

JOINT ATTENTION AND THE *IMAGO TRINITATIS*

by Robert Elliot

Abstract. This article incorporates into Christian theological anthropology some recent findings of a school of scientific researchers in the fields of comparative and developmental psychology. These researchers—namely, Michael Tomasello, Malinda Carpenter, and others affiliated with the Max Planck Institute for Evolutionary Anthropology—have advanced a theologically significant hypothesis about a basic difference between the social-cognitive capacities of human beings and those of other animals. Their hypothesis is that human beings are distinguished from other animals, in part, because of an ability to share attention with conspecifics in a unique way, namely, by means of a capacity called joint attention. In keeping with the procedures of modern science, they have tested and verified their hypothesis through laboratory experiments on nonhuman primates (chimpanzees in particular) and on human beings (infants and toddlers). In their capacity as scientists, however, they do not attempt show the relevance of their hypothesis for Christian theological anthropology. This article shows how joint attention sheds new light upon the Christian doctrine that human beings are created in the image of the Trinity (*imago Trinitatis*).

Keywords: Augustine; comparative psychology; eschatology; evolutionary psychology; human nature; image of god (*imago dei*); theological anthropology; Thomas Aquinas; Michael Tomasello

INTRODUCTION

If the practice of theology stands at the crossroads of religion and a cultural matrix (Lonergan [1972] 2017), then incorporating the most recent and groundbreaking scientific developments—significant factors in shaping our culture—into the matrix of theological thought is of crucial importance. Accordingly, in this article, I incorporate into Christian theological thought recent findings of a school of scientific researchers in the fields of comparative and developmental psychology. These researchers—namely, Michael Tomasello, Malinda Carpenter, and others affiliated with the Max Planck Institute for Evolutionary Anthropology—have advanced a theologically significant hypothesis about what distinguishes the social-cognitive capacities of human beings from those of other animals. Their

Robert Elliot is Visiting Assistant Professor, Providence College, Providence, RI, USA; e-mail: elliotr@bc.edu.

[*Zygon*, vol. 58, no. 4 (December 2023)]

www.wileyonlinelibrary.com/journal/zygon

© 2023 The Authors. *Zygon*® published by Wiley Periodicals LLC on behalf of Joint Publication Board of *Zygon*. ISSN 0591-2385 860
This is an open access article under the terms of the Creative Commons Attribution License, which permits use, distribution and reproduction in any medium, provided the original work is properly cited.

hypothesis is that human beings are distinguished from other animals, in part, because of an ability to engage in acts of shared intentionality with conspecifics. Shared intentionality is defined as a “suite of social-cognitive and social-motivational skills” (Tomasello and Carpenter 2007, 121), which includes (but is not limited to) joint attention, joint commitment, social coordination, collective intentionality, and instructed learning. In keeping with the procedures of modern science, they have tested their hypothesis through laboratory experiments on nonhuman primates (chimpanzees in particular) and on human beings (infants and toddlers).¹ In this article, I focus on only one of these capacities, namely, joint attention, principally because of its clear implications for theological anthropology in general and the *imago Trinitatis* (image of the Trinity) in human beings in particular.

A number of Christian theologians in recent years have explained how the concept of joint attention might inform various areas of theological inquiry, including corporate prayer (Cockayne and Salter 2019), God’s omnipresence (Stump 2012), the gifts of the Holy Spirit (Pinsent 2012), the beatific vision (Cockayne 2018), and scriptural interpretation (Green and Quan 2012). Incorporating research on joint attention into theology is still ongoing, however, and there are at least two lacunae in the current literature. First, theologians have been incorporating findings in the developmental psychology of joint attention into their theology, but they are only just beginning to do so with the findings in comparative psychology (see Breul and Helmus 2023). Second, there has been no work, to my knowledge, on how the recent literature on joint attention might inform our understanding of the *imago Trinitatis* in human beings.

My aim in this article is to begin filling these lacunae. The article is divided into two sections. In the first section, I describe and exposit Tomasello’s and others’ hypothesis that human beings are distinguished from other primates, in part, because of an ability to engage in acts of joint attention, and I periodically indicate the experiments employed to test the hypothesis. In doing so, I hope to show what it means for the capacity for joint attention to be present in human beings but absent in other primates and why the capacity for joint attention is of crucial importance for understanding how human beings are unique in the animal kingdom. In the second section, I explain the implications of their hypothesis for the theological theorem of the *imago Trinitatis*. In Christian theology, the theorem of the *imago Trinitatis* attempts to explain how humans reflect the Trinity. More precisely, it explains what is similar between humans and the triune God, while also explaining how what is similar nevertheless exists in a less perfect way in humans than in God. Relying upon the recent research on joint attention, I argue in the second section that the intellectual and volitional acts, which, according to the Augustinian and Thomist traditions, are constitutive of the *imago Trinitatis*, are

best conceived in an interpersonal context wherein acts of love and understanding are shared across multiple persons, thereby uniting the persons to one another in ways utterly unique in the animal kingdom and ultimately uniting human persons to the three divine Persons.

JOINT ATTENTION

The concept of joint attention was initially formulated by developmental psychologists Michael Scaife and Jerome Bruner (Scaife and Bruner 1975), who were seeking to understand the abilities of human infants in social interaction with their caregivers. There has since emerged a wide-ranging body of literature on joint attention in developmental psychology, through which the formulation of the concept has become clearer and more refined. A central distinction that has emerged in the literature is the distinction between dyadic joint attention (or primary intersubjectivity) and triadic joint attention (or secondary intersubjectivity; Hubley and Trevarthen 1979; Trevarthen 1979).

Dyadic joint attention exists paradigmatically in the nonverbal, face-to-face, and expressive interactions (also called protoconversations) between an infant and her caregiver. Human infants show enthusiasm when their caregivers engage with them in protoconversations and show discomfort when their caregivers fail to engage (Trevarthen 1979; Murray and Trevarthen 1985; Tronick 1989). In dyadic joint attention, infant and caregiver also attain an “emotional attunement,” as they fall into an emotionally synchronized, quasi-dialogical pattern with one another (Stern 1985).

Triadic joint attention, on the other hand, is a skill that emerges later in human ontogeny, typically between 9 and 14 months of age, and involves a third term to which the participants in verbal or nonverbal dialogue refer. Tomasello and Carpenter define triadic joint attention in the following way: Triadic joint attention “is not just two people experiencing the same thing at the same time, but rather it is two people experiencing the same thing at the same time and knowing together that they are doing this” (Tomasello and Carpenter 2007). Even before they acquire language, human infants engage in acts of triadic joint attention with caregivers, and language, once acquired, functions as a tool through which triadic joint attentional acts are established and by which more sophisticated forms of triadic joint attention become possible.

As I will show in more detail in this section, Tomasello and his colleagues argue that, while a certain minimal form of dyadic joint attention is present in chimpanzees (especially between mother and infant), nevertheless triadic joint attention is unique to human beings. Through various experiments, they have shown that chimpanzees display a range of social abilities that serve as the preconditions for triadic joint attention in humans, but that triadic joint attention is peculiar to human beings. Other

researchers have criticized their hypothesis on several different grounds, including methodological grounds (e.g., whether anything can be scientifically verified about mental states from observed behavior), definitional grounds (e.g., whether psychologists should adopt either a rich or lean definition of joint attention, which is often a function of the degree to which mental states can be incorporated into the definition), and selective grounds (e.g., whether the sociocognitive capacities of apes in captivity represent the sociocognitive capacities of all apes, including apes in the wild). In the next two subsections, I will periodically indicate relevant criticisms in order to situate Tomasello's and colleagues' findings within the ongoing conversation, but the principal task of these subsections is to summarize their findings and their conclusions, selecting what is relevant for the following theological discussion of the *imago Trinitatis*. The first subsection is on joint attention and chimpanzees, and the next subsection is on joint attention and humans.

Joint Attention and Chimpanzees

Evidence suggests that infant chimpanzees engage in certain minimal forms of dyadic joint attention with their mothers in the early months of life. Tomonaga et al. (2004) report that, by two months of age, chimpanzee infants engage in mutual eye contact with their mothers. One of the authors of the article even reports an instance of a mother chimpanzee lifting her infant's chin to establish and maintain a mutual gaze with the infant (Bard 2017). Furthermore, while the frequency of nonsocial smiling (such as during sleep) decreases during the first few months of life, the frequency of social smiling (for instance, when seeing the mother) tends to increase during those months (Tomonaga et al. 2004). Other researchers argue that rapid facial mimicry and yawn contagion in chimpanzees indicate that at least some of the socioemotional elements for dyadic joint attention are present in chimpanzees (Demuru, Clay, and Norscia 2022). These findings have led researchers to argue that dyadic joint attention is present in infant chimpanzees, though in relatively minimal form if compared with human infants (Tomasello 2021; Demuru, Clay, and Norscia 2022).

As for triadic joint attention, Tomasello and colleagues argue that, although chimpanzees cannot engage in triadic joint attention, they nevertheless possess some abilities that serve as its precursors. In particular, chimpanzees have the ability to apprehend that conspecifics are seeing and attending to something. For instance, one chimpanzee will follow the gaze of another to see if the other is looking at anything interesting, such as food, water, or a possible mate. If the first chimpanzee repeatedly follows the gaze of the second and sees nothing interesting, then she will lose interest and stop following the gaze of the other chimpanzee (Tomasello,

Carpenter, and Hobson 2005). A second example is that if food is available in two places, one in view of only a submissive chimpanzee and another in view of both a dominant and a submissive, the submissive chimpanzee will pursue the food outside the field of vision of the dominant chimpanzee, thus showing that the submissive chimpanzee is aware of what the dominant sees and plans his actions accordingly (Hare et al. 2000; Bräuer, Call, and Tomasello 2007). Such behaviors provide evidence that nonhuman primates can apprehend that conspecifics are attending to something.

Although chimpanzees are able to apprehend that conspecifics are attending to something, Tomasello and colleagues provide evidence to show that chimpanzees do not engage in acts of joint attention proper, which require not only apprehending that another is attending to something, but also apprehending that the other apprehends oneself attending to that something. (Tomasello and his school use the terms “know,” “see,” “experience,” “perceive,” “is aware of,” and so on without precisely distinguishing one from another. Since it seems useful to distinguish them in a precise way, I use the generic “apprehend” when explaining their work, even though it is not a term they often use. I do not alter any quoted text, however.) In the words of Tomasello, “Various data show that a chimpanzee knows that his group-mate sees [some object], but there is no evidence that the chimpanzee knows that his group-mate sees him seeing [that object]” (Tomasello 2009, 72). To clarify, Tomasello is not saying that a chimpanzee does not apprehend that another apprehends him at all, but only that a chimpanzee does not apprehend that another apprehends him apprehending. The difference is that a chimpanzee can apprehend that he is part of another’s world, but cannot apprehend that his apprehensions are part of another’s world. The distinction may appear to be negligible, but it is, in fact, radical: As will be shown below, this unique human capacity enlaces the human world with all sorts of questions and insights, and charges it with a vast array of feelings.

Through various experiments, Tomasello and his team have provided evidence in support of the hypothesis that chimpanzees cannot engage in triadic joint attention. They test whether chimpanzee cooperation includes acts of triadic joint attention. Chimpanzees, of course, do cooperate with one another, as do members of many other animal species. Chimpanzees, for instance, cooperate with one another in order to prey upon a red colobus monkey in the process of a group hunt. However, Tomasello and colleagues argue that chimpanzee cooperation needs to be carefully distinguished from distinctively human forms of cooperation. Cooperation among chimpanzees and other nonhuman animals turns out to be—in my own terms, not Tomasello’s—only nonintentional (or, incidental) cooperation. In a group hunt, each member of a troop may advert to the presence of the prey; each may follow a course of action in conjunction with the movements of the other chimpanzees in order to best zone in and

capture the prey; and in the end each may attain his goal in consuming the prey. Such collaborative activities often appear to us almost identical in the major relevant respects to human forms of cooperation, so much so that we often narrate the functionally related activities of the members of other species in anthropomorphic terms (Tomasello 2009). However, Tomasello and colleagues argue that such anthropomorphic terms are not suitable for scientifically classifying the activities of chimpanzees and, by best estimates, other nonhuman animals.

Chimpanzee cooperation is only incidentally cooperative because chimpanzees do not (1) apprehend that other chimpanzees in his troop are intentionally informing him through their own gestures or vocalizations, (2) intentionally direct the attention of other members in his troop through his gestures or vocalizations, and—most fundamentally—(3) pursue, along with the other chimpanzees, a common goal intended as common. Tomasello and colleagues have conducted experiments and provided evidence that chimpanzees do not perform any of these acts, which are intrinsic to joint attention. Let us consider each in turn.

- (1) The results of several experiments support the claim that a chimpanzee cannot apprehend that conspecifics intend to provide him with useful information for his own activities. In one experiment (Tomasello, Call, and Gluckman 1997), a chimpanzee is presented with several upside-down buckets and through past experience knows that food is under one of the buckets, but he does not know which one. In the experiment, a human points to the bucket containing food in order to indicate the location of the food for the chimpanzee. The chimpanzee, however, does not seem to apprehend the meaning of the pointing gesture, and so picks at random. The same experiment can be repeated, seemingly without limit, and the chimpanzee does not recognize that the human's pointing is meant to provide helpful information for him to achieve his goal of attaining food. He continues to pick at random. Though these experiments were conducted on captive chimpanzees and so questions remain about the degree to which their conclusions can be universalized to apply to all chimpanzees (see Leavens and Bard 2011; Bard et al. 2021), Tomasello and colleagues infer that chimpanzees appear unable to apprehend the helpfulness of the pointing gesture. Because such pointing gestures are often used by humans to establish acts of joint attention, as I explain in the next subsection, the chimpanzee's inability to understand the informative meaning of the pointing gesture indicates for Tomasello and his team an inability to engage in joint attentional activities.
- (2) With regard to whether chimpanzees intentionally direct the attention of others to establish joint attention, there are a few points to consider. First, chimpanzees in the wild do not point to objects for

other chimpanzees. Only chimpanzees in captivity point to objects, and even then do so only for humans, not for other chimpanzees (see Leavens and Bard 2011 for contrary opinion, though they also claim that great ape pointing in the wild is exceedingly rare and they know of only four instances in almost a century of observational reports on wild apes). Second, chimpanzee pointing gestures in captivity are always of a specific kind. Psychologists distinguish between three different kinds of pointing: imperative pointing, informative pointing, and declarative pointing (e.g., Liskowski et al. 2006; for criticism, see Leavens, Russell, and Hopkins 2005; Racine et al. 2008, Racine and Hopkins 2009). The various kinds of pointing are distinguished in the following way: Imperative pointing is used to have others to do what you want; informative pointing is used to help others do what they want; declarative pointing is used simply to share attention with others. Chimpanzees point only in captivity, only for humans, and—significantly—only as an imperative. That is, they point only in order to have a human being do something for them (Tomasello, Carpenter, and Hobson 2005; Bullinger et al. 2011). Such imperative pointing, of course, can be relatively sophisticated and reliant upon learning. But chimpanzees do not point to help a human being fulfill his or her own goal or to share attention with a human being about something interesting. The chimpanzee's imperative pointing is meant to use the human in an instrumental way to attain the chimpanzee's own end, which does not require triadic joint attention (Tomasello 2008).

- (3) Chimpanzees do not intend common goals *as common* with other chimpanzees or with humans. Observations of wild chimpanzees give rise to this hypothesis: Upon the completion of a group hunt, for instance, the spoils are consumed immediately by the captor and afterwards only on a belligerent first-come, first-serve basis. Whichever chimpanzee captured the prey immediately starts consuming it. The fortunate chimpanzee then only distributes the remains to other chimpanzees if they are forcefully pleading or threatening, effectively disturbing the fortunate chimpanzee. Had the chimpanzee formed a common goal with the other chimpanzees, the other chimpanzees in the hunt would have a more or less equal claim to the prey. The begging or threatening chimpanzees, however, do not seem to be making such a claim, nor does the fortunate chimpanzee seem to recognize it. This leads to the hypothesis that chimpanzees do not intentionally form common goals with conspecifics (for criticism, see Horner, Bonnie, and Waal 2005; for response, Tomasello et al. 2005)

Though arising from observations of wild chimpanzees, Tomasello and colleagues have tested the hypothesis through controlled experiments. One way to test whether a common goal has been established

is to test whether partners in a task attempt to get a suddenly uncooperative partner to reengage in the task. For instance, if two human adults decide to take a walk around the pond together and then in the middle of the walk one of them suddenly makes an about-face and starts walking in the opposite direction, the other adult would try to get his partner to reengage in the walk or at least would expect to know why his partner suddenly turned around. Such attempts to get the other to reengage indicate that a common task had been established between the two partners (Gilbert 2014, 23–35). To see this more clearly, consider another scenario wherein a human adult and a stranger just happen to be walking side by side around the pond. If one of them suddenly makes an about-face, the other would not demand to know why and would not try to get the other to reengage in the walk around the pond, simply because a common goal had not been established between them. One way to test whether chimpanzees form common goals is to see whether chimpanzees try to get a suddenly uncooperative partner to reengage in the task. Warneken, Chen, and Tomasello (2006) have shown that chimpanzees do not attempt to do this, even if there is a reward upon the completion of the task and even if the task can be completed only if both partners are engaged. The fact that they never try to get others to reengage in tasks suggests that chimpanzees do not intentionally form common goals, which is, according to Tomasello and colleagues, due to an inability to engage in joint attention.

The results of these experiments (along with others not mentioned here) have led Tomasello and others to argue that chimpanzees cannot engage in joint attention.

Joint Attention and Humans

Humans also act on the basis of their apprehensions of the attending of conspecifics, but within the first year of life, they begin to engage in acts of both dyadic and triadic joint attention. These acts both enlarge and transform the range of action possible for them and, according to Tomasello and others, ultimately serve as preconditions for the emergence of human language and culture. My goal in this subsection is to explain what it means for joint attention to be present in humans and to trace some major stages in its ontogenetic pathway.

Developmental psychologists have found that, by two months of age, human infants display a strong tendency to engage in acts of dyadic joint attention with other humans, especially caregivers. Such acts of dyadic joint attention have been called protoconversations (Trevarthen 1979), principally because the infant and caregiver respond to one another's facial

and emotional expressions in a nonverbal, quasi-dialogical fashion. In a classic experiment, a mother was instructed to adopt an expressionless, nonresponsive “still face” in the middle of a protoconversation with her infant (Tronick et al. 1978; Tronick 1989). When the mother did so, the infant became confused and distressed, and attempted to reinstate the dyadic joint attentional act by cooing, grunting, smiling, whining, and excitedly moving limbs. When the mother maintained a still face throughout the infant’s series of attempts to reinstate the dyadic joint attentional act, the infant eventually became withdrawn, averted his or her eyes from the mother, and stopped smiling. In another experiment, mothers and their two-month-old infants engaged in protoconversation relayed through a closed-circuit television system (Murray and Trevarthen 1985). In one condition, mother and infant interacted through a live television stream, whereas in the second condition the infant viewed a video recording of the mother’s responses from the first condition. In the first condition, the infant responded as infants typically do in face-to-face interaction. In the second condition, however, after the infant was unable to establish a dyadic joint attentional act with the video recording of the mother, the infant became visibly unhappy and detached. The apparent reason for the infant’s negative feelings in the second condition is that the mother was not responding to the expressions of the infant, and so “the relationship between his own acts and those of his mother was no longer apparent” (Murray and Trevarthen 1985, 191). The conclusion of these experiments is that two-month-old infants not only possess the ability to engage in acts of dyadic joint attention, but also actively try to establish such acts with their caregivers and become distressed when they are unable to do so. The consensus among developmental psychologists is that typically developing humans possess, from a very early age, a remarkable ability to engage in social interaction.

Several other abilities emerge later in human ontogeny, which enable the child to engage in richer forms of social interaction. As I mentioned above, one of these is the ability to engage in triadic joint attention, which emerges at around nine months of age. At that age, infant and caregiver coordinate their attention to something external to the two of them, such as an object or event, and know together that they are doing so. Researchers generally agree that infants and toddlers engage in triadic joint attention even before they acquire language. One way to show that prelinguistic infants and toddlers engage in such acts is to show that they point for both informative and declarative purposes. While the kind of bodily pointing gesture may be culturally specific—for instance, in some cultures, it is common to point with pursed lips, not the index finger (Wilkins 2003; cf. Liszkowski et al. 2012)—nevertheless, the general behavior of informative and declarative pointing seems to be part of what constitutes the uniqueness of our species.

Several experiments have shown that prelinguistic infants engage in informative pointing. In one experiment (Liszkowski et al. 2006), 12- and 18-month-old toddlers watched an adult perform a multistep task, which included stapling some papers together as one of the steps. The adult then left the room and another adult entered and rearranged items on the desk, moving the stapler to another location. The second adult then left, and the first adult reentered the room and repeated the multistep task. The first adult did not know the stapler's location and so was unable to staple the pages together. Upon noticing the adult's predicament, the toddler frequently pointed to the stapler for the adult. This is an example of informative pointing, that is, pointing to provide helpful information so that another can achieve her own goal. Importantly, the toddler did not receive any reward for their informative pointing. In fact, rewards, when given, reduced the frequency of informative pointing (Warneken and Tomasello 2008). As we saw earlier, chimpanzees do not point in this way, while toddlers often point when another human is in need.

Furthermore, prelinguistic infants and toddlers point to objects simply to share attention with other human beings (Liszkowski et al. 2004). The pointing, in these cases, is declarative, that is, oriented toward sharing attention with another human being. An infant or toddler, for instance, might point to a truck and then look to an adult to make sure that the adult is also seeing the truck. Liszkowski et al. (2004) show that the infant continues pointing to an object until the other person *both* attends to the object *and* to her attending to the object, or else she shows some displeasure that a joint attentional activity has not been established. Because these behaviors are absent among chimpanzees, there is evidence to suggest that human beings are unique in their ability to engage in triadic joint attention. By around a child's first birthday, she begins to inhabit a shared world, properly speaking, with other persons whom she knows can apprehend her own apprehending, a world far more expansive than that of the chimpanzee precisely because it is apprehended as profoundly intersubjective.

Though joint attention is a prelinguistic cognitive ability, it is also correlated to the emergence of language. Carpenter et al. (1998) show that, all else being equal, the more infant and caregiver engage in acts of triadic joint attention, and the more the caregiver's language follows the infant's attentional focus, the earlier the child has its first forays into language (see also Brooks and Meltzoff 2008, 2015). Tomasello and colleagues thus argue that triadic joint attention is a capacity on the basis of which language and other unique features of human culture emerge (e.g., Tomasello and Moll 2010). According to these theorists, joint attention prepares the way for language acquisition because joint attention establishes "common ground" between persons—that is, a context known to be shared

(Tomasello 2008). Of course, the shared context established between a one-year-old and an adult is relatively limited, but it is nevertheless the space in which language is learned as a means to direct the attention of the various participants (Tomasello 1999, 2008; for an evolutionary perspective, see Tomasello 2014; cf. Donald 1991; Deacon 1997).

The acquisition of language, in turn, seems to enable further development in joint attention, in such a way that more assimilative acts of joint attention become possible. An act of joint attention is more assimilative whenever a greater breadth and complexity of content is included within a single joint attentional act. Though research is still ongoing, psychologists have documented a number of important milestones in the development of joint attention after the acquisition of language. I will briefly discuss two of these milestones in order to show how acts of joint attention become more assimilative throughout this development.

First, Moll and Meltzoff (2011b) argue that joint attention is the fundamental basis for the ability to take perspectives and confront perspectives (see also, Tomasello and Moll 2010; Moll and Meltzoff 2011a; Moll et al. 2013). Emerging between two and three years of age, perspective taking involves adopting the perspective of another (stepping into the other's perspectival shoes, so to speak). Children at that age can reveal an object hidden from others (percept production) and hide an object from others (percept deprivation). Though it is a form of taking perspectives, perspective confronting emerges between four and five years of age and involves the child being able to judge how an object appears to someone else even when the same object appears to the child in the opposite way. A five-year-old child is reliably able to say, for instance, that an image on the table appears right side up to them whereas the same image appears upside down to the person sitting across from them. Moll and others argue that joint attention becomes "enriched" as perspective-taking and perspective-confronting abilities emerge in childhood (Moll and Meltzoff 2011b, 407; Moll et al. 2013, 653). In other words, the abilities to take and confront perspectives become integrated into joint attentional acts, enabling more assimilative acts of joint attention. When able to confront perspectives, for instance, the act of joint attention is more assimilative than the acts occurring in infancy, because now both participants are aware that the various perspectives incorporated into the joint attentional act are opposed to one another even though the participants are jointly attending to one and the same object.

Second, O'Madagain and Tomasello (2021) argue that, between ages four and five, typically developing children acquire the ability to jointly attend to mental contents. They write, "with linguistic skills of sufficient complexity, we can jointly attend not just to external objects, but to the contents of our mental states—beliefs, reasons, plans and the like" (O'Madagain and Tomasello 2021, 4058). If we adhere to the

classical treatments of joint attention, this might appear to be a strange proposal. In classical treatments, which mainly examined the occurrence of joint attention in infancy and toddlerhood, the object of joint attention is a perceptible object or event. O'Madagain and Tomasello propose, however, that imperceptible mental content, such as hypotheses, judgments, plans, and rules, can also be an object of joint attention when children acquire sufficient linguistic abilities. Of course, perceptible expressions, especially expressions in a shared language, are a necessary condition for jointly attending to mental contents. But such joint attention is not reducible to jointly attending to the perceptible expressions. When two people are jointly attending to a plan of action, for instance, they are not merely attending to one another's spoken or written expressions, which are perceptible; they are jointly attending to *the plan*, which is an imperceptible mental content. In jointly attending to the plan, they also consider one another's attitudes to the plan: for instance, whether each finds the plan to be reasonable or unreasonable, clear or obscure, effortless or arduous, and so on. In other words, more assimilative acts of joint attention become possible, first, because jointly attending to percepts (such as spoken expressions) can now be incorporated into jointly attending to mental contents (such as plans) and, second, because the attitudes of each person to one and the same mental content can also be incorporated into the joint attentional act.

JOINT ATTENTION AND THE *IMAGO TRINITATIS*

The first part of this article has presented some of the basic tenets of the work of Tomasello, Carpenter, Moll, and others. In this part of the article, I explain some of the ways in which our conception of the *imago Trinitatis* might be enriched by a recognition of this uniquely human capacity. The theorem of the *imago Trinitatis* attempts to explain how human beings reflect, albeit imperfectly, the triune God. As I show below, the classical tradition in western Christian theology argues that the *imago Trinitatis* is constituted by uniquely human capacities, namely, intellect and will. If contemporary research has discovered that joint attention is a significant social-cognitive capacity that differentiates us from other animal species, then it seems reasonable to propose that such an ability ought to have some effect on our conception of the *imago Trinitatis*.

The present section is organized in the following way. In the first subsection, I outline some of the central insights regarding the *imago Trinitatis* in two figures from the western theological tradition, namely, Augustine and Aquinas. In doing so, I set some the groundwork for the following subsections. In the next subsection, I show how their conception of the *imago Trinitatis* is not explicitly interpersonal and that recent research on joint attention supports an explicitly interpersonal understanding of

human nature and, by extension, of the *imago Trinitatis*. In the final subsection, I show how the classical conception of the *imago Trinitatis* is, not at odds with, but rather integrated into the interpersonal conception I am proposing.

The *Imago Trinitatis* in Classical Catholic Theology

In his *De Trinitate (On the Trinity)*, Augustine strives to defend the trinitarian doctrines formulated at the Councils of Nicea (325) and Constantinople (381) and find the most adequate way to understand them. Edmund Hill, in prefatory remarks to his translation of *On the Trinity*, states these doctrinal claims in a succinct way: The doctrinal claims are “that the Son is eternally begotten by the Father in total equality of nature, or proceeds eternally by way of generation as the Word of the Father; and that the Holy Spirit eternally proceeds from the Father and the Son as from one principle or origin” (Hill 1991, 265; see Augustine 1991, 1.4.7). In Books 8–15, Augustine turns to the human mind in order to ascertain how these doctrinal claims about the Trinity might be understood. The supposition guiding his discussion is that, since human beings are created in the image of God and since God is a Trinity, there must be some reality in the human mind that possesses a likeness of the Trinity. In these later books, he proposes several interrelated triads proper to the human mind, including *mens*, *notitia*, and *amor* in Book 9 and *memoria*, *intelligentia*, and *voluntas* in Book 10. Each term in these triads is meant to serve as an analogue for a Person of the Trinity, respectively, the Father, Son, and Holy Spirit.

In the final book of *On the Trinity*, however, Augustine rejects these triads because all of the terms are substantial predicates properly signifying the divine essence and not the Persons as distinct from one another (Augustine 1991, 15.7.12). The problem with these triads, in other words, is that they do not adequately express what is proper to each of the Persons but rather express what is proper to the divine essence, which is common to the Persons. If we were, for instance, to maintain that *memoria*, *intelligentia*, and *voluntas* properly signify the Father, Son, and Holy Spirit rather than the divine essence, then we would be obliged to conclude, for instance, that only the Son understands and that the Father and the Spirit do not understand except through the Son. But, if we are to uphold the doctrine that each of the Persons is God, these conclusions would be unacceptable: Surely, the Father is not God if the Father does not understand except through another.

Just after explaining his rationale for rejecting the former triads, Augustine proposes an analogue for the Trinity with which he appears to be most satisfied (Merriell 1990, 30–35). He argues that the most suitable analogues in the human mind for the processions of the Son and of the Spirit are, respectively, the procession of an inner word (or, in

contemporary terminology, a concept or judgment) from understanding and the procession of love from understanding and an inner word. In other words, as the inner word proceeds from understanding, so too the Son proceeds from the Father, and as love proceeds from understanding and the inner word, so too the Holy Spirit proceeds from the Father and the Son. Unlike the former triads, the processions of inner word and of love enable us to properly signify the Persons while also affirming that each Person is God. For instance, in the generation of an inner word in our minds, there is a distinction between the act of understanding as conceiving the word and the inner word conceived. Analogously, in God, only the Father conceives the Word, whereas only the Son is the Word conceived. Although Augustine recognizes that there are limitations to this analogy, especially due to the immense difference between the temporal and the eternal, he nevertheless maintains that the analogy sheds light upon the scriptural evidence and the church's teaching on the Trinity. On these grounds, Augustine holds that what constitutes the *imago Trinitatis* in us are the procession of the inner word from understanding and the procession of love from both understanding and the inner word.

Augustine's *On the Trinity* elicited the scrutiny of theologians throughout western history, and his idea regarding the *imago Trinitatis* found an especially notable development and refinement in the writings of Thomas Aquinas (see Merriell 1990; Torrell 2003; Emery 2007; Goris 2007; Marshall 2007). Below, I indicate those parts of Aquinas' work that will assist us in the following discussion of joint attention and the *imago Trinitatis*.

Aquinas claims that human minds are by nature pure potency (*potens omnia facere et fieri*), whereas the divine mind is pure act (*actus purus*; see Aquinas 1994a, 8.12; 2012b, 79.2; Lonergan [1946] 1997, 96–99; Cory 2017). The human mind is by nature pure potency because humans enter the world without understanding but can nevertheless labor (principally through questioning) to attain understanding. The nature of the divine mind, on the other hand, is pure act because in God there is no transition from nescience to understanding: God simply is, Aquinas argues, the eternal act of infinite understanding (Aquinas 1994a, 2.1; 2018, c. 45; 2012, 14.5). Accordingly, there is neither temporality nor transience in the divine intellect: In a simple act of understanding, God perfectly understands everything all at once, so to speak (Aquinas 2018, c. 55, 57f; 2012a, 14.7). Divine beatitude, furthermore, is absolutely perfect because God is a perfect act of understanding in which all is known (Aquinas 2012a, 26.1–2). Hence, of God's beatitude, Aquinas writes,

Beatitude ... is the perfect good of an intellectual nature. Thus it is that, as everything desires the perfection of its nature, the intellectual nature

desires beatitude naturally. Now that which is most perfect in any intellectual nature is the intellectual operation, by which it in some sense grasps everything. Hence the beatitude of every intellectual nature consists in understanding. Now in God, to be and to understand are one and the same; they differ only in the manner of our understanding them. Beatitude must therefore be assigned to God in respect of God's intellect. (Aquinas 2012a, 26.2)

Aquinas thus argues that perfect beatitude is said of God due to God's perfect understanding. But whereas God understands perfectly, humans advance slowly but incrementally from nescience to incomplete acts of understanding, and then to relatively more complete acts of understanding into which prior acts of understanding are integrated (Lonergan [1946] 1997, 61–71; Aquinas 2012a, 14.7; 2012b, 85.5). To see this, consider how understanding arithmetic equations is integrated into understanding algebraic equations, which is further integrated into understanding differential equations. Not only does the human mind have to strive in order to attain evermore complete understanding, but even when some understanding has occurred, still more time and effort are required to formulate precise concepts and to reflect upon whether its understanding and its concepts are adequate (Aquinas 1994b, 15.1; 2012a, 14.7; 2012b, 85.5). Lastly, the principal motivation for such a movement from potency to act in the human intellect is the desire to know, which is a desire for an act of understanding. The desire to know, according to Aquinas, attains its ultimate fulfillment (beatitude) only in knowing God, the principle and source of all of reality (Aquinas 2012a, 26.2-3; 2012c, 3.4 and 8).

Due to the difference between the human intellect as pure potency and the divine intellect as pure act, there is a difference between how the processions of the inner word and love occur in the human mind and how they occur in the divine mind. In the human mind, the processions occur frequently, though intermittently, throughout the mind's slow and steady advance from nescience to evermore complete understanding. At each stage along the way, imperfect understanding in the human mind gives rise to imperfect concepts and imperfect love, and such proceeding concepts and love can always become more perfect inasmuch as the principle from which they proceed—understanding—becomes more perfect. In the divine mind, on the other hand, the processions of the Son (the Word) and the Spirit (Proceeding Love) occur, not frequently and intermittently, but eternally and without any movement from potency to act (Aquinas 2012a, 27.1-2). The Son (the Word) proceeds from perfect understanding of all being as conceiving (the Father), and the Spirit proceeds from perfect understanding as conceiving (the Father) and a perfect Word conceived (the Son). Despite the immense difference between the processions in human beings and processions in God, Aquinas nevertheless maintains that there is a similarity, albeit an imperfect one, between the two and, on

these grounds, designates the human being as the *imago Trinitatis* (Aquinas 2012b, 93.5-7).

In sum, the *imago Trinitatis* in human beings, according to this tradition, is based in a similarity between the processions occurring in the human mind and the processions occurring in God. There is, however, also a crucial difference as the human mind begins in nescience while the divine mind is an eternal act of perfect understanding. By virtue of the similarity and difference, humans in this life are said to be, not identical to the Trinity, but only reflections of the Trinity.

Joint Attention and the *Imago Trinitatis*

In this subsection, I argue, in contrast to Augustine and Aquinas, that humans are the *imago Trinitatis* because of joint attention: That is, humans are similar to the Trinity because they are able to engage in acts of joint attention, but different because joint attention advances from potency to act in humans whereas it exists eternally in the Trinity. I begin by showing how the desire for joint attention is more encompassing in human beings than the desire to know. Next, in contrast to Augustine and Aquinas who argue that human fulfillment consists in an act of understanding, I explain how human fulfillment consists in an act of joint attention. Finally, I show how the triune God, in whom human beings find their fulfillment, is an eternal act of joint attention.

As Aquinas conceived of intellect across an interval from potency to act, so too joint attention ought to be conceived across an interval from potency to act. Intellect exists across such an interval because it begins in nescience, moves to imperfect understanding, then to relatively more perfect understanding, and finally (by grace) to its fulfillment in the beatific understanding of God. The prior stages in the interval are in potency to the subsequent stages: Nescience, for instance, can become imperfect understanding, and imperfect understanding can become more perfect. Joint attention ought to be conceived across an analogous interval: It begins in absence, emerges in the first year of life, develops throughout life as new acts of joint attention become possible, and finally (by grace) finds its fulfillment in participating in the act of joint attention among the divine persons. Or so I will argue.

It is first necessary to note that there is a major difference between the development of joint attention and the development of understanding. The difference resides in the fact that joint attention is intrinsically interpersonal, whereas understanding is not. A joint attentional act can only occur with two or more persons. Understanding, on the other hand, might be incidentally interpersonal—for instance, one might understand why someone else is doing something—but it is not intrinsically so: One, for instance, might understand something and never share that understanding

with anyone else. As Aquinas claims, understanding is a “perfection in the knower” (e.g., Aquinas 1994a, 2.2; 2012a, 14.2.ad2).

The fact that joint attention is intrinsically interpersonal while understanding is not has implications for how we are to conceive of the central desire of human beings in their orientation toward their ultimate end and ultimately for how we conceive the *imago Trinitatis*. It has already been stated that, for Augustine and Aquinas, the desire to know is central to human beings as the *imago Trinitatis* and finds its perfect fulfillment in knowing God, the principle and source of all being. If we are to say that the desire for joint attention is central to human beings as the *imago Trinitatis*, then we have a potential conflict with the positions of Augustine and Aquinas, since the desire for joint attention comprises two desires: the desire to know and the desire to be known. To desire joint attention with another is both to desire to know what the other is attending to and to desire to be known by the other as one oneself is attending. If these two desires are not in place, then neither is the desire for joint attention. The desire for joint attention, in other words, seems to be more comprehensive than the desire for understanding.

But which is more fundamental to the *imago Trinitatis*: the desire to know or the desire for joint attention? In order to answer this question, several other questions must first be considered. Are the desire to know and the desire to be known equal to one another in human beings? Can one be explained in terms of the other? Are they in competition with one another? Determining whether the desire to know or the desire for joint attention is more fundamental depends upon how we answer these questions. If the desire to be known depends upon the desire to know, then the position of Augustine and Aquinas is more likely to be correct. I argue, however, that neither desire depends upon the other, but both are caught up into the more comprehensive desire for interpersonal joint attention. To see this more clearly, though, let us first state some arguments supporting the claim that the desire to know is more fundamental and other arguments supporting the claim that the desire to be known is more fundamental. The aim in doing so is to show how both have reasons to support them and how it might be more reasonable to say that the desire for joint attention is more fundamental precisely because it embraces both of them.

On the one hand, it seems that the desire to know is primary and can explain the desire to be known. A couple of reasons can be given for this claim. First, ontogenetically speaking, even before the so-called nine-month revolution whereby triadic joint attention begins to emerge, the desire to know is clearly manifest: A young infant furrows her brow in concentration as she tries to figure out some new task or as she encounters some strange event, clearly manifesting her desire to know how to do the task or how to make sense of the strange event. In this sense, the desire to know ontogenetically precedes the desire to be known. Second, what is distinctive about joint attention is the ability to apprehend that

another is apprehending one's own apprehensions, but apprehending such a thing is itself an act of knowing. Not only does one desire to be known, but one also desires to know that one is known. On these grounds, the desire to know seems to be more fundamental than the desire to be known.

On the other hand, the desire to be known may, in another respect, be primary and may explain the desire to know. If Tomasello is correct that human language and culture arise on the basis of joint attention, then the desire to be known makes possible and in another sense precedes *distinctively human* acts of knowing. How so? I have already spoken about how joint attention sets the conditions for the emergence of human language and culture, and one uses language in order to make one's own apprehensions knowable to another, that is, to satisfy the desire to be known. But there is another way in which the desire to know may depend upon the desire to be known: The act of reflecting seems to be dependent upon joint attention and the desire to be known. In the act of reflecting, one relativizes one's own conceptions, suspending affirmation or denial of them until one has marshalled the evidence and is in a position to make a reasoned judgment about the truth of one's own conceptions based upon the sufficiency or insufficiency of the evidence (Loneragan [1957] 1992, 296–324). To see how the act of reflecting is dependent upon joint attention, we can turn to Tomasello's notion of perspective. He writes, "the whole notion of perspective depends on first having a joint attentional focus that we may then view differently (otherwise we just see completely different things)" (Tomasello 2009, 70; see also, Tomasello and Moll 2010). If the notion of perspective is dependent upon joint attention, then so too, it seems, is the act of reflecting, in which one considers one's own conceptions as if from another's perspective. It is difficult to see how relativizing one's conceptions in the act of reflecting would be possible without joint attention having already relativized one's own apprehensions to another's apprehensions and having thereby set the conditions for the act of reflecting to emerge. In these respects, the desire to be known—which is the desire for one's own apprehensions to be known—may be said to precede and explain the fully human desire to know.

However, it may be the case—and I suspect that it is—that neither the desire to know nor the desire to be known is ultimate, and so neither are they in competition with one another nor does one have to completely explain the other. If joint attention is distinctive of the human being, then both the desire to know and the desire to be known are caught up into a more ultimate desire both to know the same thing together and to know that we are knowing it together. The desire to know and the desire to be known would thus be moments (in the Hegelian sense) of a more penetrating and encompassing desire to participate in a shared activity with other persons. The ultimate drive of the human spirit, in other words, is neither merely the desire to know nor merely the desire to be known. It

is rather the desire to participate in an interpersonal act in which all participants attend to all of reality. In sharing in such a joint attentional act, each person becomes able to apprehend both oneself and others in a more complete and more radical way, precisely as each person really is. If such an ultimate joint attentional act stands as that toward which the desire of the human spirit ultimately tends, then it seems fitting to call such a joint attentional activity “God,” just as, in the classical tradition, that toward which the human desire to understand ultimately tends was named God. In other words, God is the ultimate joint attentional act toward which the basic human desire for joint attention is ultimately oriented.

Conceiving the ultimate joint attentional act in this way, I suggest, coheres with the Christian doctrine of the Trinity. The three Persons of the Trinity can be conceived as engaged in an infinite and perfect joint attentional act: three Persons attending to the same thing and knowing together that they are doing so. That to which the divine Persons are attending in this eternal joint attentional act is the divine essence—an unrestricted act of understanding in which all is known and which, so far from being extrinsic to the Persons, is really identical with each of them. In other words, the ultimate joint attentional act is the Trinity of Persons jointly attending to the divine essence and knowing together that they are doing so. Indeed, the joint attentional act of the triune Persons is, in a manner of speaking, the most assimilative joint attentional act, principally because all of reality (the whole of being) is included in the triune joint attentional act (Aquinas 2012a, 14.5 and 11, 15.1-3). “The manner in which God knows creatures,” Aquinas writes, “is by their existence within Godself” (Aquinas 1994a, 2.3.ad3). As an infinite act of joint attention, the triune God knows all things through the existence within one joint attentional act of the triune Persons. In this eternal act of triune joint attention, the human desire for joint attention finds its ultimate fulfillment, and the triune God invites humans into it through grace.

Integrating the Processions into Joint Attention

The foregoing may have given the impression that Augustine’s and Aquinas’ conceptions of the *imago Trinitatis* based on the processions of word and love and the present conception based on joint attention are in conflict with one another. In this final subsection, I want to dispel that impression by briefly indicating how the classical conception is integrated within the present conception, first, within the context of the present life and, second, within the context of the next life.

First, then, there is an integration of the classical conception into the present conception in this life. I noted how the desire for a joint attentional act comprises two desires: the desire to know and the desire to be known. But for a joint attentional act to occur, neither of these desires can remain mere desires, but each must find its own proper fulfillment

in actually knowing and actually being known. The fulfillment of each of these desires in us, particularly in mature forms of joint attention, occurs in part through the acts of the human mind, and among such acts are acts of understanding, inner words (concepts and judgments) proceeding from such understanding, and the acts of love proceeding from both the act of understanding and the inner word. The desire to know is implicitly a desire for these acts to occur within oneself, and the desire to be known is implicitly a desire for these acts to occur within another. Without those acts occurring within both of the persons, neither the desire to know nor the desire to be known would find its fulfillment, and an act of joint attention would not be attained. In this sense, the acts constitutive of the *imago Trinitatis*, as understood in the classical tradition, are integrated within the intersubjective conception of the *imago Trinitatis* proposed here.

Second, the fact that joint attention is intrinsically interpersonal, while understanding is not, has implications for how we should understand the complete fulfillment of the *imago Trinitatis* in beatitude. I briefly show how Aquinas' conception of human beatitude in the next life is integrated within the present conception.

A clarification of Aquinas' conception is first in order. I have already mentioned how, for Aquinas, complete human fulfillment in beatitude consists in understanding God. But there is more to it. The beatified person not only understands God, but also participates in the trinitarian processions occurring in God. That is, by understanding God, the processions of the eternal Word and the eternal Spirit somehow occur in their own created minds. In his exposition of Aquinas, Juvenal Merriell writes, "the [beatified] human mind somehow participates in the procession of the eternal Word [and the Spirit] so that the Word of God [and the Spirit] can be said to proceed in the human mind through the assimilation caused by the objective presence of God to the human intellect" (Merriell 2005, 134). In other words, in the next life, God's understanding, God's Word, and God's Spirit somehow become our own understanding, our own Word, and our own Spirit. Hence, whereas the *imago Trinitatis* in this life is only a reflection of the triune God, the *imago Trinitatis* in the next life directly participates in the triune God: The processions that eternally occur in God also somehow occur in the beatified person.

Joshua Cockayne (2018), however, has recently indicated a shortcoming in Aquinas' conception of human beatitude, namely, its failure to include the presence of other humans as necessary for and constitutive of our beatitude. Aquinas argues that friendship with other humans is necessary for happiness in this life, but not in the life to come. He writes, "[i]f we speak of perfect happiness in our heavenly home, then companionship with other human beings is not strictly necessary, since the human is wholly and completely fulfilled in God" (Aquinas 2012c, 4.8). The implication of Aquinas' position, Cockayne argues, "is that if only God

is necessary for human happiness, then the community of the Church is not necessary for human happiness” (Cockayne 2018, 6). Cockayne points out that such a position is not in accord with the Scriptures, which speaks of the “the community of the Church [that] is resurrected and united with Christ in glory” (Cockayne 2018, 7). In response to Aquinas, Cockayne develops a conception of beatitude that is intrinsically communal—in the sense that other human persons are necessary for and constitutive of our beatitude—and he does so by drawing upon research on joint attention. In the last subsection, I defended a similar conception of beatitude that is intrinsically interpersonal and based in joint attention.

But, as Cockayne recognizes, a shortcoming to Aquinas’ conception of beatitude ought not lead to its wholesale rejection. The major strength of Aquinas’ conception, in my estimation, resides in the human’s participation in the trinitarian processions: that is, God’s own understanding, Word, and Spirit becoming our own understanding, our own Word, and our own Spirit. But the strength of Aquinas’ conception needs to be integrated into an intrinsically communal conception, one in which other human persons are constitutive of human beatitude. In order to integrate the classical conception of the beatitude, on the one hand, and the intrinsically communal nature of beatitude, on the other, I suggest the following: At the apex of human fulfillment, the community of saints is engaged in a joint attentional act, which has the divine essence as its object. But since each saint is distinct, each uniquely understands the divine essence, which is inexhaustible in its intelligibility and which each saint in glory, according to Aquinas, understands but does not fully comprehend (Aquinas 2012a, 12.7). As Aquinas argues, God is infinite, and although the beatified human understands God in the next life, the finite human creature is forever unable to comprehend—that is, to embrace—the infinite God within itself. In each beatified person, then, a unique understanding and two unique processions occur: By uniquely understanding the divine essence, unique processions of the Word and the Spirit somehow occur in each of them. In this ultimate joint attentional act, the act of understanding, the generated Word, and the proceeding Love occurring in each human is in some sense different from those occurring in other humans, and yet each will know the others’ understanding, inner Word, and proceeding Love to be based upon and expressive of the divine essence, which is their common object.

CONCLUSION

In this article, I have attempted to explain how the scientific hypothesis regarding joint attention may be relevant for a theological conception of the *imago Trinitatis*. While some headway has been made, other avenues

of inquiry are worthy of pursuit. Regarding the *imago Trinitatis*, one might question how the present theory coheres with Aquinas' claim that the *imago Dei* can be understood not merely in terms of nature or beatitude, but also of grace (Aquinas 2012b, 93.4). How does grace both heal and elevate our capacity for joint attention in this life? To answer this question, one might pursue a soteriology in which the triune God saves us precisely by establishing with human beings new joint attentional activity through the missions of the Son and the Spirit; or one might pursue an ecclesiology, as Cockayne and Eford (2018) and Cockayne and Salter (2019) have initiated, in which the people of God are constituted as such through worshiping acts of joint attention on God mediated through the scriptures and the tradition. These further avenues of inquiry are possible and worthy of pursuit. I want, however, to conclude this article what I take to be a regulative principle for such future inquiries as well as the present one: Developments in the sciences, when appropriate, need to be invited into the heart of the theological enterprise, and in that way, among others, the God who has ever anciently revealed Godself to humankind can be ever newly received in our present world.

NOTE

1. Besides shared intentionality, comparative psychologists in recent decades have uncovered several other capacities that are apparently unique to humans. For review and proposal, see Laland and Seed 2021.

REFERENCES

- Aquinas, Thomas. 1994a. *Truth, Volume 1: Questions I-IX*. Translated by Robert W. Mulligan. Indianapolis, IN: Hackett Pub. Co.
- . 1994b. *Truth, Volume 2: Questions X-XX*. Translated by James V. McGlynn. Indianapolis, IN: Hackett Pub. Co.
- . 2012a. *Summa Theologiae Prima Pars, 1–49*. Edited by John Mortensen and Enrique Alarcón. Translated by Laurence Shapcote. Vol. 13. Latin/English Edition of the Works of St. Thomas Aquinas. Lander, WY: The Aquinas Institute for the Study of Sacred Doctrine.
- . 2012b. *Summa Theologiae Prima Pars, 50–119*. Translated by Laurence Shapcote. Vol. 14. Latin/English Edition of the Works of St. Thomas Aquinas. Green Bay, WI: The Aquinas Institute.
- . 2012c. *Summa Theologiae Prima Secundae, 1–70*. Translated by Laurence Shapcote. Vol. 15. Latin/English Edition of the Works of St. Thomas Aquinas. Green Bay, WI: The Aquinas Institute.
- . 2018. *Summa Contra Gentiles Books I-II*. Translated by Laurence Shapcote. Vol. 11. Latin/English Edition of the Works of St. Thomas Aquinas. Green Bay, WI: The Aquinas Institute.
- Augustine. 1991. *The Trinity*. Edited by John E. Rotelle. Translated by Edmund Hill. Vol. 5: The Works of Saint Augustine: A Translation for the 21st Century. Brooklyn, NY: New City Press.
- Bard, Kim A. 2017. "Dyadic Interactions, Attachment and the Presence of Triadic Interactions in Chimpanzees and Humans." *Infant Behavior & Development* 48 (Pt A): 13–19. <https://doi.org/10.1016/j.infbeh.2016.11.002>.

- Bard, Kim A., Heidi Keller, Kirsty M. Ross, Barry Hewlett, Lauren Butler, Sarah T. Boysen, and Tetsuro Matsuzawa. 2021. "Joint Attention in Human and Chimpanzee Infants in Varied Socio-Ecological Contexts." *Monographs of the Society for Research in Child Development* 86 (4): 7–217. <https://doi.org/10.1111/mono.12435>.
- Bräuer, Juliane, Josep Call, and Michael Tomasello. 2007. "Chimpanzees Really Know What Others Can See in a Competitive Situation." *Animal Cognition* 10 (4): 439–48. <https://doi.org/10.1007/s10071-007-0088-1>.
- Breul, Martin, and Caroline Helmus, eds. 2023. *The Philosophical and Theological Relevance of Evolutionary Anthropology*. New York: Routledge.
- Brooks, Rechele, and Andrew N. Meltzoff. 2008. "Infant Gaze Following and Pointing Predict Accelerated Vocabulary Growth through Two Years of Age: A Longitudinal, Growth Curve Modeling Study*." *Journal of Child Language* 35 (1): 207–20. <https://doi.org/10.1017/S030500090700829X>.
- . 2015. "Connecting the Dots from Infancy to Childhood: A Longitudinal Study Connecting Gaze Following, Language, and Explicit Theory of Mind." *Journal of Experimental Child Psychology* 130 (February): 67–78. <https://doi.org/10.1016/j.jecp.2014.09.010>.
- Bullinger, Anke F., Felicitas Zimmermann, Juliane Kaminski, and Michael Tomasello. 2011. "Different Social Motives in the Gestural Communication of Chimpanzees and Human Children." *Developmental Science* 14 (1): 58–68. <https://doi.org/10.1111/j.1467-7687.2010.00952.x>.
- Carpenter, Malinda, Katherine Nagell, Michael Tomasello, George Butterworth, and Chris Moore. 1998. "Social Cognition, Joint Attention, and Communicative Competence from 9 to 15 Months of Age." *Monographs of the Society for Research in Child Development* 63 (4): i–174. <https://doi.org/10.2307/1166214>.
- Cockayne, Joshua. 2018. "Communal Knowledge and the Beatific Vision." *TheoLogica: An International Journal for Philosophy of Religion and Philosophical Theology* 2 (2): 27–46. <https://doi.org/10.14428/thl.v2i2.2093>.
- Cockayne, Joshua, and David Efrd. 2018. "Common Worship." *Faith and Philosophy: Journal of the Society of Christian Philosophers* 35 (3): 299–325. <https://doi.org/10.5840/faithphil2018611103>.
- Cockayne, Joshua, and Gideon Salter. 2019. "Praying Together: Corporate Prayer and Shared Situations." *Zygon: Journal of Religion and Science* 54 (3): 702–30. <https://doi.org/10.1111/zygo.12543>.
- Cory, Therese Scarpelli. 2017. "Knowing as Being? A Metaphysical Reading of the Identity of Intellect and Intelligibles in Aquinas." *American Catholic Philosophical Quarterly* 91 (3): 333–51.
- Deacon, Terrence William. 1997. *The Symbolic Species: The Co-Evolution of Language and the Brain*. New York: W.W. Norton.
- Demuru, Elisa, Zanna Clay, and Ivan Norscia. 2022. "What Makes Us Apes? The Emotional Building Blocks of Intersubjectivity in Hominids." *Ethology Ecology & Evolution* 34 (3): 220–34. <https://doi.org/10.1080/03949370.2022.2044390>.
- Donald, Merlin. 1991. *Origins of the Modern Mind: Three Stages in the Evolution of Culture and Cognition*. Cambridge, MA: Harvard University Press.
- Emery, Gilles. 2007. "Trinitarian Theology as Spiritual Exercise in Augustine and Aquinas." In *Aquinas the Augustinian*, edited by Michael Dauphinais, Barry David, and Matthew Levering, translated by John Baptist Ku, 1–40. Washington, DC: Catholic University of America Press.
- Gilbert, Margaret. 2014. *Joint Commitment: How We Make the Social World*. New York: Oxford University Press.
- Goris, Harm. 2007. "Theology and Theory of the Word in Aquinas: Understanding Augustine by Innovating Aristotle." In *Aquinas the Augustinian*, edited by Michael Dauphinais, Barry David, and Matthew Levering, 62–78. Washington, DC: Catholic University of America Press.
- Green, Adam, and Keith Quan. 2012. "More Than Inspired Propositions: Shared Attention and the Religious Text." *Faith and Philosophy: Journal of the Society of Christian Philosophers* 29 (4): 416–30. <https://doi.org/10.5840/faithphil201229443>.

- Hare, Brian, Josep Call, Bryan Agnetta, and Michael Tomasello. 2000. "Chimpanzees Know What Conspecifics Do and Do Not See." *Animal Behaviour* 59 (4): 771–85. <https://doi.org/10.1006/anbe.1999.1377>.
- Hill, Edmund. 1991. "Foreword to Books IX-XIV." In *The Trinity*, edited by John E. Rotelle, 258–69. The Works of Saint Augustine: A Translation for the 21st Century 5. Brooklyn, NY.: New City Press.
- Horner, Victoria, Kristin E. Bonnie, and Frans B. M. de Waal. 2005. "Identifying the Motivations of Chimpanzees: Culture and Collaboration." *Behavioral and Brain Sciences* 28 (5): 704–5. <https://doi.org/10.1017/S0140525x05360122>.
- Hubley, Penelope, and Colwyn Trevarthen. 1979. "Sharing a Task in Infancy." *New Directions for Child and Adolescent Development* 1979 (4): 57–80. <https://doi.org/10.1002/cd.23219790406>.
- Laland, Kevin, and Amanda Seed. 2021. "Understanding Human Cognitive Uniqueness." *Annual Review of Psychology* 72 (1): 689–716. <https://doi.org/10.1146/annurev-psych-062220-051256>.
- Leavens, David A., and Kim A. Bard. 2011. "Environmental Influences on Joint Attention in Great Apes: Implications for Human Cognition." *Journal of Cognitive Education and Psychology* 10 (1): 9–31. <https://doi.org/10.1891/1945-8959.10.1.9>.
- Leavens, David A., Timothy P. Racine, and W. D. Hopkins. 2009. "The Ontogeny and Phylogeny of Non-Verbal Deixis." In *The Prehistory of Language*, edited by Rudolf Botha and Chris Knight, 142–65. Oxford: Oxford University Press. <http://sro.sussex.ac.uk/id/eprint/14832/>
- Leavens, David A., Jamie L. Russell, and William D. Hopkins. 2005. "Intentionality as Measured in the Persistence and Elaboration of Communication by Chimpanzees (Pan Troglodytes)." *Child Development* 76 (1): 291–306. <https://doi.org/10.1111/j.1467-8624.2005.00845.x>.
- Liszkowski, Ulf, Penny Brown, Tara Callaghan, Akira Takada, and Conny de Vos. 2012. "A Prelinguistic Gestural Universal of Human Communication." *Cognitive Science* 36 (4): 698–713. <https://doi.org/10.1111/j.1551-6709.2011.01228.x>.
- Liszkowski, Ulf, Malinda Carpenter, Anne Henning, Tricia Striano, and Michael Tomasello. 2004. "Twelve-Month-Olds Point to Share Attention and Interest." *Developmental Science* 7 (3): 297–307. <https://doi.org/10.1111/j.1467-7687.2004.00349.x>.
- Liszkowski, Ulf, Malinda Carpenter, Tricia Striano, and Michael Tomasello. 2006. "12- and 18-Month-Olds Point to Provide Information for Others." *Journal of Cognition and Development* 7 (2): 173–87. https://doi.org/10.1207/s15327647jcd0702_2.
- Lonergan, Bernard J. F. 1992. *Insight: A Study of Human Understanding*, vol. 3. Edited by Frederick E. Crowe and Robert M. Doran. Collected Works of Bernard Lonergan. Toronto: University of Toronto Press.
- . 1997. *Verbum: Word and Idea in Aquinas*, vol. 2. Edited by Robert M. Doran and Frederick E. Crowe. *Collected Works of Bernard Lonergan*. Toronto: University of Toronto Press.
- . 2017. *Method in Theology*, Vol. 14. Edited by Robert M. Doran and John D. Dadosky. *Collected Works of Bernard Lonergan*. Toronto: University of Toronto Press.
- Marshall, Bruce D. 2007. "Aquinas the Augustinian? On the Uses of Augustine in Aquinas's Trinitarian Theology." In *Aquinas the Augustinian*, edited by Michael Dauphinais, Barry David, and Matthew Levering, 41–61. Washington, D.C.: Catholic University of America Press.
- Merriell, D. Juvenal. 1990. *To the Image of the Trinity: A Study in the Development of Aquinas' Teaching*. Toronto: Pontifical Institute of Mediaeval Studies.
- . 2005. "Trinitarian Anthropology." In *The Theology of Thomas Aquinas*, edited by Rik Van Nieuwenhove and Joseph Wawrykow, 123–42. South Bend, IN: University of Notre Dame Press.
- Moll, Henrike, and Andrew N. Meltzoff. 2011a. "How Does It Look? Level 2 Perspective-Taking at 36 Months of Age." *Child Development* 82 (2): 661–73. <https://doi.org/10.1111/j.1467-8624.2010.01571.x>.
- . 2011b. "Joint Attention as the Fundamental Basis of Understanding Perspectives." In *Joint Attention: New Developments in Psychology, Philosophy of Mind, and Social Neuroscience*, 393–413. Cambridge, MA: Boston Review.

- Moll, Henrike, Andrew N. Meltzoff, Katharina Merzsch, and Michael Tomasello. 2013. "Taking Versus Confronting Visual Perspectives in Preschool Children." *Developmental Psychology* 49 (4): 646–54. <https://doi.org/10.1037/a0028633>.
- Murray, Lynne, and Colwyn Trevarthen. 1985. "Emotional Regulation of Interactions between Two-Month-Olds and Their Mothers." In *Social Perception in Infants*, edited by T. M. Field and N. A. Fox, 177–97. Norwood, NJ: Ablex.
- O'Madagain, Cathal, and Michael Tomasello. 2021. "Joint Attention to Mental Content and the Social Origin of Reasoning." *Synthese* 198 (5): 4057–78. <https://doi.org/10.1007/s11229-019-02327-1>.
- Pinsent, Andrew. 2012. *The Second-Person Perspective in Aquinas's Ethics: Virtues and Gifts*. Routledge Studies in Ethics and Moral Theory 17. New York: Routledge.
- Racine, Timothy P., David A. Leavens, Noah Susswein, and Tyler J. Wereha. 2008. "Conceptual and Methodological Issues in the Investigation of Primate Intersubjectivity." In *Enacting Intersubjectivity: A Cognitive and Social Perspective on the Study of Interactions*, edited by Francesca Morganti, Antonella Carassa and Giuseppe Riva, 65–79. Emerging Communication: Studies on New Technologies and Practices in Communication. Amsterdam: IOS Press.
- Scaife, M., and J. S. Bruner. 1975. "The Capacity for Joint Visual Attention in the Infant." *Nature* 253 (5489): 265–66. <https://doi.org/10.1038/253265a0>.
- Stern, Daniel N. 1985. *The Interpersonal World of the Infant: A View from Psychoanalysis and Developmental Psychology*. New York: Basic Books.
- Stump, Eleonore. 2012. *Wandering in Darkness Narrative and the Problem of Suffering*. Oxford: University Press.
- Tomasello, Michael. 1999. *The Cultural Origins of Human Cognition*. Cambridge, MA: Harvard University Press.
- . 2008. *Origins of Human Communication*. Jean Nicod Lectures 2008. Cambridge, MA: MIT Press.
- . 2009. *Why We Cooperate*. Boston Review Book. Cambridge, MA: MIT Press.
- . 2014. *A Natural History of Human Thinking*. Cambridge, MA: Harvard University Press.
- . 2021. *Becoming Human: A Theory of Ontogeny*. Cambridge, MA: Belknap Press.
- Tomasello, Michael, Josep Call, and Andrea Gluckman. 1997. "Comprehension of Novel Communicative Signs by Apes and Human Children." *Child Development* 68 (6): 1067–80. <https://doi.org/10.1111/j.1467-8624.1997.tb01985.x>.
- Tomasello, Michael, and Malinda Carpenter. 2007. "Shared Intentionality." *Developmental Science* 10 (1): 121–25. <https://doi.org/10.1111/j.1467-7687.2007.00573.x>.
- Tomasello, Michael, Malinda Carpenter, Josep Call, Tanya Behne, and Henrike Moll. 2005. "In Search of the Uniquely Human." *Behavioral and Brain Sciences* 28 (5): 721–35. <https://doi.org/10.1017/S0140525x05540123>.
- Tomasello, Michael, Malinda Carpenter, and R. Peter Hobson. 2005. "The Emergence of Social Cognition in Three Young Chimpanzees." *Monographs of the Society for Research in Child Development* 70 (1).
- Tomasello, Michael, and Henrike Moll. 2010. "The Gap Is Social: Human Shared Intentionality and Culture." In *Mind the Gap: Tracing the Origins of Human Universals*, edited by Peter M. Kappeler and Joan Silk, 331–49. Berlin, Heidelberg: Springer. https://doi.org/10.1007/978-3-642-02725-3_16.
- Tomonaga, Masaki, Masayuki Tanaka, Tetsuro Matsuzawa, Masako Myowa-Yamakoshi, Daisuke Kosugi, Yuu Mizuno, Sanae Okamoto, Masami K. Yamaguchi, and Kim A. Bard. 2004. "Development of Social Cognition in Infant Chimpanzees (Pan Troglodytes): Face Recognition, Smiling, Gaze, and the Lack of Triadic Interactions1." *Japanese Psychological Research* 46 (3): 227–35. <https://doi.org/10.1111/j.1468-5584.2004.00254.x>.
- Torrell, Jean-Pierre. 2003. *Saint Thomas Aquinas: Volume 2, Spiritual Master*. Translated by Robert Royal. Washington, DC.: Catholic University of America Press.
- Trevarthen, Colwyn. 1979. "Communication and Cooperation in Early Infancy: A Description of Primary Intersubjectivity." In *Before Speech: The Beginning of Human Communication*, edited by Margaret Bullowa, 321–48. Cambridge: Cambridge University Press.
- Tronick, Edward. 1989. "Emotions and Emotional Communication in Infants." *American Psychologist* 44 (2): 112–19. <https://doi.org/10.1037/0003-066X.44.2.112>

- Tronick, Edward, Heidelise Als, Lauren Adamson, Susan Wise, and T. Berry Brazelton. 1978. "The Infant's Response to Entrapment between Contradictory Messages in Face-to-Face Interaction." *Journal of the American Academy of Child Psychiatry* 17 (1): 1–13. [https://doi.org/10.1016/S0002-7138\(09\)62273-1](https://doi.org/10.1016/S0002-7138(09)62273-1)
- Warneken, Felix, Frances Chen, and Michael Tomasello. 2006. "Cooperative Activities in Young Children and Chimpanzees." *Child Development* 77 (3): 640–63. <https://doi.org/10.1111/j.1467-8624.2006.00895.x>.
- Warneken, Felix, and Michael Tomasello. 2008. "Extrinsic Rewards Undermine Altruistic Tendencies in 20-Month-Olds." *Developmental Psychology* 44 (6): 1785–88. <https://doi.org/10.1037/a0013860>.
- Wilkins, David. 2003. "Why Pointing with the Index Finger Is Not a Universal (in Sociocultural and Semiotic Terms)." In *Pointing: Where Language, Culture, and Cognition Meet*, edited by Kita Sotaro, 171–215. Mahwah, NJ: Taylor & Francis Group.