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Article

The Eucharistic Species in Light of Peirce's Sign Theory

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Abstract

The author argues that the thought of American polymath Charles Sanders Peirce (1839–1914) offers a coherent, adequate, and versatile framework for understanding the eucharistic species as "signs." Specifically, the historical analyses in the first and second parts of the article provide a conceptual grammar for showing the usefulness of Peirce's sign theory to interpret the understanding of the Eucharist as expressed in *Sacrosanctum concilium* (1963). The article concludes by suggesting how these clarifications might help promote cross-disciplinary study of the liturgy.[1]

Since patristic times, Western theologians have spoken of sacraments as "signs." In the early modern period, the 1687 English-language translation of the Roman Catechism (1566) references "S. *Austins* Definition, which all the School Doctors after him have follow'd. *A Sacrament*, says he, *is a sign of a Holy Thing*: Yet

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1. The article expands on a paper entitled "Sign Process and the Sacramental Worldview of Roman Catholicism," which I delivered at the 36th Annual Meeting of the Semiotic Society of America, held October 27–30, 2011, in Pittsburgh, and which appears in *Semiotics 2011: The Semiotics of Worldviews*, ed. Karen A. Haworth, Jason Hogue, and Leonard G. Sbrocchi (Ottawa: Legas, 2012) 106–14.

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in the same sense it is said, *A Sacrament is a Visible Sign of an Invisible Grace, insti-tuted or appointed for our Justification*."[2] Instructing the pastors to explain the several parts of the definition, "that it may be the better understood,"[3] the Catechism then proceeds to elaborate, with reference to Scripture and the Church Fathers, a robust analysis of sacramental signification.[4]

Although this text remains an authoritative reference through the late twentieth century, its use of sign theory is largely missing from popular catechesis. For instance, the *Catechism of Christian Doctrine*, commonly known as the Baltimore Catechism and used in Catholic schools in the United States from 1885 through the Second Vatican Council, famously defines *sacrament* as "an outward sign instituted by Christ to give grace," yet does not explain what *sign* means, either in general or in the context of sacramental theology.[5] Likewise, the English-language translation of the *Editio typica* of the *Catechism of the Catholic Church*, while stating that "the sacraments are efficacious signs [*signa*] of grace, instituted by Christ and entrusted to the Church, by which divine life is dispensed to us," never considers the nature of *signa*.[6]

One might account for the omission of sign theory from the Baltimore Catechism by pointing out that its authors had in mind a broader readership than did the authors of the Roman Catechism. However, one would have difficulty justifying the lack of a definition of *sign* in the most recent catechism, the publication of which Pope John Paul II ordered "by virtue of [his] Apostolic Authority" with the following plea:

> Therefore, I ask all the Church's Pastors and the Christian faithful to receive this catechism in a spirit of communion and to use it assiduously in fulfilling their mission of proclaiming the faith and calling people to the Gospel life. This catechism is given to them that it may be a sure and authentic reference text for teaching Catholic doctrine and particularly for preparing local catechisms.[7]

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2. *The Catechism for the Curats, Compos'd by the Decree of the Council of Trent, And Publish'd by Command of Pope Pius the Fifth*, trans. John Bromley (London: Henry Hills, 1687) 2.1.5, p. 128, emphases original; translation of *Catechismus ad parochos ex decreto Concilii Tridentini, editus et Pii V Pont. Max jussu Promulgatus* (London: Nathaniel Thompson, 1687). For the reference to Augustine, see Aug. *Civ.* 10.5; *Ep.* 2. On Augustine's sign theory, see R. A. Markus, "Saint Augustine on Signs," in *Augustine: A Collection of Critical Essays*, ed. R. A. Markus (Garden City, NY: Anchor, 1972) 92–147; and B. Darrell Jackson, "The Theory of Signs in St. Augustine's *De doctrina christiana*," in ibid. 61–91.
3. *Catechism for Curats* 2.1.6, p. 128.
4. *Catechism for Curats* 2.1.6–32, pp. 128–45.
5. *A Catechism of Christian Doctrine, Prepared and Enjoined by Order of the Third Plenary Council of Baltimore* (Arlington, NJ: Catholic Protectory, 1885) 24.
6. *Catechism of the Catholic Church* (hereafter *CCC*), 2nd ed. (Washington: US Catholic Conference, 2000) no. 1131; *Catechismus Catholicae Ecclesiae* (*CCE*) (Vatican City: Vatican, 1997) no. 1131: "Sacramenta sunt signa efficacia gratiae, a Christo instituta et Ecclesiae concredita, per quae vita divina nobis praebetur."
7. John Paul II, Apostolic Constitution *Fidei depositum*, On the Publication of the *Catechism of the Catholic Church*, Prepared Following the Second Vatican Ecumenical Council (October 11, 1992), in *CCC* nos. 1–6, at 5.

Here the question arises: how can readers understand this "sure and authentic reference text" without a "sure and authentic" exposition of the conceptual grammars that underlie its formulations and vocabulary?

Philosophers and theologians have reflected for centuries, beginning in the ancient world and continuing into the modern period, on signification.[8] More recently, Swiss linguist Ferdinand de Saussure (1857–1913) and American polymath Charles Sanders Peirce (1839–1914) independently developed theories of representation that surveyed the land and prepared the ground for the modern fields of semiology and semiotics, respectively.[9] To contextualize the contributions of Saussure and Peirce, consider that professional philosophers, who distinguish primarily between Continental and analytic styles of doing philosophy, tend to associate Saussure with the Continental traditions while classifying Peirce along with William James and John Dewey not in the analytic tradition but as a cofounder of American pragmatism.[10] Philosophers then refer to Susan Haack and others who work out of Peirce as neoclassical pragmatists in order to distinguish them from Richard Rorty and the analytic school of neopragmatism.

With these distinctions in mind, consider that the various Continental traditions, each with its own concerns, methods, and thinkers of reference, have had an enormous influence on contemporary Roman Catholic theology in general and on sacramental-liturgical theology in particular, as through the writings of Karl Rahner, Louis-Marie Chauvet, John Laurance, David Power, and others.[11] Indeed, Continental thought seems to be the primary context for postconciliar theology, both in Europe and in

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8. For a historical overview, see Winfried Nöth, *Handbook of Semiotics* (Bloomington: Indiana University, 1990) 11–38; John Deely, "Semiotics," *New Catholic Encyclopedia* (hereafter *NCE*), *Supplement 2012–2013: Ethics and Philosophy* (Detroit: Gale, 2013) 4:1402–4.

9. See Nöth, *Handbook of Semiotics* 39–47 for Peirce's contributions, and 56–63 for Saussure's; see also Deely, "Semiotics," *NCE Supplement 2012–2013* 4:1403.

10. On the Continental/analytic distinction, see James Chase and Jack Reynolds, *Analytic versus Continental: Arguments on the Methods and Value of Philosophy* (Montréal: McGill-Queen's University, 2010). For discussion of this distinction as it pertains to the philosophy of religion, see Nick Trakakis, "Meta-Philosophy of Religion," *Ars Disputandi* 7 (2007), http://www.ArsDisputandi.org. All URLs cited herein were accessed November 18, 2013. In later life Peirce rejected the term *pragmatism* and distanced himself from the uses that others, including James, made of his ideas (*The Essential Peirce: Selected Philosophical Writings* [hereafter *EP*], ed. Nathan Houser, Christian Kloesel, and the Peirce Edition Project, 2 vols. [Bloomington: Indiana University, 1992–98] 2:334–45).

11. For the dependence of Karl Rahner on Heidegger's method and terminology, see Joseph H. P. Wong, *Logos–Symbol in the Christology of Karl Rahner* (Rome: Libreria Ateneo Salesiano, 1984) 98–101. On Chauvet's debt to Saussure, Heidegger, and Merleau-Ponty, see Glenn P. Ambrose, *The Theology of Louis-Marie Chauvet: Overcoming Onto-Theology in the Sacramental Tradition* (Burlington, VT: Ashgate, 2012) 36–92. The ideas of Pierre Bourdieu appear in the use of Catherine Bell's ritual studies, as in John D. Laurance, *The Sacrament of the Eucharist* (Collegeville, MN: Liturgical, 2012) 55–58, while traces of German thinker Ernst Cassirer's philosophy of symbolic forms arrive by way of Susanne Langer, as in David N. Power, *Unsearchable Riches: The Symbolic Nature of Liturgy* (New York: Pueblo, 1984) 8–9, 68–69. For the influence of Paul Ricoeur, Julia Kristeva, Jean-Luc Marion, and other Continental philosophers, see David N. Power, O.M.I., Regis A. Duffy, O.F.M., and Kevin W. Irwin, "Sacramental Theology: A Review of the Literature," *Theological Studies* 55 (1994) 657–705.

North America.[12] For the sake of the present article, which focuses on sign theory and the Eucharist, it suffices to point out that Saussure concentrated chiefly on language, whereas Peirce, a logician who practiced physical science all his life, envisioned a universal semiotic that would account for the totality of experience in terms of three irreducible categories.[13] If Peirce succeeded in developing such a theory, then researchers from a variety of fields might use it both to work more comprehensively within their own areas and to relate their findings across disciplines.[14] When one reflects on the possibilities of such a project, given the long-standing use of sign theory among Christians for discussing matters of faith and religion, it is surprising how few studies of the sacraments make more than passing reference to Peirce's thought.[15]

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12. I count Bernard Lonergan, despite his use of transcendental reasoning, as a major exception. And I do not mean to suggest that analytic philosophers have had no influence on contemporary sacramental-liturgical theology. For discussion of Chauvet's use of J. L. Austin's theory of speech acts, see Mervyn Duffy, *How Language, Ritual, and Sacraments Work: According to John Austin, Jürgen Habermas, and Louis-Marie Chauvet* (Rome: Gregorian University, 2005). For a more foundational use of analytic philosophy in theology, see the work of Michael Rea and his colleagues in the Analytic Theology Project, http://phil-religion.nd.edu/research-initiatives/analytic-theology. For an introduction to their concepts and methods, see Oliver D. Crisp and Michael C. Rea, eds., *Analytic Theology: New Essays in the Philosophy of Theology* (New York: Oxford University, 2009); and the Round Table in the *Journal of the American Academy of Religion* 81 (2013) 569–619.

13. *EP* 2:326. For commentary, see Vincent Colapietro, "Is Peirce's Theory of Signs Truly General?," *Transactions of the Charles S. Peirce Society* 23 (1987) 205–34.

14. See Helmut Pape, "Searching for Traces: How to Connect the Sciences and the Humanities by a Peircean Theory of Indexicality," *Transactions of the Charles S. Peirce Society* 44 (2008) 1–25. Studies like Pape's offer great promise to sacramentology, where talk of signs has implications for disciplines and subdisciplines including physics, metaphysics, and systematic and moral theology. For example, consider the Evolution, Creation, and Semiotics project of Christopher Southgate and Andrew Robinson at the University of Exeter. Their website explains that the project "seeks to develop a philosophical framework within which science and religion may both find a home": "the philosophical framework draws on the semiotics (theory of signs) of American philosopher Charles S. Peirce (1839–1914). [Their] exploration of this framework as a mediator between science and religion has given rise to new hypotheses in philosophy (a new definition of interpretation and misinterpretation), science (a new approach to the origin of life and a new theory about the evolution of human distinctiveness), and theology (new ways of thinking about the Trinity and the Incarnation)," http://www.evolutioncreationsemiotics.org. For exposition of their ideas, see Andrew Robinson, *God and the World of Signs: Trinity, Evolution, and the Metaphysical Semiotics of C. S. Peirce* (Leiden: Brill, 2010). Such projects, which propose far-reaching implications to theology in general and sacrament studies in particular, merit serious discussion among theologians.

15. I can only speculate on the reasons for this lacuna—for example, disregard of Peirce by other scholars, unease with his scientific approach, simple lack of exposure to his ideas, or perhaps intimidation at the sheer mass of primary sources, many of which remain in manuscript form. For book-length sacramental-liturgical studies that build on or incorporate his ideas, see Paul Matthew Burgess, *Play, Metaphor, and Judgment in a World of Signs: A Peircean Semiotic Approach to Christian Worship* (Ann Arbor, MI: University Microfilms, 1991); Donald L. Gelpi, *Committed Worship*, 2 vols. (Collegeville, MN: Liturgical, 1993); Gerard Lukken, *Per Visibilia ad Invisibilia*, ed. Louis van Tongeren and Charles Caspers (Kampen: Kok Pharos, 1994); Robert Cummings Neville, *The Truth of Broken Symbols* (Albany, NY: SUNY, 1996); and Graham Hughes, *Worship as Meaning* (New York: Cambridge University, 2003).

In the present article I try to help fill this gap in the literature by suggesting, through an analysis of official Roman Catholic teaching on the eucharistic species, some of what Peirce's sign theory can contribute to Western sacramentology. To this end, part 1 presents an analysis of the conceptual models used in the first millennium for con-ceiving the presence of Christ in the eucharistic species. Part 2 then studies the concurrent debates among Latin-Rite theologians regarding the composition of these species understood as the body and blood of Christ. From these analyses emerge certain conceptual grammars and vocabularies that—so the official documents suggest—the magisterium uses in teaching about the Eucharist today. These grammars and vocabularies in turn provide a conceptual context for demonstrating, in part 3, how Peirce's semiotic can function to interpret official church teaching. The article concludes by suggesting, in part 4, areas for research into the use of Peirce's thought for doing eucharistic theology.

Models of the Body and Blood

The following historical background relies primarily on the first part of Edward Kilmartin's posthumously edited study, *The Eucharist in the West*.[16] Kilmartin finds two themes present in the earliest accounts of Latin eucharistic doctrine and practice. First, the Latin patristic writers understand the eucharistic celebration as a sacrificial act that the church makes in union with Christ the High Priest "who draws his disciples into his own worship of the Father."[17] Second, these writers regard the efficacy of this act, through participation in the sacramental body and blood, as a means of both expressing and deepening church unity.[18] The first issue, which involves the sacrificial character of the eucharistic celebration, does not generate serious controversy up through the period of early Scholasticism. Instead, the debate centers on the second issue, namely, how to understand the eucharistic species.

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16. Edward J. Kilmartin, S.J., *The Eucharist in the West: History and Theology*, ed. Robert J. Daly, S.J. (Collegeville, MN: Liturgical, 2004). Although this book relies heavily on certain sources and commentators while apparently ignoring others, it nevertheless offers a coherent and generally well-regarded study of a very complex topic. Citing the editor, Regis Duffy points out that "this is a work in progress, for K. was convinced that the theological task of the third millennium would be a reappropriation of the theological insights of the first [millennium] as well as a creative use of those of the second" (Regis A. Duffy, O.F.M., review of *The Eucharist in the West: History and Theology* by Edward J. Kilmartin, S.J., *Theological Studies* 60 [1999] 759–60, at 759). And so, because I intend parts 1 and 2 of my article primarily to provide context for discussion of the usefulness of Peirce's sign theory for doing sacramental theology (in parts 3 and 4), I generally do not consider opinions and analyses that differ from Kilmartin's. The work of Paul Bradshaw, Maxwell Johnson, Gary Macy, and others certainly would balance, enrich, and perhaps even correct some of Kilmartin's claims, and a fuller historical study would necessarily take their findings into account. For bibliography, see Maksimilijan Zitnik, *Sacramenta: Bibliographia internationalis*, vols. 1–4 (Rome: Gregorian University, 1992); Zitnik, *Sacramenta: Bibliographia internationalis; Continuatio*, vols. 5–7 (Rome: Gregorian University, 2002); and the *Elenchus bibliographicus*, presented annually in nos. 2 and 3 of the *Ephemerides Theologicae Lovanienses* (Louvain: Peeters, 1924–).

17. Kilmartin, *Eucharist* 3.

18. Ibid.

According to Kilmartin, two models emerge in the early church for the conception of the species. The first, which I call Model A, casts the change in the bread and wine at Mass in terms of a realistic, metabolic conversion. This idea develops from the fourth-century Antiochene tradition characteristic of John Chrysostom (ca. 347–407) and Theodore of Mopsuestia (ca. 350–428). Their thought in turn relies on the conceptual framework, familiar from Platonic philosophy and current in the Hellenistic thought-world, wherein an image participates in a prototype.[19] From this perspective, any natural object has a relationship with an intelligible ideal that is rendered actual by its presence in that object. In the context of eucharistic theology, this means understanding the consecrated bread and wine as participating sacramentally in the same Lord who was crucified, has risen, and is seated at the right hand of the Father.[20] As such, the eucharistic species are not material signs pointing to a spiritual reality; they are realities of a certain kind that present the reality of the prototype in a special way.[21] Theologically speaking, the Holy Spirit elevates rather than annihilates the reality of bread and wine, making it an image of the whole Christ and, above all, a commemoration of his active presence and saving work.[22] In this sense, the prototype is not completely present in the image; in eschatological terms, the image represents the prototype as history represents the "already/not yet" of eternal salvation.

The second model, which I call Model B, frames the eucharistic species not as images of higher realities but as signs that stand in opposition to the realities they represent. Unlike Model A, which casts the image as a special form of the prototype, Model B opposes sign and reality, *figura* and *veritas* respectively. Here, the sign and the reality signified are of different orders altogether. Augustine (354–430), who understands the species as visible signs of unseen realities, views the matter from this perspective, as do Tertullian (ca. 160–after 220) and Cyprian of Carthage (d. 258).[23] The visible/invisible language in Vatican II's *Sacrosanctum concilium* (1963), the Constitution on the Sacred Liturgy, also represents this view.[24]

Note that Model A implies that the prototype is really, materially present in and through the image. For eucharistic theology, this means that, by the blessing, the bread and the wine undergo a change whereby Christ becomes somatically present under what is now merely the appearance of bread and wine. Kilmartin points out that Ambrose (ca. 339–97) borrows from Model A this idea of the somatic presence of

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19. On this theme, see Kenneth Parry, *Depicting the Word: Byzantine Iconophile Thought of the Eighth and Ninth Centuries* (Leiden: Brill, 1996) 22–33.
20. Kilmartin, *Eucharist* 84.
21. Ibid. 85.
22. Ibid. 149; cf. 147, 362.
23. Ibid. 25, 47. Further study would consider the role of Old Testament frameworks in Augustine's sign theory. On this point, see Peter J. Leithart, "Conjugating the Rites: Old and New in Augustine's Theory of Signs," *Calvin Theological Journal* 34 (1999) 136–47.
24. Second Vatican Council, *Sacrosanctum concilium* no. 33. Hereafter I cite this document as *SC* by article number, taking the Latin text from *Conciliorum oecumenicorum generaliumque decreta* (hereafter *COGD*), Corpus Christianorum, 3 vols. (Turnhout: Brepols, 2006–). English translations of passages from *Sacrosanctum concilium* are from *Decrees of the Ecumenical Councils* (hereafter *DEC*), ed. Norman P. Tanner, 2 vols. (Washington: Georgetown University, 1990).

Christ, but that he seems to conceive it apart from the prototype/image context, such that the early medieval theologians take the idea of the real presence of Christ as normative for interpreting the content of the eucharistic species, but they no longer understand this presence from within the conceptual horizon of the fourth-century Greek thought-world.[25] In the received view, then, the bread and the wine undergo a change whereby the whole Christ becomes entirely present under the form of bread and wine. The doctrine of transubstantiation, which uses the language of Aristotelian metaphysics to explain this change, develops in the eleventh century precisely to account for both the symbolic and the realistic dimensions of the Eucharist.[26] Note, however, that this view, while affirming that the substances of bread and wine change completely into the somatic real presence of Christ, does not reference the commemorative actual presence of the sacrifice of the cross—that is, the dynamic, global dimension of the eucharistic mystery.[27]

   In the fifth century, the Antiochene tradition of Model A develops in a different direction. This new model, which I call Model C, appears during the christological controversies between the Alexandrian and Antiochene schools. Briefly, Nestorius (ca. 386–ca. 451), then patriarch of Constantinople (428–31), denies that the eucharistic elements undergo an elemental or substantial change, and appeals to this denial in order to counter monophysitic Christology.[28] Theodoret of Cyrus (ca. 393–ca. 466) elaborates this position, consciously preferring it to the eucharistic realism of Theodore of Mopsuestia; the eucharistic theology of Pope Gelasius I (d. 496), which represents the official Roman position of the day, clearly depends on the model favored by Theodoret.[29] Theodoret's idea is that, while the eucharistic elements do not change, they do communicate a power (*virtus*) of the deity, hereby effecting a participation in the divine nature.[30] In this sense the eucharistic theology of Gelasius resembles that of Augustine, neither of which implies the notion of eucharistic conversion implicit in Model A, but both of which teach that reception of the body and blood provides a grace of the Spirit necessary for sharing in divine life.[31] The primary difference between the view of Gelasius and the view of Augustine is that Gelasius understands

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25. Kilmartin, *Eucharist* 21–22.
26. For an introduction to Aristotle's hylomorphism, see Christopher Shields, *Aristotle* (New York: Routledge, 2007) 53–64. Lateran IV (1215) approved the term *transubstantiation*, of which the first known occurrence appears in *Sententiae Rolandi* (mid-twelfth century), which Kilmartin attributes to Rolando Bandinelli (ca. 1105–1181), the future Pope Alexander III (Kilmartin, *Eucharist* 145).
27. Kilmartin, Eucharist 83. See Cesare Giraudo, *Eucaristia per la chiesa: Prospettive teologiche sull'eucaristia a partire dalla "lex orandi"*, Aloisiana 22 (Rome: Gregorian University, 1989) 1–33; Robert Daly suggests that Kilmartin used this as a key source (Robert J. Daly, S.J., "Editor's Foreword," in Kilmartin, *Eucharist* xv–xxv, at xviii).
28. Kilmartin, *Eucharist* 35. On the christological debates, see Susan Wessel, *Cyril of Alexandria and the Nestorian Controversy* (New York: Oxford University, 2004).
29. Kilmartin, *Eucharist* 37–41. Kilmartin cites (41) and provides (42–56) a commentary on the *De duabus naturis* of Gelasius.
30. Ibid. 48–49.
31. Ibid. 58–59.

this grace as contained within the eucharistic species, whereas, according to Kilmartin, Augustine sees it as bearing only an extrinsic, spiritual relation to them.[32]

Nevertheless, the understanding since Trent of the real presence of Christ in the Eucharist has developed from the Ambrosian model, wherein the elements undergo a real, metabolic change, albeit one that results in a static—as opposed to a dynamic, fourth-century Antiochene—notion of how Christ is present in them.[33] Note too that Kilmartin's recurring polemic against the "average modern Catholic position"—to wit, that the Eucharist makes the historical redemptive sacrifice of Christ objectively present to the believer—favors the retrieval of Greek prototype/image theology to conceive of the eucharistic species.[34]

The Composition of the Eucharistic Species

Having considered Kilmartin's interpretation of the first-millennium models for conceiving how Christ is present in the eucharistic species, I now turn to how theologians have understood the composition of the species. As indicated above, Augustine sees the grace of the Eucharist as uniting believers to Christ and to one another, and this understanding develops within the context of Model B, where the signs of bread and wine indicate or point to this grace. But while Augustine understands believers to receive this grace by participating in the Eucharist, he locates it outside the sacrament. In contrast, Ambrose takes from Model A an understanding of Christ as really, corporally present under the forms of bread and wine, although he sees Christ as fully present, such that the communicant receives the whole Christ. In other words, he does not seem to see Christ present in the commemorative way that an image/prototype model would have it. To complicate matters, Jerome (ca. 347–ca. 419) introduces a distinction between the historical body of Christ, born of a woman, and the body of Christ present in the Eucharist. This distinction plays a central role in the eleventh-century debate over the composition of the eucharistic species.

Regarding this composition, Augustine uses the schema *sacramentum/res*, where the *sacramentum* as "visible sign" points to the *res* as "invisible, external grace of the unity of the church." However, while the early Scholastic theologians appropriate this schema from Augustine, they identify Christ as the *res* and locate him in the eucharistic species themselves. The anonymous early Scholastic tractate *De corpore igitur*

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32. Ibid. 70, 77. Kilmartin's interpretation of Augustine is anachronistic insofar as it suggests that Augustine conceived of the bread and the wine apart from the eucharistic community in union with Christ. For a historically contextualized presentation of Augustine's experience of Eucharist, see Allan Fitzgerald, "Augustine on Eucharist. *Your only Son [is] my ransom price, which I eat, drink and dispense to others* (Conf. X,43,70)," in *Prayer and Spirituality in the Early Church*, vol. 4, *The Spiritual Life*, ed. Wendy Mayer, Pauline Allen, and Lawrence Cross (Strathfield, NSW: St. Paul's, 2006) 267–80.

33. For evidence of this understanding, see Pope Paul VI, *Mysterium fidei, AAS* 57 (1965) 753–74; John Paul II, *Dominicae cenae, AAS* 72 (1980) 113–48; John Paul II, *Ecclesia de Eucharistia, AAS* 95 (2003) 433–75.

34. Kilmartin, *Eucharist* 4–5, 241–383.

Domini sic opportune videtur agendum develops an application of the Augustinian schema, by which the *sacramentum*, understood as the "visible species," represents the *res*, understood as "the invisible eucharistic body and blood." Furthermore, the "invisible eucharistic body and blood" itself functions as *sacramentum* in that it represents the twofold *res* of "the visible historical and glorified body of Christ" and "the unity of the church."[35] The upshot of the *De corpore* account is to relate the appearance of bread and wine to the invisible body and blood as well as to both the historical and glorified body of Christ, and the unity of the church through the invisible body and blood. During the twelfth century, the *Summa sententiarum*, attributed to the circle of Hugh of Saint Victor (1096–1141), reduces this schema to *sacramentum tantum* as "eucharistic species and actions of the priest," *sacramentum et res* as "symbolic reality of the body and blood," and *res tantum sacramenti* as "inner power of the symbolic reality"—to wit, the unity of the church.[36] Sometime around 1233, Hugh of Saint Cher (ca. 1200–1263) reverses the middle term, making it *res et sacramentum*, which Scholastic thought takes as the standard formulation after the middle of the thirteenth century.[37]

Note that, according to these analyses, the grace of the sacrament is contained in the sacrament itself. Concurrently, however, Peter Lombard (ca. 1095–1160), in his commentary on 1 Corinthians 11:24 (ca. 1142–1143), develops an understanding of the eucharistic grace as outside the sacrament. Lombard speaks of the *sacramentum* as "species," the *res contenta et significata* as "body and blood," and the *res significata et non contenta* as "unity of the church." While this understanding emphasizes the somatic presence of Christ in the Eucharist by situating the grace outside the species, it obscures the vision of what the sacrament ultimately signifies, namely, the eschatological dimension of Christ in heavenly glory.[38] Nevertheless, theologians after Lombard generally have located the grace of the Eucharist outside the sacrament, an understanding that informs today's official teaching on the Eucharist. The eleventh-century doctrine of transubstantiation is then enlisted to solve the problem of how the whole Christ could be present as what appears to be bread and wine. Since Trent, the magisterium has appealed to this doctrine in order to account for the process of change that the bread and wine actually undergo.[39]

Peirce and the Tradition

In parts 1 ("Models of the Body and Blood") and 2 ("The Composition of the Eucharistic Species") I discussed the conceptual vocabulary operative in contemporary official Roman Catholic teaching on the Eucharist, as expressed, for example, in *Sacrosanctum*

35. Ibid. 62–63, 119–20.
36. Ibid. 121.
37. Ibid. 123. On the development of this schema from the Berengarian controversy up to Aquinas, see Ronald F. King, "The Origin and Evolution of a Sacramental Formula: *Sacramentum Tantum, Res et Sacramentum, Res Tantum*," *Thomist* 31 (1967) 22–82.
38. Kilmartin, *Eucharist* 63–67, 123–25.
39. For instance, see *CCE* nos. 1373–77.

concilium. Now, in part 3, I use Peirce's sign theory, or semiotic, to interpret the council's understanding of the Eucharist as articulated in that document.

Peirce developed his theory throughout his life as a research scientist, yet never published a definitive, systematic exposition of his ideas.[40] His analysis of the sign relation into *sign* (or "representamen"), *object*, and *interpretant* is well known.[41] As T. L. Short presents it, "the interpretant is a response to the sign that the sign elicits and in which that sign is taken to be a sign of an object: it is this that accords the sign its significance."[42] Furthermore, "all three items are triadic in the sense that none is what it is—sign, object, or interpretant—except by virtue of its relation to the other two."[43] For example, a red traffic signal functions as a sign in that it represents, among other things, the object of coming to a stop: a driver may then interpret this sign by thinking to stop or by reflexively depressing the brake pedal, such that either the thought or the braking action functions as an interpretant of the signal/sign. Also well known is Peirce's classification of any given sign as *icon*, *index*, or *symbol*, according to how that sign relates to its object.[44] Following this division, an icon signifies according to its qualities alone, in the sense that one speaks of aspartame as an icon of sugar, or the pouring of baptismal water as an icon of bathing. An index then signifies according to a spatial connection between two actually existing things, as in the case of a wind vane, the distended belly of a pregnant woman, or the addressing of the statement "I baptize you" to some particular person. Finally, a symbol signifies by virtue of a general rule of interpretation, as is the case with words, emblems, or gestures; such that, for example, the Christian community understands the immersion of this particular person during the Rite of Baptism as having the effect of remitting the person's sins.

Keeping in mind these two major features of Peirce's sign theory, I return to *Sacrosanctum concilium*. Regarding worship in general, the document explains:

> It is therefore quite right to think of the liturgy as the enacting of the priestly role of Jesus Christ. In the liturgy, the sanctification of human beings is being expressed through signs accessible to the senses, and carried out in a way appropriate to each of them. Furthermore, the mystical body of Jesus Christ, that is the head and the members, is together giving complete and definitive public expression to its worship.[45]

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40. While I have used *EP* for convenience, the standard scholarly reference is *The Collected Papers of Charles Sanders Peirce* (hereafter CP), ed. Charles Hartshorne, Paul Weiss, and Arthur Burks, 7 vols. (Cambridge, MA: Harvard University, 1931–58). My interpretation of Peirce's semiotic follows T. L. Short, *Peirce's Theory of Signs* (New York: Cambridge University, 2007); for a critique of Short's book, see John Deely, "'To Find Our Way in These Dark Woods' versus Coming Up Short," review of *Peirce's Theory of Signs* by T. L. Short, *Recherche sémiotique/Semiotic Inquiry* 26.2–3 (2006) 165–234.
41. *EP* 2:272–73, 493–94; *CP* 6:347.
42. Short, *Theory* 18.
43. Ibid.
44. *EP* 2:460–61; *CP* 4:531; Short, *Theory* 214–22. Regarding Peirce's apparent obsession with the number three, see C. W. Spinks, *Peirce and Triadomania: A Walk in the Semiotic Wilderness* (Berlin: Mouton de Gruyter, 1991).
45. *SC* no. 7 (*DEC* 2:822).

Here we find, along with the language of sacrificial priesthood present in the Latin patristic tradition, the de jure understanding of sacramental signification for Catholic Christians today. Using Augustinian language, the document goes on to say, "The visible signs which the liturgy uses to symbolize invisible divine things have been chosen for this purpose either by Christ or by the Church."[46] According to the council, then, "signs accessible to the senses" point to an invisible reality, namely, the sanctification of the human person. From the perspective associated with Augustine in parts 1 and 2 above, this sanctification constitutes the *res* or thing signified, which is external to the eucharistic species themselves. In Peircean terms, human sanctification is the "dynamical object" of these perceptible signs, that is, their object as existing apart from any particular representation of it.[47] I do not here address what this sanctification means, beyond recognizing that, as "invisible divine things," the objects of the species relate to the transcendence and majesty of God. Note, however, that the descriptions in *Sacrosanctum concilium* reveal both the indexical and symbolic dimensions of sacramental signs in that, according to the document, the signs point to and actually bring about (indexical function) the sanctification that they call to the minds of believers (symbolic function). Furthermore, these descriptions reveal the iconic character of the sacramental signs by speaking of them as "accessible to the senses."

Much more could be said about the semiotic dimension of the eucharistic species— for instance, regarding the indexicality of the bread and wine. On this point, recall that an indexical sign involves an actual connection between two things in the real world, for which reason we can speak of one of those things as representing the other. In point of fact, when the sacred species call attention to the presence of Christ in a particular loaf of bread, presider, tabernacle, or community gathered in prayer, it is by virtue of this connection. But it does not follow from the actual fact of the connection that a communicant must recognize (symbolic function) the breaking of bread as a eucharistic event, either for the bread breaking to be such an event, or even for that communicant to receive the grace of the sacrament—witness infant communion, which in the East completes Christian initiation. Furthermore, the action of the bread breaking can itself have a revelatory effect,[48] just as by actually munching (*trōgōn*) the bread, one "has eternal life": Jesus "will raise him on the last day" (Jn 6:54).

Taking the indexical aspect of the sacramental worldview to its limit, we can speak of God as the original object of all possible experience or knowledge. From this perspective, Scripture implies that the entire created order represents its creator and thus, in the broadest sense, renders the world a sign of God.[49] But in a stricter view, one can affirm that sacramental worship, by rendering participants holy, makes them represent more closely God, whose Spirit is "the *Fountain* and *Giver* of all Holiness."[50] This is

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46. *SC* no. 33 (*DEC* 2:827).
47. *EP* 2:498. See also Short, *Theory* 191–96.
48. See Lk 24:30–33. Scripture citations refer to the New American Bible Revised Edition.
49. Ps 19:2; Wis 13:1; Acts 14:17; Rm 1:20. Anglican divine William Temple explores this theme in his Gifford Lectures (1932–34), *Nature, Man, and God* (London: Macmillan, 1934), especially in "Lecture XIX: The Sacramental Universe" 473–95.
50. *Catechism for Curats* no. 1.9.2, p. 86, emphases original; see also *Catechismus ad parochos* no. 1.9.2, p. 76, quoted in *CCE* no. 749.

not to say that sacramental efficacy causes human beings to become God, only that participation in the eucharistic body and blood makes them more like God: indexically, in that they actually become so (1 Cor 3:17–18); iconically, in that they appear so (Mt 5:43–48); and symbolically, in that one can understand them as such.[51] Note, however, that the primary representation of God for the Christian is the person of Jesus Christ, whom *Sacrosanctum concilium* characterizes as "a mediator between God and human beings."[52] On this point, the Fourth Gospel makes clear that "no one has ever seen God. The only Son, God, who is at the Father's side, has revealed him" (Jn 1:18; cf. 6:46; 14:9). As such, the church refers to Christ himself—for and through whom "all things were created" (Cor 1:16; Jn 1:3)—as the primary sacrament of God.[53] Moreover, the Christian tradition at least as early as Paul speaks of the church herself as the body of Christ (Col 1:18; 1:24).[54] Given these considerations, one can imagine a semiotic chain of meaning whereby Jesus Christ represents God the Father, the church represents Jesus Christ, and the sacramental activity of the church represents the sanctification of humanity brought about in the person of Jesus Christ, who "was *Holy*, yea *Holiness itself*,"[55] through the Spirit "who bestows *Holiness* on the *church*."[56]

This analysis provides a context within which to interpret the council's treatment of the Eucharist as the prototype of a sacramental sign. With reference to Augustine, but incorporating elements of both Model A and Model B, *Sacrosanctum concilium* explains:

> Our saviour inaugurated the Eucharist [*sic*] sacrifice of his body and blood at the last supper on the night he was betrayed, in order to make his sacrifice of the cross last throughout time until he should return; and indeed to entrust a token to the church, his beloved wife, by which to remember his death and resurrection. It is a sacrament of faithful relationships, a sign of unity, a bond of divine love, a special easter meal. In it, "Christ is received, the inner self is filled with grace, and a pledge of future glory is given to us."[57]

The commitment to Model A appears explicitly in what follows:

> Christ is always present to his church, especially during the liturgy, so that this great task can be fully accomplished. He is present through the sacrifice which is the mass, at once in the person of the minister—"the same one who then offered himself on a cross is now making

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51. For an overview of the tradition on this point, see Stephen Finlan and Vladimir Kharlamov, eds., *Theōsis: Deification in Christian Theology* (Eugene, OR: Pickwick, 2006); regarding the transformative effect of the liturgy on participants, see Jean Corbon, *The Wellspring of Worship* (San Francisco: Ignatius, 2005) 216–23.

52. *SC* no. 5 (*DEC* 2:821); *COGD* 3:261: "Mediatorem Dei et hominum"; see also *COGD* 33:272.

53. On this theme, see Edward Schillebeeckx, *Christ, Sacrament of the Encounter with God*, trans. Paul Barrett, rev. Mark Schoof and Laurence Bright (New York: Sheed & Ward, 1963).

54. See also Rm 12:5; 1 Cor 12:12–27; Eph 3:6; 5:23; *CCE* nos. 787–96.

55. *Catechism for Curats* no. 1.3.18, p. 45, emphases original.

56. *Catechism for Curats* no. 1.9.2, p. 86, emphases original.

57. *SC* no. 47 (*DEC* 2:830). The document quotes Aug. *Ev. Io*. 26.13.

his offering through the agency of priests"—and also, most fully, under the eucharistic elements [*sub speciebus eucharisticis*]. He is present through his power in the sacraments; thus, when anyone baptises, Christ himself is baptising. He is present through his word, in that he himself is speaking when scripture is read in church. Finally, he is present when the church is praying or singing hymns, he himself who promised, "where two or three are gathered in my name, there I am in the midst of them" (Matt 18:20).[58]

Leaving aside the sacrificial aspect of the Eucharist, I now focus on the notion that Christ "is present . . . under the eucharistic species." If he is so present, then one can affirm that the bread and the wine re-present Christ, in the sense that they again render him present. In terms of the thirteenth-century analysis of the composition of the eucharistic species, the bread and wine thus constitute the *sacramentum tantum*—that is, the sacramental sign alone. As we have seen, however, by the end of the Middle Ages the bread and the wine come to be understood simply as the appearances of bread and wine, which conceal the *res et sacramentum* that is the somatic reality of the body and blood. From this perspective, the *res tantum* is the thing to which the sacrament refers but is not contained in the sacrament, namely, the Augustinian unity of the church, as referenced in *Sacrosanctum concilium* and as discussed in the preceding paragraphs.[59]

With these considerations in mind, I return to the question of what it means to speak of the sacrament of the body and blood as a "sign." I argue that Peirce's semiotic can clarify the church's understanding of the eucharistic species as signs while avoiding such errors as those that Paul VI criticized at the time of the council.[60] As symbolic signs in the Peircean sense, the bread and wine represent the sacramental presence of the body and blood of Christ, in that the bread and wine appeal to the general understanding among the faithful that, after the consecratory prayer, the elements are changed into the presence of Christ. The sacramental signs thus represent the body and blood symbolically by virtue of a general agreement that governs the community's understanding. However, the bread and wine also symbolize the grace of ecclesial unity, in that they refer to the idea that the believer, by receiving the sacramental species with the proper disposition, receives this grace. Again, in this technical sense, the symbolic character of the signs owes to an understanding taught by the magisterium and generally held by the faithful that reception of the consecrated bread and wine, which contain the real presence of Christ, both expresses and deepens unity among believers.

In addition to discerning a symbolic dimension in the eucharistic species, one also can find in them an indexical character that they have by virtue of their connection

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58. *SC* no. 7 (*DEC* 2:196); *COGD* 3:262–63: "Ad tantum vero opus perficiendum, Christus Ecclesiae suae semper adest, praesertim in actionibus liturgicis. Praesens adest in Missae Sacrificio cum in ministri persona, 'idem nunc offerens sacerdotum ministerio, qui seipsum tunc in cruce obtulit,' tum maxime sub speciebus eucharisticis. Praesens adest virtute sua in Sacramentis, ita ut cum aliquis baptizat, Christus ipse baptizet. Praesens adest in verbo suo, siquidem ipse loquitur dum sacrae Scripturae in Ecclesia leguntur. Praesens adest denique dum supplicat et psallit ecclesia, ipse qui promisit: *Ubi sunt duo vel tres congregati in nomine meo, ibi sum in medio eorum* (Matt 18:20)."

59. *SC* no. 47.

60. See Paul VI, *Mysterium fidei* nos. 11–14.

with "divine things"—to wit, the real and actual, if invisible, grace of unity and presence of Christ.[61] In other words, apart from the general idea of consecrated bread and wine representing both ecclesial unity and the actual body and blood of Christ—a notion that can be taught and learned and thus pertains to the realm of symbol—the species also represent them actually, since the species point both to the sanctification of the properly disposed communicant and to the real presence of Christ understood as located on this particular plate and in this particular cup.[62] Granted, according to tradition the real presence of Christ in the Eucharist is invisible. But from a faith perspective this makes the presence of Christ no less real and thus related to the appearances of bread and wine as an object relates to an indexical sign, and the same pertains for the grace of unity. What matters here is that indexicality, as a mode of representation, comes to bear on the particularity or "thisness" of the object as existing in the real world; it does not pertain to the perceptible qualities of the object's representation, which in this case are identical to those of bread and wine.

I do not mean to suggest that believers do not rely on perceptible qualities in order to discern the real presence of Christ in the eucharistic species. Indeed, to recognize the real presence on any particular plate and in any particular cup requires what Peirce calls *collateral experience*.[63] This involves what one needs to know beyond any given sign or sign system in order to interpret a sign correctly. For instance, someone not only must understand what happens to the bread and wine when a validly ordained minister, having the proper intention, says the blessing over them, but also must witness that blessing given over a particular plate and a particular cup in order to understand them to contain the body and blood. In the absence of such first-hand witness, one could extend this collateral experience or knowledge to include the testimony of someone who actually was present for the blessing, or even to the appearance of a sanctuary lamp burning by the tabernacle. In other words, the indexicality of the sign renders particular a general, or symbolic, understanding, often specified liturgically through words and gestures. Nevertheless, it would not necessarily follow from any lack of collateral knowledge on the part of the interpreter that the consecrated bread and wine have not, in fact, by virtue of the blessing, undergone metabolic conversion. Peirce recognized and even insisted that we can get it wrong—that our judgments about reality are always provisional and thus subject to revision.[64] In this sense we can understand the eucharistic species to retain their indexical character even if someone fails to notice them or thinks of them as no more than ordinary bread and wine. This same indexical integrity appears in the pregnant woman's enlarged belly, which continues, through a real connection with the fetus inside, to indicate her pregnancy, even when no one notices this feature of her anatomy or mistakes it, for example, for obesity.

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61. *SC* no. 33.
62. Paul VI, *Mysterium fidei* nos. 44–45.
63. *EP* 2:480, 493–94. See also Short, *Theory* 192–96.
64. For commentary, see Joseph Margolis, "Rethinking Peirce's Fallibilism," in *Pragmatism Ascendant: A Yard of Narrative, a Touch of Prophecy* (Stanford, CA: Stanford University, 2012) 51–110; Elizabeth F. Cooke, *Peirce's Pragmatic Theory of Inquiry: Fallibilism and Indeterminacy* (New York: Continuum, 2006).

While much more could be said regarding both the symbolic and the indexical dimensions of the eucharistic species, I now turn to their iconic character. The question of sacramental iconicity comes to bear primarily on the fact that the species appear in every way as bread and wine, although according to the church's understanding (symbolic aspect) of their reality (indexical aspect), they do not remain bread and wine after the blessing. This iconic dimension of the species expands our understanding of how they signify, in that their qualities call to mind what we normally associate with food—for instance, its taste, texture, and potential to nourish, satisfy, and comfort.[65] That is, since believers understand (symbolic aspect) the species to represent actually (indexical aspect) the body and blood of Christ, they can speak figuratively of them as "bread" and "wine" and in so doing evoke their purely natural effects. In this way we experience (iconic/indexical aspects) and can think (symbolic aspect) of the eucharistic species as familiar and even ordinary—much as we view Christ's humanity in light of Chalcedon.[66] In this way the notion of sacramental iconicity opens as many avenues for research as there are methodologies and academic fields of study.

A Way Forward

The preceding three parts of this article present my findings in reverse fashion from the way in which I came to them. My inquiry actually began with the question of how Peirce's sign theory might work to interpret the contemporary Roman Catholic understanding of the Eucharist as found in official church documents and catechetical materials. In this sense, I envisioned what I am calling the "official" understanding—with all the nuance and qualification that such a position demands—simply as the object of a case study in the usefulness of Peirce for academic study of the sacraments. However, I found that, for the most part, the current documents—unlike, for instance, the Roman Catechism—do not make explicit the conceptual grammars in which they present their teaching. But given the many references in the documents to the patristic and medieval traditions, I thought I might look there for these conceptual frameworks, and so I chose Kilmartin as a reliable guide. Next I derived from his analyses the conceptual threads that I present in part 1 ("Models of the Body and Blood") as models (dynamic metabolism, prototype/image, and static metabolism) and in part 2 ("The Composition of the Eucharistic Species") as compositional schemata (*sacramentum/res*, *sacramentum tantum/sacramentum et res/tantum sacramenti*, etc.). I closed part 2 by articulating what I understand to be the conceptual underpinnings of the official understanding of the Eucharist in the Western church today.

In part 3 ("Peirce and the Tradition") I presented Peirce's sign theory, which I used to interpret current church teaching on the Eucharist as I understand that teaching. In this way, part 3 transposed church teaching into a different conceptual framework, namely, that of Peircean semiotics. Granted, no one who approaches this operation

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65. John Paul II evokes these qualities in *Dominicae cenae* no. 7.
66. See *DEC* 1:83–87; and Herbert Vorgrimler, *Sacramental Theology*, trans. Linda M. Maloney (Collegeville, MN: Liturgical, 1992) 31.

from the perspective of classical American pragmatism can accept as valid any a priori determination that Peirce's theory will or will not work to express magisterial formulations and the living faith that grounds them. To be sure, a pragmatist can judge the effectiveness of a theory only by the actual use of that theory. My hypothesis is that Peirce's sign theory would work to interpret the eucharistic species, and I put this hypothesis to the test in part 3. It now remains for my readers to determine whether and to what extent the experiment has succeeded, and what this success, if any, might imply.

For instance, my appropriation of Kilmartin's research has led me to think that a basic idea underlying the official formulations is that the physical presence of Christ in the eucharistic species comes about through a metabolic change in the bread and wine, and that the blessing prayer of the priest effects this change. But even if I understand this correctly, and even if Peirce's semiotic works to interpret this understanding, readers are right to ask what his theory has to offer in a broader or more radical perspective—for example, one that focuses on the New Testament accounts of the early Christian communities. Such an approach inevitably would require addressing, among other issues, the question of how the Eucharist brings about the sanctification of the recipient. In any case, my study strongly recommends exploring the connections between the possibilities that Peirce's semiotic offers and the various strands of Western eucharistic theology. Considering which of these conceptual strands appear(s) most coherent in light of Peirce's sign theory, or whether his semiotic offers new ways of integrating the different strands, promises to help the Christian community understand and express its eucharistic faith more clearly.[67]

At this point, I conclude with a brief consideration of how Peirce's use of the terms *sign* and *symbol* relates to some ways that some theologians have used them over the years. Note, however, that I do not intend to summarize the variety of usages of *sign* and *symbol* in the scholarly literature. Neither do I mean, by not treating explicitly the various interpretations of leading scholars in the field, to dismiss their work either individually or collectively, or to imply that it is somehow inadequate or deficient. As one reader remarked, the church has theologized about sacraments for centuries without doing it in Peirce's backyard! At the same time, however, I believe that the ongoing "symbolic crisis"—to borrow an expression from David Power[68]—has to do in part with the fact that there exists a variety of uses of *sign* and *symbol* in theology with no common conceptual framework to put them easily into dialogue with one another, much less with disciplines far removed from the field. In addressing this problem, I argue that a major value of Peirce's semiotic lies precisely in its usefulness for facilitating conversations about sacraments—not only among Western-Rite sacramental-liturgical theologians, who generally seem to privilege the conceptual categories of Continental philosophy, but also among researchers in every other conceivable

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67. The appeal of this promise depends, of course, on whether and to what extent one prioritizes conceptual clarity in doing theology. On the distinction between clarity and style in philosophy, see Chase and Reynolds, *Analytic Versus Continental* 145–52.

68. Power, *Unsearchable Riches* 5. By this expression, I understand Power to mean primarily not a crisis that itself symbolizes something else, but rather a crisis that involves the use of symbols.

academic field, all in dialogue with the teaching office of the church.[69] If nothing else, such conversations would promote the evolutionary spreading of ideas—what Peirce spoke of as the principle of continuity, or *synechism*.[70]

Analyzing the *New Catholic Encyclopedia* entries for *sign* and *symbol* might serve to illustrate, in a preliminary, cursory, and ultimately inadequate way, what I mean.[71] E. Bondi's entry for *sign* begins with a version of Augustine's triadic definition, explaining a *sign* as "anything that represents to a knowing power something other than itself."[72] Bondi then gives a taxonomy of "six traditional types of sign" presented as binaries: natural/artificial, instrumental/formal, and imaging/nonimaging.[73] Suffice it here to note that the Peircean triad icon–index–symbol provides a simpler and more comprehensive account of signification than what these types attempt to cover. Furthermore, Bondi mentions that "in theology, sign is indispensable for discussing the Sacraments and the liturgy, although for the latter symbol is frequently used as synonymous with sign."[74] This point, which I have found generally to hold true, elicits the confusion one feels in trying to understand exactly what any given theologian means when speaking of *signs* and *symbols*.

Turning to the word *symbol*, we find the *NCE* entry begins by tracing the word to the Greek *symballein*, "to throw together or simply to place together, as when two

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69. This point echoes John Deely: "Perhaps the main interest of semiotics for intellectual culture is that, by providing the only inherently interdisciplinary and transdisciplinary perspective, semiotics offers a remedy or antidote for the increasing specialization that modern science requires in the academy. Specialists who come to study semiotics discover that their own discipline developed and established its boundaries only as a result of the action of signs. Semiotics, in a word, studies what every other discipline takes for granted" ("Semiotics," *NCE Supplement 2012–2013* 4:1403).

70. *EP* 1:312–33; 2:1–3. On this principle, which lies at the center of Peirce's thought, see Rosa M. Calcaterra, "Varieties of Synechism: Peirce and James on Mind–World Continuity," *Journal of Speculative Philosophy* 25 (2011) 412–24; Cooke, *Peirce's Pragmatic Theory of Inquiry* 81–99; and Kelly A. Parker, *The Continuity of Peirce's Thought* (Nashville: Vanderbilt University, 1998) 204–22.

71. A more comprehensive study might begin with the *status questionis* and references in Bruce T. Morrill, S.J., "Sacramental-Liturgical Theology since Vatican II: The Dialectic of Meaning and Performance," *Proceedings of the Catholic Theological Society of America* 67 (2012) 1–11. Certainly, a Peircean investigation into the way Christians in general and theologians in particular speak about and engage in worship would hope, as Morrill writes, "to provide church and academy perceptive, descriptive, and analytical work to help articulate what is going on and to venture judgments about what the church's ongoing sacramental-liturgical tradition has to offer, as well as how that ritual treasury is being profitably exploited or tragically squandered in practice" (11). Note too that Deely, "Semiotics" 1403, provides an important complement to the *NCE* entries for *sign* and *symbol*.

72. E. Bondi, "Sign," in *NCE*, 2nd ed. (Detroit: Thomson/Gale, 2003) 13:116; cf. Augustine, *De doctrina christiana* 2.1, in *Œuvres de Saint Augustin* 11.2, *La doctrine chrétienne*, ed. Madeleine Moreau, Isabelle Bochet, and Goulven Madec, Bibliothèque Augustinienne (Paris: Institut d'Études Augustiniennes, 1997) 136: "Signum est enim res praeter speciem, quam ingerit sensibus, aliud aliquid ex se faciens in cogitationem uenire."

73. Bondi, "Sign," in *NCE* 13:116.

74. Ibid. 13:117. For an illustration of this point with reference to Augustine and Aquinas, see G. L. Coulon, "Symbolism, Theological," in *NCE* 13:670–71.

things are juxtaposed for the purpose of comparing them."[75] It continues to explain, with reference to Hugh of Saint Victor, that "the abstract and more general use of the term still retains this notion of one thing (usually material and visible) calling forth its complement or better half (usually something that is immaterial and unseen)."[76] Somerville explains that throughout the medieval period, "the fundamental conception always includes a movement from the material symbol to something in a spiritual or suprasensible order."[77] This notion coincides with the understanding of *sacrament* as *Sacrosanctum concilium* presents it, an understanding that also involves Peircean indexicality by implying a connection between realities, be they material or spiritual. Most importantly, Somerville suggests that "the best way to define the symbol is to contrast it with other representative forms that, like the symbol, stand for or point to something beyond themselves."[78] Somerville proceeds to list *images, signs, gestures*, and *analogues* as such "forms." The primary difference between this approach and Peirce's theory lies in that, while Peirce establishes *sign* as the general category of which symbols are a type, Somerville defines signs as different from symbols:

> Signs (dinner bell, traffic light, smoke) announce some fact or give notification. Their role is practical and instrumental. . . . Save for mathematical symbols, which some authors call signs, the typical symbol provides inspiration rather than notification. It functions as a rallying point for meaning, representing what is complex in a simple way. This is especially true of emblems, flags, or conventionalized drawings.[79]

Somerville here seems to express by *sign* what Peirce means by *index*, namely, a type of sign that signifies through a connection between two actually existing things, and that alone can provide information.[80]

The overall problem with the *NCE* entries, and with definitions appearing elsewhere in the literature, stems from the fact that they do not seem to derive from an autonomous, hypothetically universal sign-concept. I am not saying that these theories are not themselves coherent or possessing of an internal logic. My concern is that they lead to a proliferation of theories that, for lack of a shared conceptual vocabulary, complicate and limit the discussion until we are left with one or two researchers talking in a language that no one else really understands. As a case in point, Somerville's article on *symbol* explains that "of the endless variety of symbols, three categories may be singled out for special attention," listing "arbitrary symbols," "associative symbols," and "evocative symbols" as examples.[81] While the descriptions of the first two categories reveal features of the Peircean symbol, the third seems to involve a form of iconic signification. Somerville concludes the entry with a description of "religious symbols":

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75. J. M. Somerville, "Symbol," in *NCE* 13:660.
76. Ibid.
77. Ibid.
78. Ibid. 13:661.
79. Ibid.
80. *EP* 2:7–8.
81. Somerville, "Symbol," in *NCE* 13:661.

since symbolism avoids the complexities of formal analogy, and since it provokes an immediate ascent or movement of transcendence in the beholder, it offers one of the simplest and most powerful vehicles for expressing man's spontaneous attitudes and affections in his secular as well as in his religious life.[82]

Although this comment suggests Peirce's categories, its lack of precision renders the term *symbol* practically useless for technical questions or indeed for any application extending much beyond Somerville's own purview.

In response to such problems as these, Peirce's sign theory offers a general framework for examining how believers have understood the eucharistic species through the centuries and for relating these understandings and their objects to specialized areas of study at a far distance from theology. I should make explicit, however, that to adopt this theory means transposing the truth of the faith from a substance metaphysics, which Western Christianity has come to privilege for theological discourse, to a scientific metaphysics that follows from the methods and principles of pragmatic reasoning.[83] Certainly, the teaching authority of the church commits no error of faith in continuing, with Paul VI and in accord with his predecessors Pius VI and Pius XII, to follow Trent in approving the use of the term *transubstantiation* and the conceptual grammar from which this term derives.[84] Yet again, Trent never defined the doctrine of transubstantiation as the only acceptable way to understand the conversion of the bread and the wine at Mass.[85] In fact, even when criticizing "strange opinions" regarding the Eucharist, Paul VI acknowledged and approved of efforts to investigate the "lofty Mystery" and to make it "more understandable to the people of today."[86] In this spirit, Kilmartin argues in the second part of his book that the conceptual model of fourth-century Antioch, which recognizes image as a special form of the prototype, also provides a better option than current models for representing the theological reality of eucharistic sacrifice. Here, Peirce's semiotic interprets and clarifies the

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82. Ibid. 13:662.
83. On substance as a theological category, see Jean-Yves Lacoste, "Homoousios et homoousios: La substance entre théologie et philosophie," *Recherches de science religieuse* 98 (2010) 85–100. Substance language appears throughout recent official teaching on the Eucharist, as in Paul VI, *Mysterium fidei* nos. 46–55; and in John Paul II, *Ecclesia de Eucharistia* no. 15. For the Peircean approach, see Andrew Reynolds, *Peirce's Scientific Metaphysics: The Philosophy of Chance, Law, and Evolution* (Nashville: Vanderbilt University, 2002).
84. *CCE* no. 1376. See also Paul VI, *Mysterium fidei* nos. 46, 54.
85. Kilmartin, *Eucharist* 179; Gary Macy, *Treasures from the Storeroom: Medieval Religion and the Eucharist* (Collegeville, MN: Liturgical, 1999) 81–120; Edward Yarnold, S.J., "Transsubstantiation [*sic*]," in *The Eucharist in Theology and Philosophy*, ed. Réka Forrai, György Geréby, and István Perczel (Leuven: Leuven University, 2005) 381–94, at 384–87. For Peirce's early (1878) and explicitly nontheological analysis of the doctrine of transubstantiation, which is fully compatible with what I propose in this article, see *EP* 1:131–32.
86. Paul VI, *Mysterium fidei* no. 14 (*The Pope Speaks* 10 [Fall 1965] 309–28, at 312); *AAS* 57 (1965) 756: "Equidem non négamus eorum qui has miras opiniones disséminant, haud spernendum studium tantum Mysterium vestigandi eiusque in exhaustas edisserendi divitias eiusdemque intellegentiam hominibus nostrae aetatis aperiendi, quinimmo illud agnoscimus probamusque; sed, quas proferunt, opiniones probare non possumus deque earum pro recta fide gravi periculo vos monere iubemur."

Antiochene model through the notion of sign process or *semiosis*, whereby the same meaning is understood to represent itself in a whole series of sign vehicles, thus allowing one to think of one thing as participating in another in such a way that the sign neither opposes nor identifies with its object.[87]

In sum, Western sacramental-liturgical theologians have much to gain by engaging a theory of signs that (1) distinguishes among and integrates the semiotic *relata*, which is to say the sign itself, the object, and the interpretant that the object produces in a mediated fashion through the sign, and (2) has pretensions of universal applicability. Peirce offers just such a theory, along with a comprehensive analysis of the ways a sign can represent its object. And again, this theory has the added benefit of opening the discussion of the sacraments to a wider representation of philosophers and scientists. On this note—and herein, I suggest, lies the ultimate value of my reflections for the study and celebration of the sacraments—Peirce's semiotic provides theologians, liturgists, and catechists alike with a common tool for discovering, examining, and interpreting, in a sophisticated yet intuitive manner, the complex realities of the sacraments and of attempts to conceptualize them.

Author biography

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87. *EP* 2:411. Scholarly articles published in *The Philosophers Index* since 2002 relate *semiosis* to a whole range of topics, including biodiversity, artificial intelligence, cognitive science, cybernetics, computer science, and chemistry. In this vein, Deely references anthroposemiosis, phytosemiosis, and zoösemiosis, as well as the subfield of biosemiotics to which they belong and the outstanding question of physiosemiosis that the issue of sign action raises ("Semiotics" 1403). Related to these points, Louis Menand, professor of English at Harvard University, was quoted recently as having said that "in the scholarly world, cognitive sciences has [*sic*] everybody's ear right now, and everybody is thinking about how to relate to it. . . . How many people do you know who've read a book by an English professor in the past year? But everybody's reading science books" (Tamar Lewin, "As Interest Fades in the Humanities, Colleges Worry," *New York Times*, October 30, 2013). One wonders whether Menand's comments about his own discipline might also apply to theology. If so, then establishing an integral connection—that is, on the level of both theory and method—between theology and the STEM fields might help show the relevance of theological reflection to a world increasingly focused on the development of new technologies.