culating modulation transfer functions (MTF), the authors explicitly state that the line spread function (LSF) "has its maximum value at the origin . . . and is symmetric about the Y axis." In the program, it is assumed "that the LSF peak value is taken to be exactly at the origin."

The MTF, however, is not simply the cosine Fourier transform of the LSF as described by Benedetto and Nusynowitz, but it is the absolute value of the complex Fourier transform of the LSF (*2*). If the LSF is not exactly symmetric about the maximum value, as shown in the example in Appendix 2 of Ref. *1*, the sine Fourier transform of the LSF is not zero and contributes to the MTF. If the LSF data are not symmetric about the Y axis, either data manipulation is necessary to center the peak, or the calculation of the complex Fourier transform is needed to produce an accurate MTF (*3*). Since this effect, as well as others (*4*), is overlooked in much of the current literature, investigators should be cautious about the resultant MTF calculations.

S. R. AMTEY
R. K. TYSON
West Virginia University Medical Center
Morgantown, West Virginia

REFERENCES

1. BENEDETTO AR, NUSYNOWITZ ML: An improved FORTRAN program for calculating modulation transfer functions: concise communication. *J Nucl Med* 18: 85–86, 1977

2. GOTTSCHALK A, BECK RN, eds.: *Fundamental Problems in Scanning.* Springfield, Ill., C. C. Thomas, 1968, p 26

3. PERRIN FH: Methods of appraising photographic systems. *J Soc Mot Pic Tel Engrs* 69: 240, 1960

4. TYSON RK, AMTEY SR: Practical considerations for measuring transfer functions of scintillation camera systems. *Phys Canada* 32: 8.9, 1976

Reply

From a purely theoretical standpoint, Amtey and Tyson are correct in stating that the MTF is the absolute value of the complex Fourier transform of the line spread function.

If the line spread function is exactly symmetrical, however, the Fourier transform in cosines only is all that is required for computation of the MTF, since the sine portion is equal to zero. As indicated in the literature (*1,2*), a constraint on the method we utilized in our recent publication (*3*) is that the LSF must be symmetrical or very nearly so, in which case the sine components are zero or very small. If the LSF is not symmetrical, the complex Fourier transform must be used, as Amtey and Tyson state. From a practical viewpoint, however, asymmetry of the LSF indicates either a basic malfunction of the scintillation camera or an improper set up, in which case data manipulation to compute the MTF should not proceed. But given a symmetrical LSF, the method we employed is valid.

MARTIN L. NUSYNOWITZ
ANTHONY R. BENEDETTO
William Beaumont Army Medical Center
El Paso, Texas

REFERENCES

1. Fundamental Problems in Scanning. Gottschalk A, Beck RN, eds, Springfield, Ill., C. C. Thomas, 1968, pp 38–39

2. GOLDSMITH WA, NUSYNOWITZ ML: Determination of the modulation transfer function (MTF) using a programmable calculator. *Am J Roentgen Rad Ther Nucl Med* 112: 806–811, 1971

3. BENEDETTO AR, NUSYNOWITZ ML: An improved FORTRAN program for calculating modulation transfer functions: concise communication. *J Nucl Med* 18: 85–86, 1977

Myocardial Anatomy with Tl-201

Many centers are currently beginning to scan the heart with thallium, looking for ischemia or infarction. Several have published their results (*1,2*). Unfortunately, a discrepancy exists in anatomically naming the perfusion defects seen with thallium, especially on the anterior view. Parkey et al. (*1*) locate the septum medially on the anterior image, whereas Wackers et al. (*2*) put it laterally.

Where does the septum project? Because of absorbance by the right ventricle, are we wrong to expect the low-energy thallium image of the septum to be equivalent to the Tc-99m image? This can be another source of confusion.

MARVIN GUTER
NOEL R. ZUSMER
ALDO N. SERAFINI
Mount Sinai Medical Center
Miami Beach, Florida

REFERENCES

1. PARKEY RW, BONTE FJ, STOKELY EM, et al.: Acute myocardial infarction imaged with ^{99m}Tc-stannous pyrophosphate and ^{201}Tl: A clinical evaluation. *J Nucl Med* 17: 771–779, 1976

2. WACKERS FJT, SOKOLE EB, SAMSON G: Value and limitations of thallium-201 scintigraphy in the acute phase of myocardial infarction. *N Engl J Med* 295: 1–5, 1976

Reply

There was an error in the labeling of Fig. 3 in the mentioned article. The LAO view should have been labeled *anteroseptal* instead of *anterolateral*, and the view marked *posteroseptal* should have been *posterolateral*. I have discussed the labeling of the different defects with Dr. Wackers, and we agree in principle that any septal defect will always be on the medial aspect of the image, and that lateral-wall lesions can never be more medial than a septal defect. We do disagree somewhat on the appearance of anterior-wall infarctions, particularly in the LAO view. Dr. Wackers feels that a pure anterior-wall defect would not be seen in an LAO view, and if one is seen in this view it suggests septal involvement. This has not been the case in our hands; with anterior-wall lesions documented by ECG, the LAO view has shown some defect anteriorly. I feel this may just be a matter of semantics or the degree of obliquity on the LAO view. There is no question that when the LAO view begins with a small angle, the medial aspect of the "ring of activity" is primarily septum, but as the degree of obliquity increases, the anterior wall becomes a more prominent part of the medial portion of the LAO image. The same thing holds true for lateral- and posterior-wall lesions on the other side of the "ring of activity." It is important to realize that the "ring of activity" seen in thallium images is made up of the most perpendicular portion of the myocardium, which

gives the greatest thickness of muscle and activity. In the near future there will be many articles on thallium-201 imaging, and it is hoped that in time we can agree on a common nomenclature. Dr. Wackers will have a paper published in *Clinical Nuclear Medicine*, February 1977, which is an "Atlas of Thallium-201 Imaging in Acutely Infarcted Patients."

ROBERT W. PARKEY
University of Texas Health Science Center
Dallas, Texas