B) Did you come up with that word naming the category while you were looking at the objects or did you just now come up with the word while during the problem you had just worked with and grasped the idea of the category? Explain, if you can.

C) When did you know what the category was? after looking at the first 3,4,5,etc. objects? after looking at all the objects once, twice, etc.? Explain, if you can.

D) Can you remember any or all of the objects and the ratings that you gave them? If so, write the name, rating (1=very good, 7=very poor) and any reason that may have occurred to you at that time for giving the object that rating. If you had no "reason" don't concern yourself with answering this part of the question. We are just trying to give you an open-ended oppotunity to express thoughts that may have occurred to you at that time.

1)_____

2)_____

3)_____

4)_____

5)_____

6)_____

7)_____

8)_____

9)_____

10)_____

11)_____

APPENDIX E - P. 1 of 5

This study has to do with what we have in mind when we use words which refer to categories. Let's take the word "red" as an example. Close your eyes and imagine a true red. Now imagine an orangish red... imagine a purple red. Although you might still name the orange-red or the purple-red with the term "red," they are not as good examples of red (as clear cases of what "red" refers to) as the clear "true" red. In short, some reds are redder than others. The same is true for other kinds of categories. Think of dogs. You all have some notion of what a "real dog," a "doggy dog" is. To me a retriever or a German shephard is a very doggy dog while a Pekinese is a less doggy dog. Notice that this kind of judgment has nothing to do with how well you like the thing; you can like a purple red better than a true red but still recognize that the color you like is not a true red. You may prefer to own a Pekinese without thinking that it is the breed that best represents what people mean by dogginess.

On this form you are asked to judge how good an example of a category various instances of a category are, for two separate problems. The first problem with 11 instances of a category appears on the next page and the second problem with 11 instances of another category appears on the page after. On the left side of each page you will find the instances and to the right of each instance you will find seven blanks; the blank closest to the instance should be checked if it is your idea of a good example of the category; the blank to the extreme right should be checked if it is your idea of a poor example of the category. The other blanks represent the range in between a very good and a very poor fit -- for example, the middle blank represents a moderate fit. Mark one and only one blank for each of the eleven instances for each of the two problems, so that after the two problems you will have made 22 judgments.

In order to get a good idea of what category you are making judgements about, be sure to first look at all eleven examples of the category before you make any judgments. <u>After</u> you have gotten a good idea of the category, rate each of the eleven instances on goodness or poorness as an example of the category. Try not to make comparative judgments for each example on the basis of goodness or poorness of the other examples. Rather, try to make absolute judgments of goodness or poorness of each example on the basis of the merits of each example. You might find that all 11 examples are poor examples or all 11 examples are good examples.

Don't worry about why you feel that something is or isn't a good example of the category -- just mark it the way you see it. These problems do not require deep thought. We are just trying to get your impressions. Okay? If you have any questions, please ask them now since you won't be able to ask questions while you are completing the form. If you have no questions you can go ahead and finish the form.

*

PROBLEM 1

TOOTHBRUSH

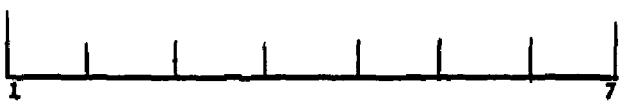
very good fit very poor fit

Q - TIPS

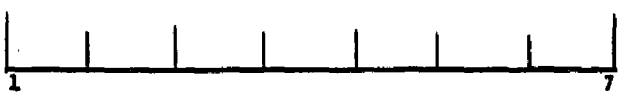
TOOTHPASTE

RAZOR BLADE

BRUSH

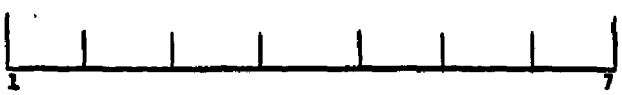


COMB



TWEEZERS

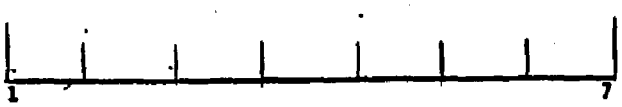
RAZOR



SCISSORS

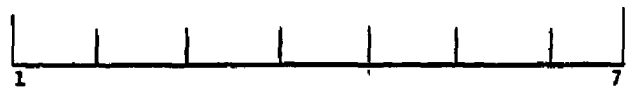
PICK COMB

AEROSOL CAN



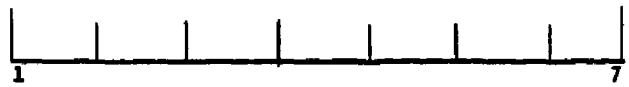
PROBLEM 2

WHEELBARROW



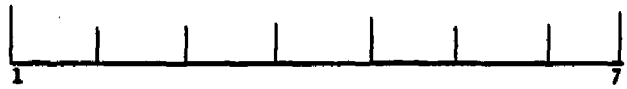
very good fit — very poor fit

AXE

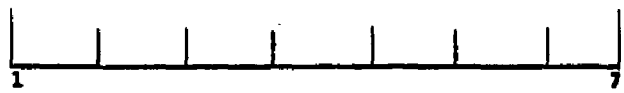


HOE

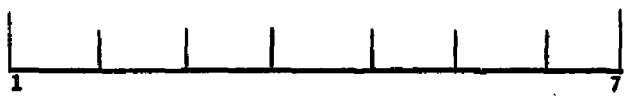
RAKE



LADDER

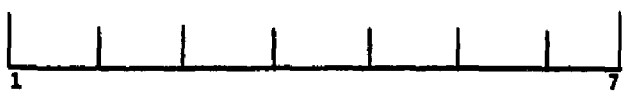


SCYTHE

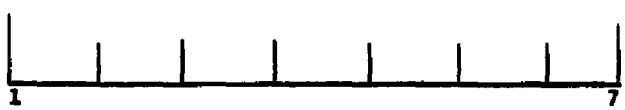


PITCHFORK

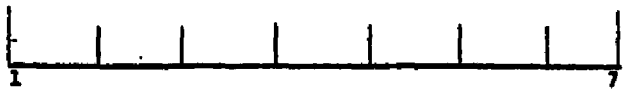
PAIL



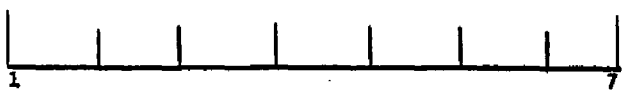
STOOL



WATERING CAN



SHOVEL



Problem 1

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1)_____

2)_____

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10)_____

11)_____

Problem 2

A) What was the name for the second category of objects?

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1)_____

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5)_____

6)_____

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8)_____

9)_____

10)_____

11)_____

APPENDIX F - P. 1 of 5

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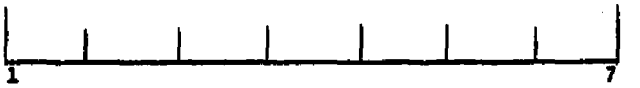
*

PROBLEM 1

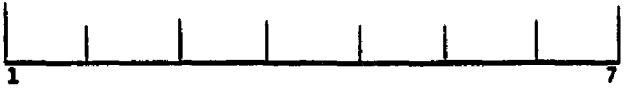
HAMMER

very good fit — very poor fit

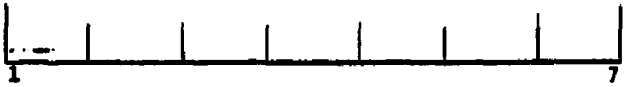
SAW



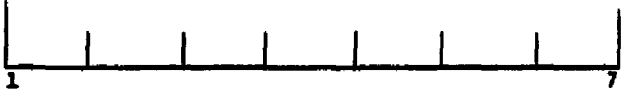
WRENCH



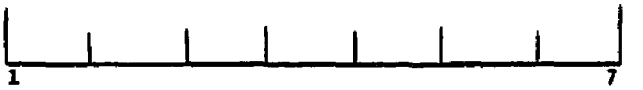
SCREWDRIVER



NUT AND BOLT



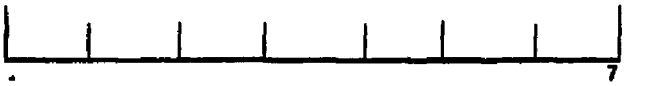
HANDDRILL



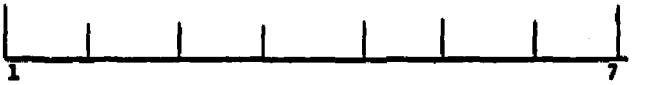
PLIERS

PICKAXE

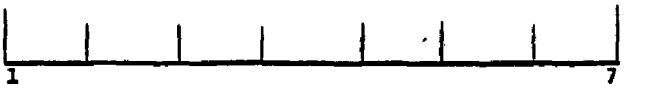
SCISSORS



PAINTBRUSH

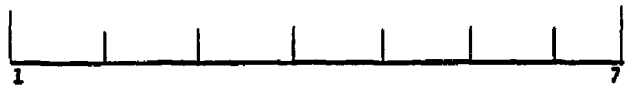


AEROSOL CAN

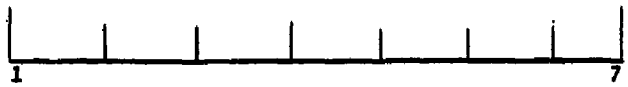


PROBLEM 2

EGG BEATER



CAN OPENER



COFFEE POT

FRYING PAN

SPATULA

CORKSCREW

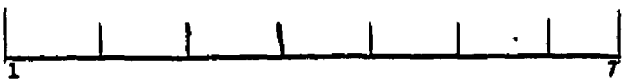
FORK

PAIL

STOOL

MEASURING CUP

SPOON



Problem 1

A) What was the name for the first category of objects?

B) Did you come up with that word naming the category while you were looking at the objects or did you just now come up with the word while during the problem you had just worked with and grasped the idea of the category? Explain, if you can.

C) When did you know what the category was? after looking at the first 3,4,5,etc. objects? after looking at all the objects once, twice, etc.? Explain, if you can.

D) Can you remember any or all of the objects and the ratings that you gave them? If so, write the name, rating (1=very good, 7=very poor) and any reason that may have occurred to you at that time for giving the object that rating. If you had no "reason" don't concern yourself with answering this part of the question. We are just trying to give you an open-ended oppotunity to express thoughts that may have occurred to you at that time.

1)_____

2)_____

3)_____

4)_____

5)_____

6)_____

7)_____

8)_____

9)_____

10)_____

11)_____

Problem 2

A) What was the name for the second category of objects?

B) Did you come up with that word naming the category while you were looking at the objects or did you just now come up with the word while during the problem you had just worked with and grasped the idea of the category? Explain, if you can.

C) When did you know what the category was? after looking at the first 3,4,5,etc. objects? after looking at all the objects once, twice, etc.? Explain, if you can.

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1)_____

2)_____

3)_____

4)_____

5)_____

6)_____

7)_____

8)_____

9)_____

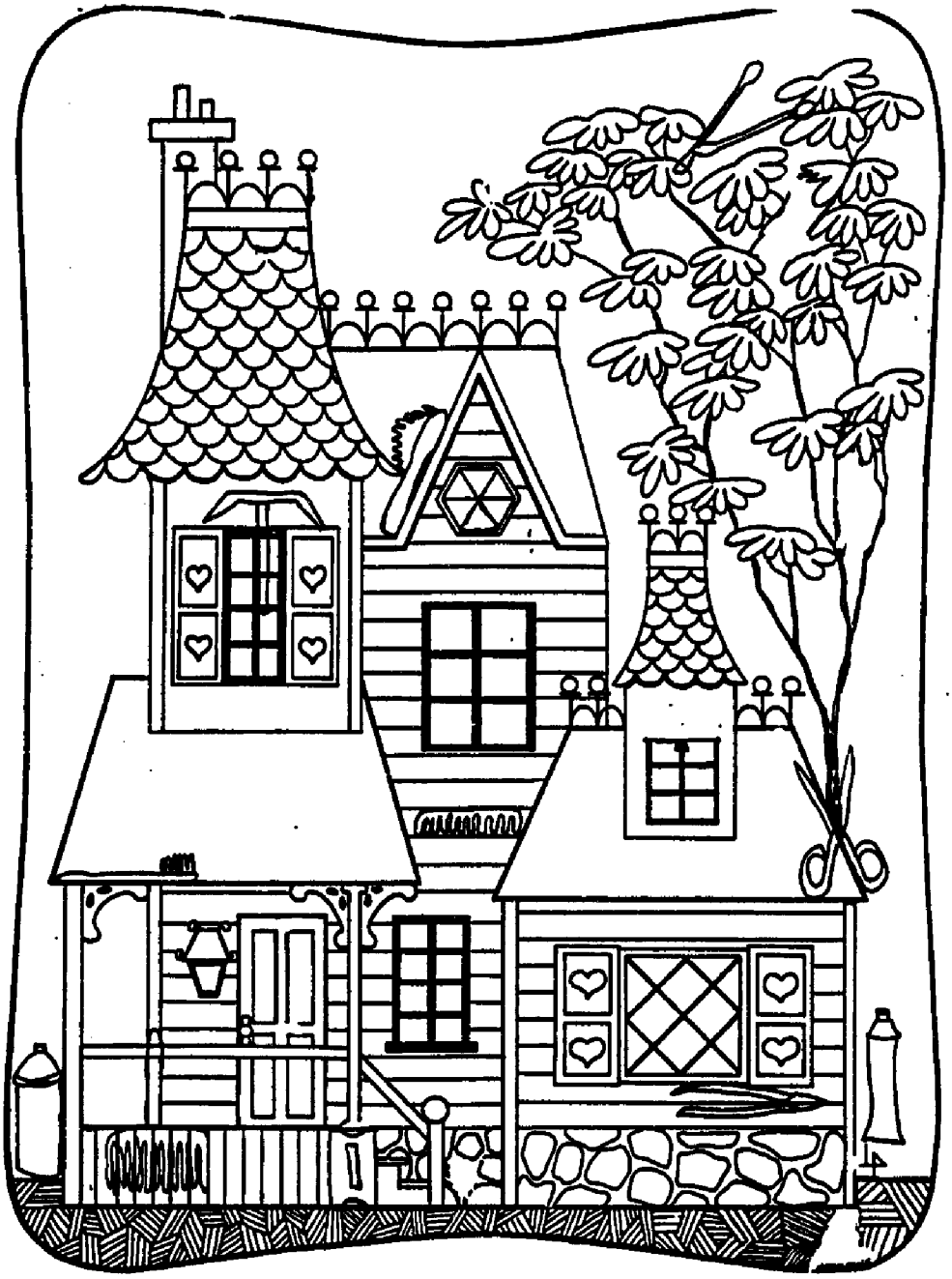
10)_____

11)_____

APPENDIX G - P. 1 of 5

This study has to do with people's perception of the environment. For this study, you will be exposed to two separate environments. Each environment consists of a picture. For each picture, your task will be to find the objects that are hidden in the picture. As you find each object hidden in the picture, write a number on it indicating whether it was the first object,second object,etc. that you found (i.e. 1 for the first object you find, 2 for the second, 3 for the third, etc.). As soon as you have have written the number on the object, write the name of the object in the appropriately numbered blank in the space provided below the picture(i.e. in Blank 1 write the name of the object numbered 1, in Blank 2 the object numbered 2, etc.). Then go on to find the next object, number it and write the name down, until you have found all of the hidden objects. Then go on to the next picture repeating the same procedure by marking off the first object found '1', etc. Each picture should take just a few minutes.

Please be sure to mark off only those objects that are hidden in the pictures. Do not indiscriminately mark off all of the objects in the picture. If you have any questions, please ask them now since you will not be able to ask them while you are completing the form. If you have no questions then just read and sign the consent form the experimenter will give you. Then, go on to the pictures.



1. _____
2. _____
3. _____
4. _____
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6. _____
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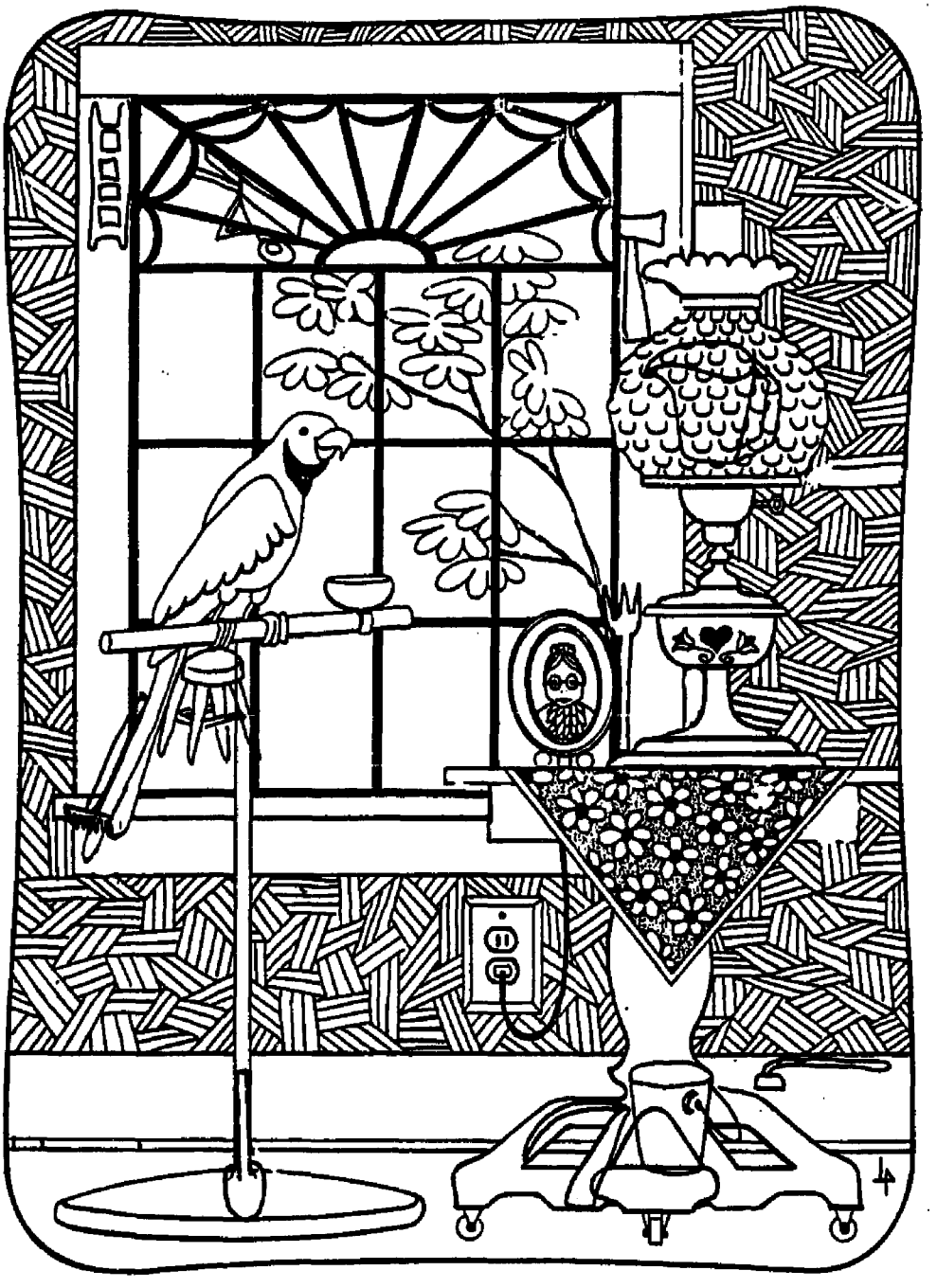
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____



1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____

Questionnaire for PICTURE 1

NOTE: Use the other side of this page if you need more room to answer.

A) Did you notice or do you now notice that all of the objects belong together? That is, that they are all of a certain kind of thing or situation? If not, ignore the next 3 questions (unless you can answer them after completing Question E).

B) How would you name that category?

C) When did you first notice that all the objects were of a category? While looking at the picture after the first few (1,2,3,etc.?) objects; or after seeing all the objects; or after trying to respond to the first question on this sheet; etc. ? Explain, if you can.

D) When did you come up with the word that named the category? When you first realized that the objects were all of a kind; or did you then just work with an idea (not verbally formulated) of the category and came up with a word in response to the previous question; etc.? Explain, if you can.

E) List as many of the objects that you found hidden in the first picture as you can remember.

1)_____
2)_____
3)_____
4)_____
5)_____
6)_____
7)_____
8)_____
9)_____
10)_____
11)_____
12)_____
13)_____
14)_____
15)_____

F) How did you or do you know that the objects that you found were "hidden" as opposed to all the other objects in the picture?

Questionnaire for PICTURE 2

NOTE: Use the other side of this page if you need more room to answer.

A) Did you notice or do you now notice that all of the objects belong together? That is, that they are all of a certain kind of thing or situation? If not, ignore the next 3 questions (unless you can answer them after completing Question E).

B) How would you name that category?

C) When did you first notice that all the objects were of a category? While looking at the picture after the first few (1,2,3,etc.?) objects; or after seeing all the objects; or after trying to respond to the first question on this sheet; etc. ? Explain, if you can.

D) When did you come up with the word that named the category? When you first realized that the objects were all of a kind; or did you then just work with an idea (not verbally formulated) of the category and came up with a word in response to the previous question; etc.? Explain, if you can.

E) List as many of the objects that you found hidden in the second picture as you can remember.

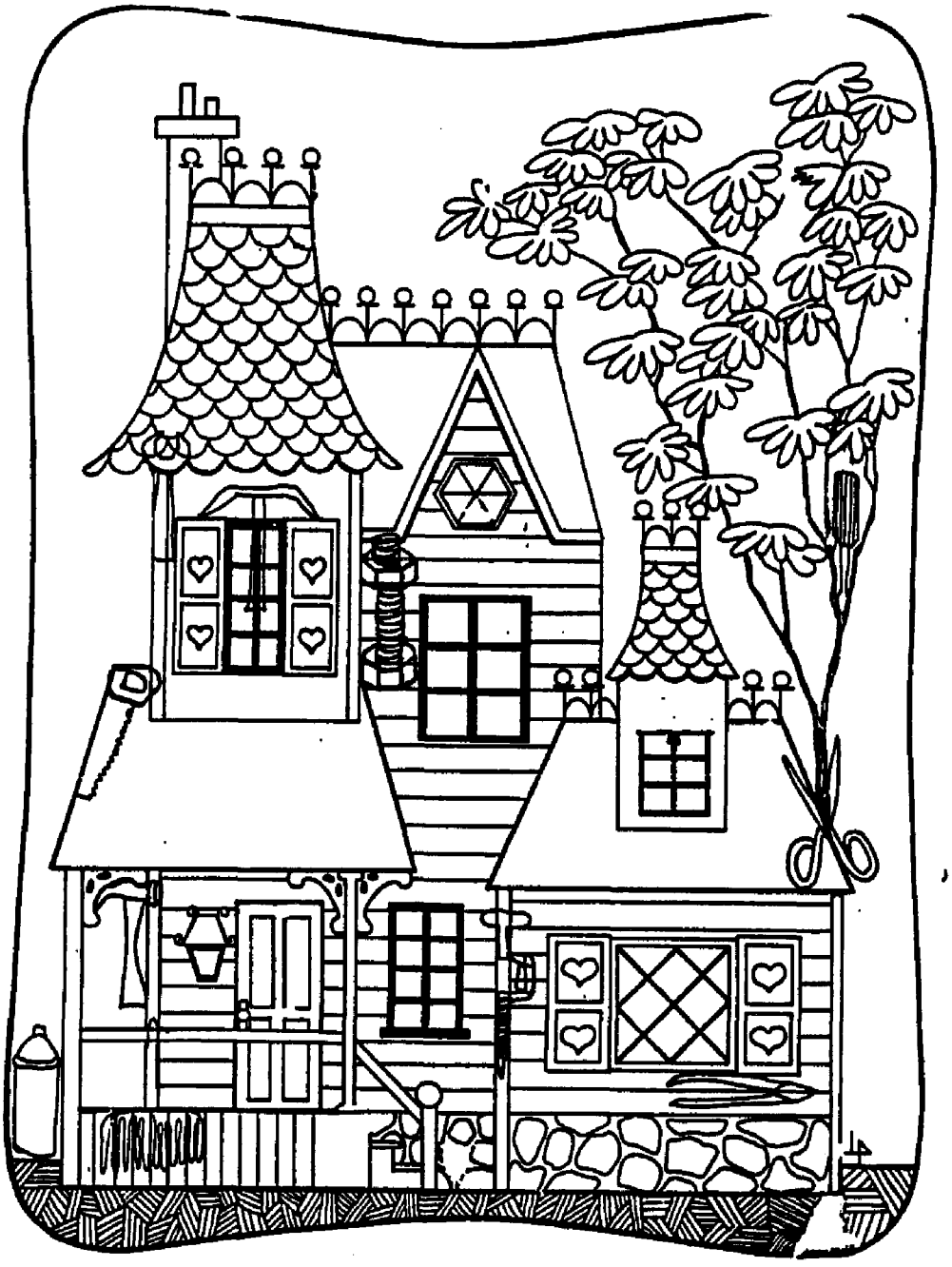
1)_____
2)_____
3)_____
4)_____
5)_____
6)_____
7)_____
8)_____
9)_____
10)_____
11)_____
12)_____
13)_____
14)_____
15)_____

F) How did you or do you know that the objects that you found were "hidden" as opposed to all the other objects in the picture?

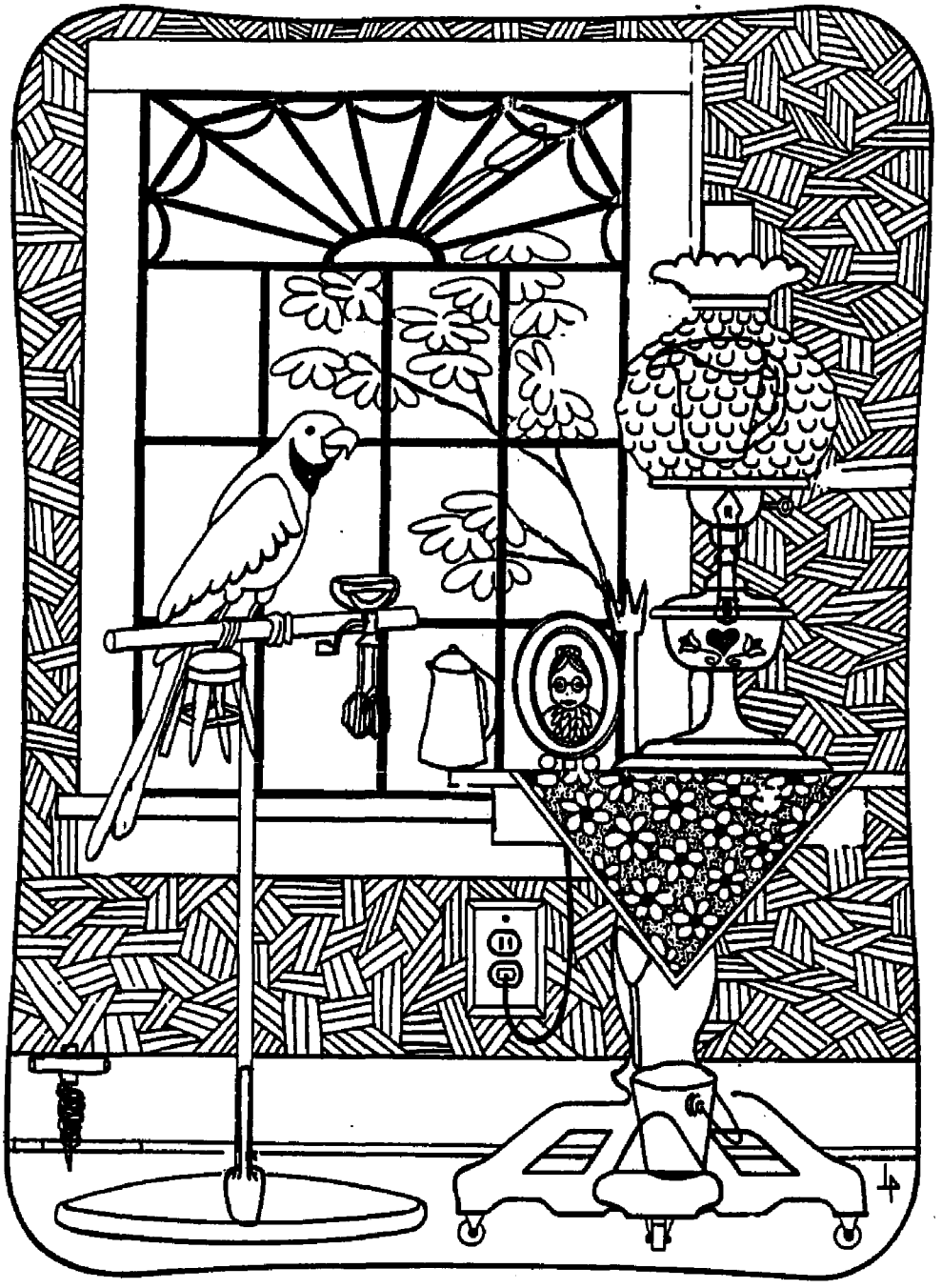
APPENDIX H - P. 1 of 5

This study has to do with people's perception of the environment. For this study, you will be exposed to two separate environments. Each environment consists of a picture. For each picture, your task will be to find the objects that are hidden in the picture. As you find each object hidden in the picture, write a number on it indicating whether it was the first object,second object,etc. that you found (i.e. 1 for the first object you find, 2 for the second, 3 for the third, etc.). As soon as you have have written the number on the object, write the name of the object in the appropriately numbered blank in the space provided below the picture(i.e. in Blank 1 write the name of the object numbered 1, in Blank 2 the object numbered 2, etc.). Then go on to find the next object, number it and write the name down, until you have found all of the hidden objects. Then go on to the next picture repeating the same procedure by marking off the first object found '1', etc. Each picture should take just a few minutes.

Please be sure to mark off only those objects that are hidden in the pictures. Do not indiscriminately mark off all of the objects in the picture. If you have any questions, please ask them now since you will not be able to ask them while you are completing the form. If you have no questions then just read and sign the consent form the experimenter will give you. Then, go on to the pictures.



1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____
11. _____
12. _____
13. _____
14. _____
15. _____



1. _____	6. _____	11. _____
2. _____	7. _____	12. _____
3. _____	8. _____	13. _____
4. _____	9. _____	14. _____
5. _____	10. _____	15. _____

Questionnaire for PICTURE 1

NOTE: Use the other side of this page if you need more room to answer.

A) Did you notice or do you now notice that all of the objects belong together? That is, that they are all of a certain kind of thing or situation? If not, ignore the next 3 questions (unless you can answer them after completing Question E).

B) How would you name that category?

C) When did you first notice that all the objects were of a category? While looking at the picture after the first few (1,2,3,etc.?) objects; or after seeing all the objects; or after trying to respond to the first question on this sheet; etc. ? Explain, if you can.

D) When did you come up with the word that named the category? When you first realized that the objects were all of a kind; or did you then just work with an idea (not verbally formulated) of the category and came up with a word in response to the previous question; etc.? Explain, if you can.

E) List as many of the objects that you found hidden in the first picture as you can remember.

1)_____
2)_____
3)_____
4)_____
5)_____
6)_____
7)_____
8)_____
9)_____
10)_____
11)_____
12)_____
13)_____
14)_____
15)_____

F) How did you or do you know that the objects that you found were "hidden" as opposed to all the other objects in the picture?

Questionnaire for PICTURE 2

NOTE: Use the other side of this page if you need more room to answer.

A) Did you notice or do you now notice that all of the objects belong together? That is, that they are all of a certain kind of thing or situation? If not, ignore the next 3 questions (unless you can answer them after completing Question E).

B) How would you name that category?

C) When did you first notice that all the objects were of a category? While looking at the picture after the first few (1,2,3,etc.?) objects; or after seeing all the objects; or after trying to respond to the first question on this sheet; etc. ? Explain, if you can.

D) When did you come up with the word that named the category? When you first realized that the objects were all of a kind; or did you then just work with an idea (not verbally formulated) of the category and came up with a word in response to the previous question; etc.? Explain, if you can.

E) List as many of the objects that you found hidden in the second picture as you can remember.

1)_____
2)_____
3)_____
4)_____
5)_____
6)_____
7)_____
8)_____
9)_____
10)_____
11)_____
12)_____
13)_____
14)_____
15)_____

F) How did you or do you know that the objects that you found were "hidden" as opposed to all the other objects in the picture?

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