## Cat Signing?

In reading Terrace *et al.*'s (23 Nov. 1979, p. 891) otherwise irreproachable article analyzing Nim Chimpsky's utterances for evidence of grammatical competence, we were struck by their failure to note the fluent signing being made by the cat (Fig. 1, p. 892; see below) in Kitty Sign Language (KSL).

The first two photographs in the sequence are particularly clear. In the first, the cat is signing "lemme." In the second, we see an equally obvious "outa." The third is not quite so clear, since the cat, by now resigned to her fate, has been partially cropped from the photograph. However, we are fairly confident in interpreting this sign as "here." The sign appearing in the fourth photograph is, of course, "dirty," a sign apparently not in Nim's vocabulary, but one quite well known to fans of Washoe as an all-purpose expletive.

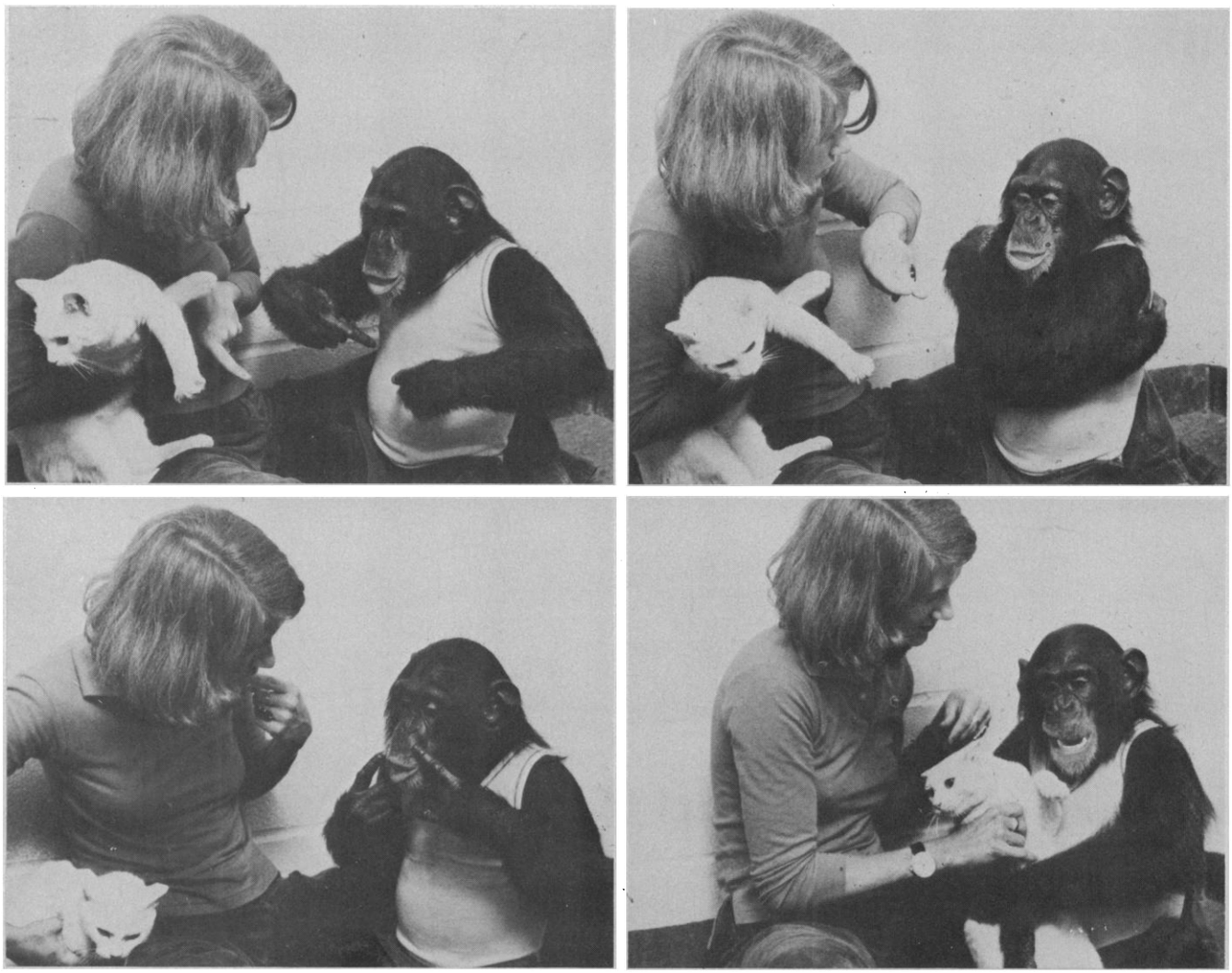
The most significant aspect of the frothing feline's utterances is that she is accomplishing all of this without prompting, unlike Nim. We feel that this apparent instance of grammatical competence on the part of the cat demands further investigation in order to more fully determine the extent of her linguistic abilities.

ROBERT A. MUSICANT
WILLIAM R. LOVALLO
SHERRILYN GILLESPIE
WILLIAM LEBER
*Behavioral Sciences Laboratories, Veterans Administration Medical Center, Oklahoma City, Oklahoma 73104*

## Diet and Cancer

It is somewhat amusing to be accused by Melvin Benarde (Letters, 14 Dec. 1979, p. 1256) of making statements about food additives and cancer that lead to public fears and confusion. In fact, the Philadelphia *Bulletin* (*1*) apparently quoted only a small fragment of my speech that was not unlike the argument Abelson made in his editorial (5 Oct. 1979, p. 11). To an audience that saw dangers lurking in every food additive, I maintained that the biggest problems with our food supply were not the additives and contaminants, but major ingredients and natural constituents. I highlighted the accumulated evidence that saturated fat and cholesterol contribute to atherosclerosis, sugar to obesity and dental caries, excessive dietary sodium to hypertension, and alcohol to cirrhosis of the liver and certain cancers. I also noted the increased attention being given to dietary fat and pyrolyzed protein as causes of bowel, breast, and certain other cancers.

Though my emphasis was on nutrition, I recognized that substances in food certainly do contribute to a modest, but unacceptable, number of cancers. Bernarde is apparently unaware of the evidence that some food additives may be carcinogenic and otherwise harmful (*2*).



Federal regulatory agencies, on the other hand, have long been concerned about both direct and incidental additives that increase cancer risks. Scientific studies and regulatory actions in recent decades have given substance to people's fears that our agricultural and food manufacturing industries sometimes add unnecessary hazards—carcinogenic and otherwise—to the food supply. To cite a few recent examples:

- Diethylstilbestrol (DES), a carcinogenic chemical used to promote the growth of livestock, was banned by the Food and Drug Administration (FDA) on 1 November 1979. For many years, residues of DES were detected in some samples of beef liver.
- Saccharin is recognized as a carcinogen by the FDA, which has proposed that the artificial sweetener be banned from food, as well as by the Office of Technology Assessment and the National Academy of Sciences.
- Sodium nitrite, a preservative, coloring, and flavoring, leads to the formation of cancer-causing nitrosopyrrolidine in bacon and several other varieties of cured meat. Some research has suggested that nitrite itself might be carcinogenic (*3*).
- Butylated hydroxytoluene (BHT), a widely used antioxidant in food, appears to increase the risk of lung (and possible lacrimal gland) tumors in mice (*4*). The effects of BHT on behavior are also being investigated (*5*).
- Red No. 40, the most widely used food dye, may be a weak carcinogen (*6*). The adverse effects of this and other food dyes on child behavior are being examined (*7*).
- Caffeine, an additive in soft drinks and naturally occurring constituent of several foods, is teratogenic (*8*). It also affects the central nervous system.
- Antibiotics, added to animal feed to promote growth, increase the likelihood that human pathogens will develop resistance to antibiotics. The FDA has proposed that antibiotics not be permitted as routine ingredients of animal feed.
- Residues of PCB's PBB's, Kepone, and other toxic industrial chemicals and pesticides have been found in numerous foodstuffs (*9*).

As more chemicals are subjected to thorough tests, it is likely that other direct and indirect additives will be discovered to cause cancer, birth defects, infertility, behavioral problems, and other health problems.

The exact number of deaths due to cancer-causing additives cannot be calculated with great accuracy, because, thoughtless and inconsiderate to policy-

makers though it may be, tumors do not bear tags identifying their cause or causes. However, in an attempt to quantify a risk, the National Academy of Sciences' report on saccharin cites a *maximum* figure of 3640 cases of cancer per year due to that chemical (*10*). Estimates have not been made for other food additives. Considering the various known and suspected carcinogens in our food supply, I think my figure of "a maximum of 10,000 to 20,000" deaths per year (approximately 1/2 to 1 percent of all deaths) was reasonable and, in the context, highlighted that (i) food additives cause a certain amount of illness and death, but a small amount compared to dietary fat, alcohol, and smoking; and (ii) deaths due to food additives are largely unnecessary because harmful additives are usually easily controlled.

Reports in the media that a chemical causes cancer often do lead to public concern. It is indeed unfortunate that people have to be troubled about chemicals that pose only a slight risk to a given individual. In fact, regulatory agencies were set up, in part, to save people the trouble of worrying about each and every little hazard. The agencies have a legal responsibility to restrict the use of chemicals that pose miniscule hazards to individuals, but significant dangers to the population as a whole. It is unfortunate that massive public pressure has been the only effective mechanism for overcoming bureaucratic lethargy and industrial opposition to controlling environmental hazards (*11*).

MICHAEL F. JACOBSON
*Center for Science in the Public Interest, Washington, D.C. 20009*

### References

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6. "Life-time Carcinogenesis Study in the ICR Swiss Mouse" (Final Report, Project No. 165-150, Hazleton Laboratories, submitted to the Bureau of Foods, Washington, D.C., 1977).
7. T. J. Sobotka, *Proceedings of the National Institute of Mental Health Workshop on the Hyperkinetic Behavior Syndrome* (NIMH, Washington, D.C., 1978), p. 39.
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9. *Environmental Contaminants in Food* (Office of Technology Assessment, Washington, D.C., 1979).
10. *Saccharin and Its Impurities* (Panel I) (National Academy of Sciences, Washington, D.C., 1978).
11. S. Epstein, *The Politics of Cancer* (Doubleday, New York, 1979).

*Erratum*: In the article "Park is sought to save Indian tribe in Brazil" (News and Comment, 7 Dec. 1979, p. 1160), the University of Pennsylvania is given as the affiliation of Napoleon Chagnon. This is not correct. Chagnon is a member of the faculty of Pennsylvania State University.