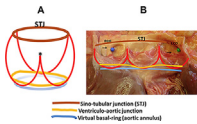


Dr De Paulis reported patent on aortic root graft with Terumo Aortic and consultant for Edwards Lifesciences, Medtronic, and Terumo Aortic. All other authors reported no conflicts of interest.

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**REPLY: SOMETIMES CONSENSUS IS A EUPHEMISM FOR COMPROMISE**



**Reply to the Editor:**

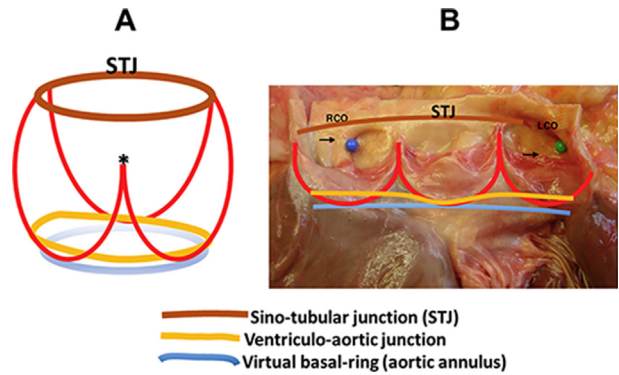
*“The question is,” said Alice, “whether you can make words mean so many different things.”*

*“The question is,” said Humpty Dumpty, “which is to be master—that’s all.”*

—Lewis Carrol

The afore-quoted exchange from Lewis Carrol’s *Through the Looking Glass* emphasizes a dilemma: should language be the master or should we, the creators of the language, be the masters, in terms of what a word means and how it is used? For the international consensus, a group of more than 40 experts from several different medical specialties and countries combined their efforts in an attempt to systematize the language about a rather confused and heterogeneous matter, such as the congenital bicuspid aortic valve and its related aortopathy.<sup>1</sup> Literally, “consensus” implies that among different solutions, the one that makes everyone content is identified and chosen. In our task, what could be reached in some instances was a good “compromise,” implying that members of the writing committee had to accept some degree of concession or loss from their own initial idea, opinion, or perspective.

Indeed, there was ample discussion about the use of “cusp” versus “leaflet.” Our nomenclature had to achieve in this instance a compromise between the most adequate wording from a purely linguistic standpoint and what was more closely related to common practice. By far, the most common word that refers to the condition in question is



**FIGURE 1.** A, Triradiate annulus, underdeveloped commissure (asterisk). B, Topographic landmarks. RCO, Right coronary ostia; LCO, left coronary ostia.

“bicuspid” aortic valve, yet when the valve anatomy is normal, tricuspid aortic valve and trileaflet aortic valve are used interchangeably. While the term “leaflet” could be adequate for both atrioventricular valves and semilunar arterial valves, the term “cusp” is specific to the semilunar valves. This is because in geometry and architecture “cusp” indicates a pointed end formed by the intersection of 2 arcs or curved lines that meet (as in the tip of a spear), a configuration that only semilunar valve components have and that is of functional, clinical, and surgical importance. Indeed, the arcs and points that are integral to “cusps” are present in the architecture of the semilunar valves (and the tri-radiate annulus, Figure 1) and not in the atrioventricular valves whose leaflets are positioned in the ventricles more like sheets from their annular origins. As Tretter and colleagues<sup>2</sup> correctly suggest, the best option is to be descriptive, and we firmly believe that for the aortic valve, the term “cusp” is more accurately descriptive and specific than “leaflet” and should be uniformly used, ie, unicuspid, bicuspid, tricuspid.

Of importance is the point raised by Tretter and colleagues<sup>2</sup>: when addressing the origins of coronary arteries, we improperly, yet by innocent oversight, referred to coronaries arising from cusps and not from sinuses, which is obviously wrong anatomically. However, we believe that it is likely evident for the reader to recognize that this is a mistake; an oversight is not a good reason to disparage the word cusp.

Although we also appreciate Tretter and colleagues<sup>2</sup> for their second comment, clearly, we did not “correlate” the virtual basal ring with the ventriculoaortic junction, as they claim. We followed the most recent literature in the graphic representation of the difference between those 2 topographic landmarks.<sup>3,4</sup> In contrast, to conceive and represent the ventriculoaortic junction not as a continuous boundary but as interrupted at the level of the noncoronary sinus is kind of a sophism and can be disorienting or misleading. The anatomical junction is called “ventriculoaortic,” suggesting that it is

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based on a macroscopic criterion, more than on a histologic one (not “striated-smooth” junction!). At the coronary sinuses, the ventricular muscle rises into the most basal part of the sinus walls; below the non-coronary sinus, however, it does not rise into the sinus, and the boundary between aorta and ventricle is represented by the fibrous tissue of the so-called aortomitral curtain. This is part of the left ventricular outflow tract, at least clinically speaking and imaging-wise, therefore, it is correct (or at least a sound compromise) to consider it as part of the ventricle. Thus, at the level of the membranous septum and aortomitral continuity, the ventriculoaortic junction is in a lower plane than at the level of the muscular septum and posterior wall of the left ventricle, roughly corresponding to the level of the virtual basal ring exclusively at that specific location, as depicted in the our original Figure 3 (Figure 1).

Echoing the quotation from Humpty Dumpty, when choosing a word to indicate a structure of the aortic valve and root, and in particular to describe the bicuspid aortic valve and its aortopathy: *which is to be master*, the linguistic and anatomical precision or the practical implication? In some instances, a real consensus can be achieved, ie, the most correct word is also the most practically useful; in others, a compromise between descriptiveness and usefulness must be reached.

Alessandro Della Corte, MD<sup>a</sup>

Joseph J. Maleszewski, MD<sup>b</sup>

Borja Fernández, PhD<sup>c</sup>

Ruggero De Paulis, MD<sup>d</sup>

Laurent de Kerchove, MD<sup>e</sup>

Joseph Bavaria, MD<sup>f</sup>

Thoralf M. Sundt, MD<sup>g</sup>

Hans-Joachim Schäfers, MD<sup>h</sup>

Hector I. Michelena, MD<sup>i</sup>

<sup>a</sup>Department of Translational Medical Sciences  
University of Campania “L. Vanvitelli”

Naples, Italy

<sup>b</sup>Department of Laboratory Medicine and Pathology  
Mayo Clinic

Rochester, Minn

<sup>c</sup>Departamento de Biología Animal

Facultad de Ciencias

Instituto de Investigación Biomédica de Málaga

Universidad de Málaga

Ciber-CV

Málaga, Spain

<sup>d</sup>Department of Cardiac Surgery

European Hospital and Unicamillus University Rome

Rome, Italy

<sup>e</sup>Division of Cardiothoracic and Vascular Surgery

Cliniques Universitaires Saint-Luc

Université Catholique de Louvain

Brussels, Belgium

<sup>f</sup>Division of Cardiac Surgery

University of Pennsylvania

Philadelphia, Pa

<sup>g</sup>Division of Cardiac Surgery

Massachusetts General Hospital

Boston, Mass

<sup>h</sup>Department of Thoracic and Cardiovascular Surgery

Saarland University Medical Center

Homburg/Saar, Germany

<sup>i</sup>Department of Cardiovascular Medicine

Mayo Clinic

Rochester, Minn

## References

1. Michelena HI, Della Corte A, Evangelista A, Maleszewski JJ, Edwards WD, Roman MJ, et al. International consensus statement on nomenclature and classification of the congenital bicuspid aortic valve and its aortopathy, for clinical, surgical, interventional and research purposes. *J Thorac Cardiovasc Surg.* 2021;60:448-76.
2. Tretter JT, Spicer DE, Jacobs JP, Anderson RH. The aortic valve with two leaflets. *J Thorac Cardiovasc Surg Open.* 2022;9:89-90.
3. de Kerchove L, Jashari R, Boodhwani M, Duy KT, Lengele B, Gianello P, et al. Surgical anatomy of the aortic root: implication for valve-sparing reimplantation and aortic valve annuloplasty. *J Thorac Cardiovasc Surg.* 2015;149:425-33.
4. De Paulis R, Salica A. Surgical anatomy of the aortic valve and root-implications for valve repair. *Ann Cardiothorac Surg.* 2019;8:313-21.

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