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INTERNATIONAL SOCIETY FOR ECOLOGICAL PSYCHOLOGY

arch 1984 Newsletter Volume 1, Number 3

CONFERENCES AND MEETINGS

pring Meeting 1984

The Spring Meeting will be held on May 26 at Trinity College in McCook Auditorium, the oom where we had the January 1982 symposium. The room we have used most recently is being estored to its 19th century grandeur. Official notice of the meeting and program will follow. ere is what Claudia Carello has arranged so far.

rogram

0:00 a.m. Mary Smith & Carol Fowler (Dartmouth College) Perception of Stress-timing in English by Infants.

0:30 a.m. A second "speech" talk. Not yet confirmed.

1:00 a.m. Discussion of speech papers.

1:15 a.m. Business Meeting

1:45 a.m. Lunch

:15 p.m. Elliot Saltzman (Haskins Laboratories) Mathematically Modelling the Dynamics of Action.

:45 p.m. William H. Warren (Brown University) Visual Control of Running: One Step at a Time

:15 p.m. Discussion of Action papers.

:30 p.m. James Todd (Brandeis University) Perception of Curved Surfaces from Texture Information.

:00 p.m. Tom Stoffregen (Cornell University) Stop, Look and Sway: Spatial and Attentional Effects on Flow Field Sensitivity.

:30 p.m. Discussion of Perception papers.

:00 p.m. Poster Session

fter 5 Food and Drink at The Keg

all for Posters

ote that the last item on the program is a poster session. This worked well at the Vanderilt Conference and several people have said that they preferred to present their research in this form rather than in a talk. Since space for posters is more expandable than time for talks, people can submit abstracts for posters to Claudia Carello (Dept. of Psychology, SUNY Binghamton, Binghamton, NY 13901) through mid-May without causing undue stress to the organize

ABSTRACTS OF OCTOBER 29, 1983 ISEP TALKS

As promised, here are the abstracts of the talks from last October. Bear in mind that eac talk and its discussion period is available on audio cassette. Cassettes may be obtained fro Bill Mace.

Context and Hand Preference in the Development of Infant Bimanual Coordination

Eugene C. Goldfield and George F. Michel
The Children's Hospital Medical Center, Boston

This study examined whether changes in hand use preference during infancy might play a role i the organization of coordinated twohanded reaches. The question was taken as a specific instance of the ecological view that perceiving is scaled to the effectivities of the perceiver, performer. Infants between the ages of 7 and 11 months were administered an assessment of handedness as well as a test which elicited two handed reaches for a cube blocked on some trials by a barrier (a differential context). Eight month olds, unlike the other infants, (a) exhibited strong hand preferences, (b) used their preferred hand to lead their nonpreferred hand more often during two handed reaches, except when the barrier was on the nonpreferred side, and, (c) in that condition were likely to hit the barrier with the nonpreferred hand. The results are discussed according to a model in which the infant's postural asymmetr at particular periods in development directs his attention differentially to one side of the midline (e.g., away from the nonpreferred side). This postural bias, thus, may serve to both coordinate the effectivities for reaching and differentiate the perceptual field.

Task Related Perception

Claes von Hofsten, MIT

It was argued that perception should be viewed in the context of the tasks it serves. It is a common observation that the same perceptual knowledge may come easy to one task but not to another. For instance, subjects can be trained to throw stones or darts with great precision to places in the surrounding, but when asked to estimate those distances they often do very poorly even with extensive training. The difference in performance is not only a question of spatial precision. It is also the time required to perform the task. Perceiving the distanc to a target when throwing a ball takes almost no time. That is crucial. Perception did not only evolve to give us knowledge about the world but to do that under severe time constraints i.e., in the context of our actions. It is reasonable to think that perception coevolved wit the actions themselves. The problems perception had to solve were often very specific and time precision was at least as important as spatial precision. The solutions favored were no necessarily applicable to other apparently similar tasks. In lower vertebrates this is rathe obvious. According to Arbib, the frog may be said to possess a number of specific visual

systems: one for prey catching, one for barrier negotiation, one for threat avoidance, etc.. In higher vertebrates perception is obviously less specific than that. However, the point is that perception still seems specialized enough to make it more appropriate to speak of a number of perception-action systems than to conceive of perception as a single unitary process separate from action.

It is an important task for psychology to study these basic perception-action systems. How did they evolve and how do they develop? On what kind of information are they based and how is that information used to guide action? These questions were asked and discussed in connection with the author's research on catching skills.

Infants' Perception of the Traversability of Surfaces

Eleanor J. Gibson and Gary Riccio

Infants' perception of affordances for locomotion was observed on five surfaces presenting different optical information for traversability: rigid (opaque, patterned); cliff (transparent lucite); ambiguous (black velvet); deforming (waterbed); discontinuous (a net stretched under lucite). Ss were crawling and walking infants. When surfaces were presented singly, both crawlers and walkers took least time to move out on the rigid surface, and longest for the cliff. Crawlers took significantly longer for the net and the ambiguous surface than the rigid, but not for the waterbed. Walkers took significantly longer for all three. Both visual and haptic exploratory behavior occurred, varying in amount with surface information. Preference for the rigid surface over the black velvet and the waterbed was confirmed in a choice experiment for walkers, but the rigid was preferred only over the black velvet by crawlers. Observation of impact events on the net surface shortened latency and reduced exploration for crawlers, but apparently not for walkers. Exploratory activity is seen to be important for pickup of affordances for locomotion and it is influenced by the kind of information specifying the surface and the mode of locomotion.

Remote Perceiving

Robert Hoffman, Adelphi University

This is a report of research on the perceptual and knowledge skills of expert aerial photo interpreters, part of a larger project of research on perceptual learning and the interpretation of false-color digital remote sensing displays. The research reported today focuses on experts' interpretation of aerial visible light photography and radar (microwave) imagery.

The main experiment involved presenting experts with aerial photos from areas with which the expert would not have extensive experience. No contextual information was provided, and the expert was allowed only one minute in which to inspect the photos (in stereo). After the examination period, the photos were removed from view, and the expert was given 15 minutes in which to describe the photos. While hesitant to speculate about the coverage, once encouraged, the experts provided protocols which were rich in information about perceptions and inferences.

Some of the inferences the experts make appear to be conscious and deliberate and part of a consciously conceived series of hypothesis tests (e.g., if it is sandstone bedrock then the hills should appear to have a rounded slope). However, some of the inferences appear to be rapid, perceptual and spontaneous. That is, after such extensive experience at interpreting aerial photos, the expert no longer consciously reasons (as the novice does). The expert does not have to---since perception itself has been changed. In order to describe the expert's knowledge, there must be a careful analysis of the characteristics of the layout represented in aerial photos which can support a process of perceptual learning.

On Coherent Signal Properties in Speech Perception

Philip E. Rubin, Haskins Laboratories, New Haven, CT &

Robert E. Remez, Barnard College of Columbia University, New York, NY

The perception of speech has been described in two complementary ways. The more customary of these, cue theory, holds that the isolable signal elements are responsible for the perception of phonetic properties of a talker's message. The perceiver is conceptualized as a meticulous listener whose chief enterprise is the registration of momentary signal ingredients, ultimately for conversion to phonetic structures. Much close examination of speech signals has shown this view of speech perception to be implausible, for the list of cues is indefinitely long and various, and no core set of necessary cues seems likely to exist. Until very recently, though, it has been difficult to imagine a methodological strategy for studying speech in the alternative way. This second view holds that speech perception is keyed to the properties of signal change over time, considered apart from the particular elements that compose the acoustic stream, and apart from the perceptual effects of momentary acoustic stimuli. Although often associated with the term "dynamic information", this approach to phonetic perception is more precisely identified as the coherent time-variation hypothesis. In our presentation, we describe two methodologies for studying perceptual reliance on time-varying information in speech signals: articulatory synthesis and sine-wave synthesis. The correspondence between phonetically significant articulation and acoustic signal variation can be systematically investigated with the former technique, which models the physical acoustics constrained by the kinematics of the vocal apparatus. The perceptual effectiveness of time-varying properties of speech signals can be studied directly, independent of short-time speechlike spectra, with the second technique. In sine-wave synthesis, speech signals are replicated with nonharmonic signals that change as vocal resonances do, without exhibiting short-time spectra characteristic of speech. Studies employing these techniques falsify cue theory, and exemplify procedures for investigating both the principles of coherent variation in the speech signal and the perceptual reliance on phonetic information in time-varying structure.

On Describing What Is Perceived: Seeing 'Velocity' vs Seeing 'Push' in Moving Objects

Geoffrey P. Bingham, University of Connecticut
and
Sverker Runeson, Uppsala University

t has long been assumed in perceptual psychology that Newtonian velocity and acceleration re perceived as such. Runeson has performed a series of studies which show that this assumption is incorrect. These studies are reviewed. The basic result is that motions which tart by accelerating to a constant velocity are described by observers as constant throughout hereas motions which start immediately at some constant velocity are described as an initial erking followed by constant velocity motion. These results were obtained by asking observers o judge velocity. A study by Bingham and Runeson replicated these results by asking obserers instead to judge 'push', an anthropomorphic, Aristotelian notion of force in which friction is implicit. The results show that observers distinguish constant force motion such as ree fall from the sudden propelling of an object into motion. These results together with arlier results of Johansson in event perception (e.g., the cycloid, the point light people isplays, etc.), demonstrate that motion functions constitute information for what happens in vents, where motion functions describe relative changes in velocity over a motion. (Recall hat velocity describes both speed and direction.) However, a more complete understanding f a motion function as information requires a description of the physical constraints on the otions in events perceived. Our not having used good Brunswikian representational design revents us from performing this analysis. Nevertheless, the authors speculate that the ynamic and energetic constraints on human motions are relevant to the results. Arguments re made for the proposition that human perceivers are especially well attuned to properties f animate motion. It is suggested that future research on motion functions as information in event perception would be well advised to study the perception of animate activity.

An Ecological Approach to Representation: Proposal for an Historical Methodology

Edward S. Reed

Following a suggestion of J.J. Gibson's, the dichotomy between external and internal determination for cognition and perception is rejected. If this is a false contrast, then the study of cognition should not focus on either internal mental representations or their external objects. Instead an ecological approach to representation should be taken, comprising three questions for study: First, what kinds of representational systems have actually been evolved for use in human societies? Second, what informative structures do these representations provide? Third, how do people use these informative structures in their awareness and thinking? Finally, an historical and comparative methodology was promoted. It was argued that a functional taxonomy of cognition necessarily rests on a thorough understanding of the historical derivation and differentiation of representational systems.

[Editorial Note:] Since the key references for this paper lie well outside what most members could figure out, it is added here:

Schmandt-Besserat, D. Decipherment of the Earliest Tablets. Science, 1981, 211, 283-285

1985 Event Conference—Uppsala

Sverker Runeson has been working very hard to organize the next Event Conference. It will probably be held the week of June 24-30. An earlier week had been considered, but this is the most recent one I have from Sverker.

BOOKS

Harré, Rom. Great Scientific Experiments: Twenty Experiments That Changed Our View of the World. Oxford University Press, 1981; paperback, 1983. Harré presents case histories illustrating the various roles that experimentation plays in science. For each experiment, he provides a brief biography of the experimenter, the prevailing ideas on the problem at the time the experiment was conducted, the development of the researcher's ideas as they interacted with the experimental results and finally a very brief account of later research. The great strength of the book is the author's ability to show climate of the ideas at the time, thereby making clear the rethinking of the problem that preceded or followed the experiment.. Accounts of experiments often fail to capture the real creativity of great experiments. This book is an exception, giving numerous insights into research as a process. I found it gratifying to see J.J. Gibson's "cookie cutter" experiment cited as one of the experiments that has changed people's view of the world. While some of Harré's phrasing isn't consistent with the concepts of ecological optics (note the chapter title: "The mechanism of perception"!), it's nice to see Jimmy's name in with those of Pasteur, Rutherford, Farada and Lorenz. Even for those familiar with the history and philosophy of experimentation, the book is full of interesting "lore". It should serve as a good outside readings book in courses concerned with the history of science or the nature of experimentation.

John B. Pittenger
(University of Arkansas-Little Rock)

Vitz, Paul C. & Glimcher, Arnold. Modern Art and Modern Science: The Parallel Analysis of Vision. Prager, 1984. Have you ever suspected that much of so-called "non-objective" art was based on a mistake? I certainly have, but never could pin down what was wrong. Vitz and Glimcher's book very nicely does this job, explaining how abstract art arose from artists' interests in displaying sensations of color and light on their canvases. Although few of these painters ever tried to develop strictly scientific methods of display, there can no longer be any doubt after reading this book that the muddle of sensationalism has haunted art as well as science in the last century and a half.

Vitz and Glimcher, a psychologist and an art collector, have put together an excellent study of cross-influences. They show how the limitations of mid-19th century photography provided compositional inspiration for the impressionists, how abstract painting had its

origins in studies of color contrasts, how many post-Bauhaus painters succumbed to the charms of Gestaltism, and more. My favorite part was their analysis of the influence of Muybridge and Marey's photographs of moving bodies on Manet, Cezanne and early 20th century European painting.

The book is attractively and profusely illustrated (although the typography is disappointingly plain) and the authors give good references to further works in both art and vision. They take such an eclectic theoretical view of visual perception that no real issues are analysed, but it is this which allows them to spend so much time on the analysis of influences, so I won't complain.

Edward S. Reed

(Humanities - Drexel University)

UNCLASSIFIED ADVERTISING

Scientific Film on Ecological Optics

In close cooperation with Dr. Herrmann Kalkofen from the Institut für den Wissenschaftlichen Film (IWF), Göttingen, which is the central institution for scientific films in the FRG - for purposes of research or academic instruction, I intend to start a project for a 16mm film (a "progressive picture display") on ecological optics. A more detailed outline of the main themes to be covered by such a film and preliminary notes for specific scenes to be included is available by writing to me at the address after item 2.

Today I want to ask colleagues from ISEP in the U.S., Europe and elsewhere for cooperation. Is there anyone already working on the same or a similar project? Who is interested to join an international production team? Who is able to supply materials, ideas or film copies - experimental or otherwise, which might be used as a model or prototype shot or which can even be included? Any proposals or hints are welcome. — Klaus Landwehr

(see below)

Research Project on Movement Perspective

Geometrical-optical analyses of movement perspective thus far have failed to account for certain subjective phenomena, especially the 'rotation' of open landscape when viewed from a moving place of observation. Our research is aimed at these problems. Together with some colleagues from our faculty for mathematics we have tried to develop a comprehensive model for the visual perception of the spatial layout of a landscape when viewed under the conditions mentioned. In this model an intermediate 'zone of calmness' (a region of no movement) is defined by calculating not only the objective angular velocities within the optical flow but also subjective thresholds for discriminating differences in the optical flow at different distances. The purpose of the model is to describe more precisely the unavoidable effect that distant regions of a given landscape seem to travel in the same direction as does the observer, while only nearer ones are being left behind. The intermediate zone of calmness can then be defined as a set of centers of rotation being linked together on the virtual surface of an elliptoid circumscribing the moving observer, thus being moved itself accordingly.

I shall be interested to discuss our ideas with colleagues who are also working on this subject matter because we are not at all sure whether our model will work well or whether there might be something wrong with it. For further information please contact:

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Federal Republic of Germany

I shall also appreciate to learn of your ongoing research or any ideas you have about our project.

DISCUSSION

A Reply to Reed's Note: "What Is Direct Perception?"

Stuart Katz

I would like to comment on Edward Reed's note: "What Is Direct Perception", which appeared in the November issue of the Newsletter. Reed's thesis, as I understand it, is that Gibson's distinction between direct and indirect perception, and the traditional distinction between direct and indirect perception, are two <u>different</u> distinctions, and therefore have different programmatic implications for psychology. According to the traditional distinction, <u>in</u>direct perception means the reconstruction of the percept through inner processing mechanisms, while <u>direct</u> perception entails at least the denial of the inner reconstructive process. According to Gibson's distinction, however, information itself, apart from the processing of it, is <u>in</u>direct when it is obtained derivatively (as it is from pictures and words) and <u>direct</u> when it is obtained freely and first hand through exploration. What objects like pictures ("depictions") and words ("descriptions") have in common is that as Gibson says, "The reality testing that accompanies the pickup of natural information is missing. Descriptions [and also depictions]...do not permit the flowing stimulus array to be scrutinized. The invariants have already been extracted (1979, p. 261)." In sum, according to Reed, the traditional distinction between the terms 'direct' and 'indirect', as they apply to perception, is about the processing of information, while Gibson's distinction is about the information itself.

From this, Reed argues the following: (1) Since Gibson's distinction is about information per se, it is therefore "...not itself <u>part</u> of a theory of registration." (2) Since it is not a part of a theory of registration, it is neither an affirmation of it, nor (as is commonly believed) a negation of it. (3) Since it is neither an affirmation nor a negation of it, <u>then it is presumably an open question whether, and in what way processing takes place</u>. The Gibsonian program <u>and</u> the cognitivist program, not being mutually contradictory, may continue to develop side by side. The former, Reed suggests, may even guide the latter.

It is my opinion that what Reed says about this matter is, if I may put it quaintly, ivially true and profoundly false. Reed's position is trivially true because one of Gib-n's uses of the distinction between direct and indirect perception does have the narrow ope Reed has ascribed to it. Gibson was, as I have said above, concerned about the differ-ce between the flowing structure characteristic of the ambient optic array, and the frozen ructure depicted and described, respectively, in pictures and words. He chose, inconveni-tly in my opinion, to describe the difference with the words 'direct' and 'indirect'.

Nonetheless, Reed's hypothesis is also profoundly false, because Gibson's concept of in-rmation complements his complete and unequivocal rejection of the traditional information ocessing theory of perception, or what we sometimes call the 'indirect' theory of percep-on. Gibson's writings, early, middle, and late, are replete with repetitions and para-rases of this rejection; it would be a matter of overkill, and a waste of space, for me quote verbatim here. If there is one constant in his work, it is the unacceptability of y theory of perception that invokes "mental acts", i.e., acts requiring inner representa-ons and their reconstruction. The rejection, moreover, is complementary to the study of formation per se because one must find on the outside what cannot be manufactured on the side.

Well then, how could a Gibsonian scholar have made such an error? My own guess is that ed has made the mistake of playing with words, and the words, as Wittgenstein might have id, have gone on vacation. Reed's argument can be captured in the following syllogism:

The distinction between direct and indirect perception has two senses
Gibson uses the sense unrelated to information processing
Therefore Gibson says nothing about information processing

nce Gibson happened to use the words 'direct' and 'indirect' in a sense which does not re-r to information processing pro or con, Reed has concluded that Gibson had nothing to say out information processing, pro or con. But of course he had a lot to say about it, and it s all con.

Reed helps his error along by playing imprudently with two other words as well: 'proces-ng' (or 'information processing') and 'registration'. Let's look at his precise words:

> "Now interpret the phrase 'the registration of information' as a neutral rendering of what is involved in perceiving. The traditional interpretation of the contrast between direct and indirect perception construes the problem as one of understanding more about the nature of registration. Gibson, however, seemed to make it an issue about information and not about registration. Within his system, neither the claim that perception is direct nor the claim that it is indirect represents an assertion about processing."

Reed, the word 'registration' and the word 'processing' are interchangeable, the second rm being substituted for the first at the end of the quote. Now let us assume, for the ke of argument, that Gibson has left the problems of registration for the future. His scussion of the problems of processing, however, belongs to the past and the present. Here an example: "Not even the current theory that the inputs of the sensory channels are subject to 'cognitive processing' will do. The inputs are described in terms of information theory, but the processes are described in terms of old-fashioned mental acts...(1979, p.238)

Reed's discussion of 'registration' and 'processing' may also be put into the form of a syllogism:

Gibson says nothing about registration
Registration is identical to processing
Therefore Gibson says nothing about processing

The conclusion is false because the second premise is false: registration is not, from Gibson's point of view, identical to processing. 'Registration' may or may not be a generic concept (to which Gibson may or may not have devoted much attention), but 'processing' is as theory-laden as a term can be in psychology, a fact which Gibson well knew, and which was the basis of the whole of the destructive side of his psychology. Reed has, I think, got himself twisted up in words again, with the peculiar, and very bad, result that he has made Gibson out to be "neutral" on processing. I do not think a conclusion could be further from the truth.

Postscript: (1) I have granted Reed his assertion about Gibson's use of the terms 'direct' and 'indirect'. But Gibson also uses the terms in the "traditional" way. One example: 1979, p.166, second paragraph from bottom. There are others.

(2) Gibson, of course, devoted some time to the topic of registration. His idea: the resonance of perceptual systems to information. He said little about the subject in his last book, and it is just as well, for the resonance theory is a correspondence theory. It is, therefore, subject to the same logical difficulties as the indirect theory and contradicts his own principle of subject-object complementarity.

Information Pickup and Direct Perception

Edward S. Reed

There are two sorts of theories concerning perception of the external world, indirect and direct. Theorists of indirect perception hold that awareness of external objects is normally based on internal awarenesses, sensations, or representations. On the other hand, James Gibson held that we perceive the world directly, through the pickup of information, and therefore that the having of internal awarenesses is incidental to being aware of external objects, places and events.

Within Gibson's theory of perception there is a further distinction between two kinds of perception, also termed "direct" and "indirect". For Gibson, direct perception occurs when information specific to the environment is available and used by an observer. When such specific information is constrained or lacking -- as with optical instruments, pictures, and language -- Gibson spoke of indirect perception. The dual awareness possible in these situations necessitates this distinction between direct and indirect awareness: "I suspect that the experience is called indirect in such cases to the extent that there is a concurrent

irect perception of the surface of the picture, the sounds or letters of the words...of the diator as such" (Gibson, 1967/1982, p.380). Gibson further noted that there are degrees indirectness, corresponding to the levels of specificity available in a situation (Gibson, ?, Chap. 3.6). What makes an instance of perception direct or not is the availability use of information specific to its source. In other words, Gibson's is a theory of di-t perception because it is a theory of information-based (as opposed to sensation- or resentation-based) perception, not because it denies the existence of mental processes.

As Gibson was well aware, a theory of information alone is not a complete theory of eption; it is also necessary to have a theory of the processes by which organisms use ilable information. Katz implies that I agree with Cutting (1982, p.202) that "nothing s said by Gibson about process." Nothing could be further from the truth. Gibson had a eat deal to say about the process of direct perception, "the kind of activity...that goes when the perceptual systems are at work. These acts involve adjustments of organs, not e stimulation of receptors. They are not mental. Neither are they physical, for that ter, but functional" (Gibson, 1976/1982, pp.397-398). In The senses considered as perual systems Gibson developed a comprehensive theory of information pickup for all the eptual systems. What makes Gibson's theory of the process of direct perception incomle with all traditional theories is not its denial of process in perceiving, but its utionary conception of this process, a conception based on Gibson's fundamental hypo-s -- that information is the basis of perception.

e purpose of my previous note was to call attention to the role played by the con- of information and specificity in Gibson's theory. My point was that Gibson's de- of mental processing theories is a consequence of his ideas about information. Acng to Katz, "Gibson's concept of information complements his complete and unequivocal ction of...information processing theory." This puts the conclusion before the premise. Gibson had it, if information exists, then there is support for realism and a new theory erception (Gibson, 1967/1982, pp.374-375). The claim that direct perception means the of processing has led many writers to misinterpret the hundreds of pages Gibson wrote the process of perceiving. Katz is wrong that "one must find on the outside what be manufactured on the inside." For, as Gibson (1970/1982, p.89) explained, "the ea that a perception is determined partly from the outside and partly from the inside ning but a muddle of thought." The process of perceiving is the act of information p, an act in which the self is part of the world (and co-perceived with the world) not part from it. Katz is thus wrong to criticize the theory of information pickup as a espondence theory" for it is the opposite, an attempt to situate the observer in the onment. It is Katz's assumption that the perceptual process must be "internal" that es this misunderstanding.

References

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Is the Grass Greener? - Comments on an Ecological Analysis

by James R. Pomerantz

John Pittenger - University of Arkansas at Little Rock

In his recent paper "The grass is always greener: an ecological analysis of an old aphorism" (Perception, 1983, 12, 501-502) Jim Pomerantz suggests that rather than continue to debunk old aphorisms, psychologists might turn their attention "toward explaining aphorisms and the extent of their validity". Taking "The grass is always greener on the other side of the fence" (the GAG effect) as his topic, he rejects appeals to cognitive or perceptual processing mechanisms and provides an "ecological analysis" through an analysis of the "ecological optics" of the situation.

The heart of the essay is a specification of the "stimulus information picked up" by the observer when looking at two plots of grass separated by a fence. Blades of grass (green) are initially assumed to grow vertically with respect to the ground (brown). Blades are spaced apart on the ground so that, depending on line of regard, various amounts of ground can be seen between them. Figure 1 shows the difference in lines of regard to your own and someone else's lawn. Note that since more ground will be visible in your yard, "mixing" of brown and green should desaturate the green you see in your yard. Thus, the lawn on the other side of the fence should appear greener. More subtle aspects are also considered; increased occlusion by bending of tall blades of grass, height of observer (the effect would not occur with an observer in an airplane), and homogeneous texture (there is no "Snow is always whiter" effect). He concludes that "this ecological analysis constitutes a victory for the visual sciences" and that the findings "represent the direction our research must follow to achieve the level of respectability we rightly deserve".

I'm not sure just what point is being made in this paper. It does appear that Pomerantz is poking fun at the ecological realists. However, weaknesses in the analysis and missed opportunities for humor greatly blunt its effectiveness. Still, if the ecological approach has the generality that many of us believe, even lawn perception should be amenable to analysis.

As a start, we should be clear on just what the analysis as originally published actually constitutes. First, note that it is not clear whether or not the GAG effect really oc-

s. (I've never noticed it but my neighbor's lawn may be objectively seedier than mine.)
t, the effect is, as Pomerantz points out, an illusion. It could occur even with two
ns of the same density of blades and the same spectral reflectivity of individual blades.
o, in the absence of an empirical test, we do not know if occlusion of the ground by grass
actually a perceptually effective aspect of the array. Finally, since the GAG effect is
illusion, the analysis is not of information but of mininformation (cf. Gibson, 1979,
142). Thus, Pomerantz has provided an analysis of potential misinformation for a poten-
l illusion. While ecological realists have not often pursued this type of work, we can
in what follows a certain richness in its ecological optics.

Recall that it is usually prudent to consider the most general possible case in these
lyses. Restricting yourself to the special features of the particular situation that
st drew your attention to the problem can lead to a loss of generality. In considering
ss ground gradients, note that an occluding fence is not necessary to produce misinforma-
n. As you look farther away from your feet, there should be more and more ground hidden
the grass. It's rewarding to note that an empirical prediction follows: The grass should
ays be browner closer to the observer's feet (GAB illusion).

Next, observe that, as so often happens, consideration of the moving observer enriches
analysis. As illustrated in Figure 2, the moving observer could remove the illusion by
icious sampling of the array. Also, the GAB illusion will move with the observer. As
walks about her lawn, the center of the brown/green gradient will move with her. As we
know, invariant relations between observer movement and the array are frequently impor-
it in perception. While I hesitate to predict the possible perceptual consequence of
s particular invariant, note the possibility of a particularly nasty illusion of causal-
; your very presence does temporary ill to the quality of the lawn (Brown Foot Syndrome).
e likely, this variation in the optic array would destroy the GAG illusion.

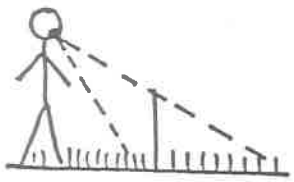

Figure 1

Figure 2

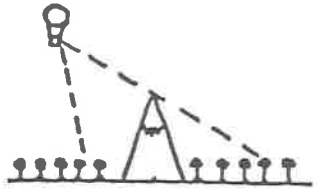

Figure 3

Effects of scale are also worth consideration. Pomerantz is quite correct that the GAG effect would fail for an observer in an airplane. However, if the size of the vegetation and occluding object and the height of the observer from the ground were all increased proportionally, you could get a "Woods are always greener on the other side of the mountain" (WAG) effect. Figure 3 illustrates this for an observer in a hot air balloon.

A good ecological analysis should include consideration of affordances. Since we are here dealing with misinformation and illusion, inappropriate behavior, such as over-watering or excessive fertilization of the lawn as well as jealous behavior toward the innocent neighbor, naturally follows. Pomerantz's analysis does, however, suggest one potentially attractive opportunity for action: If you allow your lawn to grow unchecked, the resulting tall, thick lawn will fully occlude the ground, thus destroying the misinformation and the illusion.

What then should we make of all this? First, we can now see, with apologies to Gilbert & Sullivan, that Pomerantz's essay is too limited to serve as the very model of a modern major general ecological analysis. On the other hand, when more of the components of this approach are included in the analysis, even lawn perception turns out to be both amusing and fairly rich in substance.

Changing Addresses?

There are many of you changing addresses very soon. Please send your new address or the address of someone else whose address needs correcting to me:

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