Theoretical Notes

A Unifying Model of the Arts: The Narration/ Coordination Model

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Abstract
The Narration/Coordination model is presented as a unifying model of the arts with regard to psychological processing and social functions. The model proposes a classification of the arts into the two broad categories of the *narrative arts* and the *coordinative arts*. The narrative arts function to tell stories, often to promote social learning through the modeling of prosocial behaviors. The coordinative arts function to stimulate group participation through synchronized action, thereby serving as a reinforcer of group affiliation and a promoter of social cooperation. These two categories vary with regard to a number of psychological and social features related to personal engagement, role playing, cognitive structure, and performance. The arts are evolutionarily adaptive because they promote social cooperation through two distinct routes: the simulation of prosocial behaviors via the narrative arts, and the stimulation of group synchronization and cohesion via the coordinative arts.

Introduction

The current article is an attempt to fashion a unifying model of the arts—called the Narration/Coordination model—that reflects the two overarching functions

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that I ascribe to the arts in their collectivity. While most analyses of the arts in both the humanities and the sciences focus on individual branches (such as music, literature, or visual art), there is a strong need to develop concepts that unify the arts as a general domain of human cognition and behavior, not least to support the aim of understanding the evolution and neuroscience of the arts. An interest in both the unification and classification of the arts has deep historical roots. Throughout much of history since the time of the ancient Greeks, the arts have been compared with one another (Kristeller, 1951, 1952; Malek, 1974; Young, 2015), often times to make statements about the "superiority" of one form over others. Such comparative thinking about the arts occurred nearly independently of the arts' connection with beauty (Kristeller, 1951), despite the pervasive modern trend to reduce the arts to aesthetic processing (see Brown & Dissanayake, 2009).

The earliest unification of the arts in Western thinking was the integration of several branches of the arts by Plato and Aristotle into the "imitative arts" (Aristotle, 335 BCE/1996; Plato, 380 BCE/1968; Shiner, 2001; Williams, 2004), which is an inspiration for my own category of "narrative arts." This included not only poetry and painting but also music and dance. The arts were considered as distinct from nature itself but at the same time were seen as being mimetic representations of it, hence the term imitative. A separate concept of the "liberal arts" was developed in the Roman period, connoting those arts that someone would need to know in order to be a free person. However, the only component that we could consider as an artform in modern times was music (as in music theory), which was seen as being closely related to the liberal arts of astronomy and mathematics (Kristeller, 1951).

The modern conception of the "fine arts" (as distinct from "mechanical arts") was a culmination of previous thinking that occurred in the early 18th century at approximately the same time that the earliest treatises on aesthetics were being published, although there is active debate as to whether the "fine arts" that were codified in the 18th century are any different than the grouping of imitative arts originally formulated by the ancient Greeks (Porter, 2009; Shiner, 2009; Young, 2015). A key work from this period was Charles Batteux's (1746/2015) book *The Fine Arts Reduced to a Single Principle*, which proposed a basic core of five fine arts: music, poetry, painting, sculpture, and dance, where theatre was viewed as a synthesis of these artforms (Malek, 1974; Young, 2015). This book was typical of the "sister arts" movement of the period (Kristeller, 1952; Malek, 1974), which continued the ancient tradition of identifying deep psychological kinships among the arts, for example, relating music to poetry and poetry to painting. Hence, long before the cognitive revolution of the 20th century, theorists from the ancient Greeks through to the Enlightenment period not only proposed classifications of the arts but described strong cognitive parallels among them using analogical arguments. It is unfortunate that intellectual interest in such ideas more or less disappeared by the 20th century. In addition, the current

psychological reduction of the arts to aesthetics has taken focus away from the strong historical tradition of comparing the arts with one another and of examining both what the arts have in common and what distinguishes artforms from one another.

With this historical background in mind, I want to propose a non-aesthetic classification of the arts into two broad functional categories, what I will refer to as the *narrative arts* and the *coordinative arts*.[1] The narrative arts function to tell stories, often to promote social learning through the modeling of prosocial behaviors (Boyd, 2009; Gottschall, 2012; Mar & Oatley, 2008). The coordinative arts function to stimulate collective participation through synchronized action, thereby serving as a reinforcer of group affiliation, a symbol of group unity, and a promoter of cooperation (Brown, 2000; Launay, Tarr, & Dunbar, 2016; Reddish, Fischer, & Bulbulia, 2013). In fact, the promotion of social cooperation unites the two categories of the arts from a functional perspective. Excluded from my two categories of the arts are forms that are neither narrative nor coordinative in any clear manner, such as the decorative arts, architecture, gardening, and chemical arts such as gastronomy and perfumery, among others. Dissanayake's (1988, 2009) aesthetic concept of "artification" nicely fills the void left in my classification system. Artification refers to the production process of "making special" through mechanisms of ornamentation and stylization. It can apply to both performance forms such as dance (e.g., stylizing everyday movement patterns into dance) and static objects like articles of clothing. Dissanayake's structural and aesthetic approach to defining the arts is an important complement to my functional and non-aesthetic classification of the arts.

Figure 1 lists typical artforms in each of the two categories. The narrative arts are made up of both *static* forms, like literature and the visual arts (the latter including both two-dimensional and three-dimensional forms), and *performance* forms, like theatre, oral storytelling, and cinema. I next divide the performing arts into *narrated* forms (like oral storytelling) and *acted-out* forms in which performers embody characters via portrayal, as seen in theatre, cinema, and narrative forms of dance. (The static arts are all narrated forms.) This division essentially maps onto that between literature and theatre in the humanities. It follows from Plato's distinction in the *Republic* (380 BCE/1968) between diegesis and mimesis, where diegetic forms of narrative are those that are produced from the perspective of the storyteller and mimetic forms are those that involve impersonation of the characters of a story, as seen in theatre (Halliwell, 2014). My second category, the coordinative arts, is made up of the performing arts of music and dance. Coordinative behaviors like group speech (Cummins, 2013) are excluded from this category since they are not typically considered as arts behaviors, although they are common in religious worship and even in the context of group rapping. The coordinative arts, in combination with the performance forms of the narrative arts, collectively comprise *the performing arts* (Figure 1). The narrative arts and coordinative arts are by no means mutually
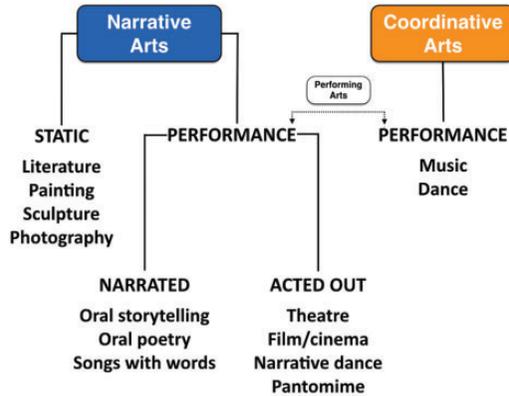
Figure 1. A classification of the arts into narrative and coordinative categories. The narrative arts are comprised of both static and performance forms, while the coordinative arts are comprised of performance forms alone. The performance forms of the narrative arts can be either "narrated" from a third-person perspective (i.e., diegetic) or "acted out" from a fictional first-person perspective (i.e., mimetic), a distinction that maps onto that between literature and theatre, respectively. The dashed line with arrows signifies that the performance forms of the narrative arts in combination with the coordinative arts collectively comprise the performing arts.

exclusive. Artforms that interface the two categories are seen especially with the performing arts, including narrative forms of dance (such as ballet) and processes of "musical narration" (Brown, 2018) in which music is used as an accompaniment to narrative artforms in order to accentuate the emotional meaning of the narrative, as seen ubiquitously in songs with words, and underscore in cinema (Cohen, 2013, 2015; Gorbman, 1987; Tan et al., 2017). Musical narration takes advantage of the emotional language of music—including scale systems and expressive devices like tempo and loudness—to superimpose a layer of musical meaning onto existing narrative meanings.

Before proceeding to examine the cognitive and social features of these two branches of the arts, I would like to provide some qualifications on the classification scheme shown in Figure 1. I am using the term *narrative arts* quite generally to apply to a broad array of artforms, even though the standard definition of narrative typically only applies to literature (Bortolussi & Dixon, 2003). Hence, I am using the term *narrative* multimodally to refer to any artform that can be representational or that can convey a story (Abbott, 2008), including figurative forms of visual art and narrative forms of gesturing through pantomime and dance (Yuan, Major-Giradin, & Brown, 2018). This does not mean that all forms of visual art and dance need be narrative. Quite the contrary, much of it is abstract. For dance, this is not a problem since I argue that dance is principally a coordinative art. However, this is more problematic for visual art.

We know from the historical record that geometric forms of rock art preceded figurative images by tens of thousands of years (Henshilwood et al., 2011; Joordens et al., 2015; Texier et al., 2010). However, it is more difficult to establish the "art" status of such geometrics, compared to representational forms of production, which are much less disputed by scholars as intentionally created products with identifiable referents, such as the animal images depicted in the caves of Lascaux and Chauvet (Bahn, 1998; White, 2003). Next, the performance-based versions of the narrative arts can occur by diegesis through narration in the third person,[2] or they can occur through mimesis by means of character portrayal by actors in theatre and narrative forms of dance. Such acting should not be referred to as third person. To my mind, the best description of this perspective is "fictional first-person" (Brown, Cockett, & Yuan, 2019), since the actor is creating a first-person presentation but is doing so of a person that she or he is not. Using the term third person—which implies the use of third-person pronouns such as he and she—only creates confusion, since the actor is doing an impersonation ("I"), not a description ("he" and "she"). The use of the term first person is equally confusing since the character is not the same person as the actor.

Looking now to modalities of production, the narrative arts are based on a "narrative triad" comprised of language, gesture, and visual images (Yuan et al., 2018). These are the three principal modalities by which people are able to representationally convey narrative ideas during communication, where these forms can work either alone or in combination (Clark, 2016). Language itself can be conveyed both vocally (speech, songs with words) and visually (writing, sign language). Regarding music, most theorists believe that music on its own lacks the ability to convey semantic information the way that words, gestures, and images readily do (Davies, 1994; but see Patel, 2008), suggesting that music is more of a *narrative-supporting* art than a narrative art per se, as was mentioned earlier with reference to "musical narration." Next, the coordinative arts can be conveyed through sounding mechanisms that are perceived acoustically (i.e., the voice, musical instruments, body percussion) or through kinetic gestures that are perceived visually and proprioceptively. Rhythm is a key feature of the coordinative arts (Chauvigné, Gitau, & Brown, 2014; Keller, Novembre, & Hove, 2014). Rhythm appears to be a domain-general system that mediates production across the coordinative arts and thus across the various effectors of the voice and body. This permits combinations between two or more artforms, such as setting poetry to music or choreographing dance to music (Brown, 2018).

An important topic that is beyond the scope of the current article is the extent to which what I am calling the narrative arts maps onto the ancient classification of imitative arts. As mentioned earlier with respect to the narrative triad, the narrative arts are intimately associated with the cognitive capacity for representation and depiction, as mediated through language, gesture, and image

production. The narrative arts thus serve a critical social function in depicting "either the kind of thing that was or is the case; or the kind of thing that is said or thought to be the case; or the kind of thing that ought to be the case" (Aristotle, 335 BCE/1996, p. 42). Hence, my use of the term narrative arts (rather than imitative arts) is done to highlight the *functional* role of these art-forms in recounting information about people, objects, and events. It is telling that the ascendency of the aesthetic view of the arts has been accompanied by a reduction of focus on the social functions of the arts as well as on the cognitive kinships among the arts. Hence, I would call for a non-aesthetic view of the arts that emphasizes the (a) the social functions of the arts, (b) classification of the arts, (c) the connections between the arts and cognition, and (d) the interrelationships among artforms.

With this classification scheme in mind, the remainder of the article will compare the narrative and coordinative arts with respect to how people engage in them, the types of role playing that occur in them, the overriding cognitive structures that drive them, and how these structures are played out in performance. The article concludes with a functional discussion that makes reference to a cognitive process that may unify narration and coordination at the neurocognitive level, namely, mentalizing. Figure 2 provides a graphic representation of the Narration/Coordination model, and Figure 3 presents a comparison of the key features of the narrative arts and coordinative arts, mirroring the text presentation.

Engagement: Simulation Versus Participation

The two categories of the arts differ strikingly in how people experience them. Engagement with the narrative arts occurs cognitively through a simulation of scenarios (Mar & Oatley, 2008; Oatley, 1994; Walton, 1990), while engagement with the coordinative arts occurs behaviorally through collective participation in group rituals. In addition, the simulated scenarios of the narrative arts depict a storyworld that the observer is not a part of (Herman, 2013; Oatley, 1999), whereas the coordinative arts occur in the real world of the participant. The narrative arts are produced as forms of depiction or re-creation. Stories are presented as simulations of scenarios representing social interactions in a storyworld, whether fictional or nonfictional. Perceivers of the narrative arts experience these scenarios in a third-person manner, generally through their cognitive and emotional relationship with characters, who serve as vehicles for the actions of the story. The perceiver experiences the story as an outside observer, not as a direct participant in the scenario (Oatley, 1999). She or he uses theory-of-mind and empathy mechanisms to relate to the characters in the story (Mar & Oatley, 2008; Oatley, 1994, 1999), attempting to assume the perspective of the story's protagonist through a process of focalization (Abbott, 2008). The emotions experienced by the perceiver are generally vicarious emotions mediated through
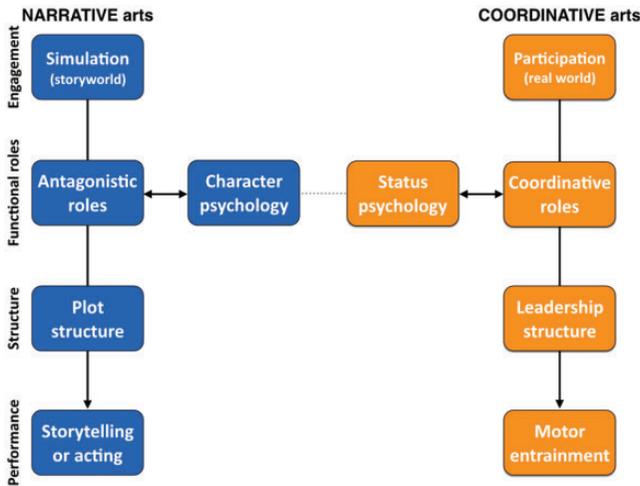
Figure 2. The Narration/Coordination model of the arts. The narrative arts and coordinative arts differ with respect to (a) how people engage in them, (b) the kinds of role playing that dominate them, (c) the cognitive structures that drive them, and (d) the manners in which role playing occurs in performance. "Antagonistic roles" include friend and foe. "Coordinative roles" include leader, follower, and coequal. The dashed line in the middle of the figure signifies that the two branches of the arts interface in certain key respects. On the one hand, status differences among people can contribute to the antagonism that is depicted in stories; many stories are about a protagonist's desire to improve or redeem his or her social status. On the other, antagonisms between group members are one context in which the coordinative arts operate, where such arts act to improve group stability through shared emotional experiences in participative rituals.

the characters' emotional experiences. In theatrical forms of the narrative arts (including narrative dance), performers embody the characters on stage and work to expressively convey their emotions to audience members through modulations in their vocal prosody, facial expression, and body gesturing (Berry & Brown, 2019; Kemp, 2012; Konijn, 2000). There are a number of interesting everyday behaviors outside of the arts that I have referred to elsewhere as "proto-acting" (Brown, 2017)—including pretend play in children (Harris, 2000; Walton, 1990) and role-playing-based video games (Hitchens & Drachen, 2009; Shulman, 2017; Tychsen et al., 2006)—in which people have the ability to cross the threshold and serve as active participants in fictional storyworlds, in contrast to the outsider role that they more typically play when they are readers, film viewers, and theatre goers.

    The coordinative arts are quite different from the narrative arts since people engage in them in a *participative* manner in the real world, although they can also be audience members who observe other people performing (Schechner, 2013). In coordinative forms such as music making and dancing, people engage

	Narrative Arts	Coordinative Arts
I. Engagement		
Core Function	social learning, behavioral modeling	entrainment, group cohesion
Manner of Engagement	simulation, depiction	collective participation
Realm of action	storyworld	real world
Perspective Taking	third-person or fictional first-person	first-person
Cognitive or Behavioral	cognitive	behavioral
Art Forms	theatre, lit, visual arts, narr. dance	music, dance
Modalities	language, gesture, visual images	voice, instrument, body
II. Role Playing		
Self or Other	others, characters	self in relation to the group
Individual or Group Emphasis	individual	group, collective
Role Types	antagonisic roles; character roles	coordinative roles; interactive roles
Competition or Cooperation	mainly competition	mainly cooperation
Valence of Social Interactions	negative or positive	mainly positive
Simulation or Enactment of Roles	simulation	enactment
Aspect of Social Relations	valence: friend, foe	hierarchy: leader, follower, co-equal
Simulate or Stimulate Relations	simulate social relations	stimulate social relations
Core Psychology	character psychology	status psychology
Route to Catharsis	empathy with character's experiences	relieving interpersonal conflicts
III. Structure		
Core Structure	plot structure	leadership structure
Sequentiality or Simultaneity	sequentiality	simultaneity (and sequentiality)
Driving Force	endpoint-driven: resolution	experience-driven: entrainment
IV. Performance		
Performance of Roles	storytelling, acting	coordination, entrainment
V. General Considerations		
Supervenient Function	social cooperation	social cooperation
Symbolism	modeling of social relationships	modeling of social hierarchies
Mentalizing	ToM and empathy with characters	coordinative ToM wih partners
Temporoparietal junction role	character mentalizing	predictive mentalizing

Figure 3. Comparative features of the narrative arts and the coordinative arts. lit., literature; narr., narrative; ToM, theory-of-mind.

in the performance, doing so in the first-person manner of an active participant in the performance, whether this be a formal or recreational performance. People synchronize their sound productions or body movements with one another through motor-entrainment mechanisms in order to achieve interpersonal coordination (Keller et al., 2014; Sebanz, Bekkering, & Knoblich, 2006). The ethnomusicology and ethnochoreology literatures abound with examples of group rituals across all world cultures in which music and dance are created not only *by* groups of people but *for* them as well (Blacking, 1973; Brown, 2000; Dissanayake, 1988, 2006; Lomax, 1968; Nettl, 1983; Schechner, 2013). The synchronous vocal and kinetic behaviors of the coordinative arts comprise a defining feature of the human species compared to all other primates (Merchant & Koning, 2014). In addition, among humans themselves, such

behaviors are strongly linked with the domain of the arts and have few counter-parts in general social behavior. Synchronous speech is perhaps the main example of this (Cummins, 2013), although it is quite rare in its occurrence compared to music and dance as social behaviors.

A critique of my focus on indigenous cultures as a model for how the coordinative arts operate is that modern cultures have become, to large extent, divorced from such group-participative practices, instead replacing them with private listening experiences using media technology. The same critique applies to many other social practices that have undergone transformations as cultures have become more complex and dispersed, and as the experiences have come to depend on mass media, instead of direct personal interactions. One response to this critique is that the primordial coordinative function of music has simply been lost for many contemporary people, being replaced by a different type of experience grounded in aesthetics and emotion regulation. A second response is that the focus of collective emotional experience has switched from group production to group perception through public assembly at concerts (Radbourne, Johanson, Glow, & White, 2009), which occurs ubiquitously in all contemporary cultures. A third response is that a listener of music using media can experience a type of virtual coordination with the musician(s) via processes of rhythmic and emotional attunement that might occur during the listening experience. A fourth response is that the pervasive function of music in subculture identification and discourse (Osbergy, 2014), especially among youth, indicates that the coordinative function of music is present but is acting in a *nonsynchronous* fashion through bouts of individual listening, although it can also occur more synchronously through bouts of group listening, such as when friends get together to listen to music or watch music videos.

Role Playing: Antagonistic Versus Coordinative Roles

Role playing is central to how both categories of the arts function. In discussing this topic, I want to distinguish "character roles" from "functional roles." Character roles relate to the concept of identity (Kemp, 2012; Stanislavski, 1949; Wilshire, 1982), such as when we say that "Joe Smith will be playing the role of Romeo in today's performance of *Romeo and Juliet*." This alludes to the fact that Joe can present himself in public as having the identity of either Joe or Romeo, depending on the social context. Functional roles, by contrast, relate to the purpose that a person serves in a given social system or social activity. Joe would serve the functional role of "actor" in a theatrical performance of *Romeo and Juliet*, but other people would serve the roles of stage hand, audience member, ticket seller, understudy, and so on. Functional roles are typically organized along the lines of a social hierarchy that reflects the division of labor necessary to collectively produce a group activity. Whereas role playing of the character type occurs uniquely in the theatrical arts and related everyday

forms of character portrayal (Brown, 2017), functional roles are found prominently in both branches of the arts, although they emphasize different types of roles within the social systems that they represent. According to the dramaturgical perspective in social psychology (Goffman, 1959; Shulman, 2017), people adopt different "personas" while performing different functional roles. However, these personas are all variants of the *self*, and this makes them fundamentally different from the characters that are portrayed when people adopt character roles in the theatrical arts (e.g., Romeo).

A major difference between the two categories of the arts with respect to functional roles is that the narrative arts deal mainly with *antagonistic* roles (and thus competition), whereas the coordinative arts generally deal with *coordinative* roles (and thus cooperation). In addition, the narrative arts depict antagonistic roles in the context of simulated storyworlds, whereas the coordinative arts work with coordinative roles in the real world of the participant. (Theatrical dance forms like ballet combine both types of functional roles). The narrative arts often depict antagonistic relationships between characters in conflict and how these conflicts are resolved with respect to the welfare of the protagonist of the story (Abbott, 2008; Boyd, 2009). This is played out in terms of standard plot sequences (see later). Antagonistic roles vary with respect to emotional valence from the standpoint of the protagonist, generally along the spectrum of friend (positive) to foe (negative). Central to any plot are negative-valenced characters who are antagonistic to the protagonist (Murphy, 2015; Propp, 1928/1958). These are foes or villains who either chronically oppress the protagonist or who thwart his or her attempts to achieve personal goals in a situational manner. Such antagonists are generally people, but they can also be supernatural beings, elements of nature, social mores, technological devices, or even the protagonist himself or herself in stories that highlight people battling with internal conflicts. While antagonistic characters are requirements of just about any type of story, positive-valenced characters are optional but common elements. These are friends and enablers who support the protagonist in his or her goal achievement (Propp, 1928/1958), including sidekicks, fairy godmothers, and gods. Both negative and positive characters span the social hierarchy from friends to parents to children to governmental officials to religious figures to supernatural entities and beyond.

In contrast to this focus on the valence of social relations (friend vs. foe), the coordinative arts deal with the hierarchical structure of social relations, as associated with the power hierarchy and division of labor in a society (Lomax, 1968). Coordinative roles include those of leader, follower, and coequal, reflecting the social status of the self in relation to others. In coordinative arts such as music and dance, these roles and status relationships are enacted in performance and therefore become *symbols* of status hierarchies in the society as a whole. The performance arrangements of music and dance thus reflect the hierarchical structure of social relations more generally (Lomax, 1968). For example,

circle dances represent an egalitarian arrangement of the participants, while a couple dance like a tango embodies a clear gender-related stratification between a male leader and a female follower.

Antagonistic and coordinative roles overlap in many contexts. For example, some coordinative rituals focus on conflicts and antagonisms (Liénard & Boyer, 2006), just as in the narrative arts. After all, social hierarchies can create competitive arrangements among people. Conflict-based coordinative rituals might be performed to overcome social conflicts within the group as well as between-group conflicts related to warfare, not to mention less social phenomena like illnesses and droughts. In such contexts, coordinative rituals are problem-solving and conflict-resolving strategies, in the same manner that protagonist actions are within narratives. The aim is to reduce distress and restore a state of balance and stability (Dissanayake, 2017). However, coordinative rituals have many other functions related to group stabilization that have no explicit connection with conflict (Legare & Watson-Jones, 2015), such as recounting origins stories, formalizing marriages, celebrating births, marking annual cycles such as the harvest, among many others. Coordinative rituals are mainly aimed at stabilizing existing social hierarchies, rather than disrupting them. Conflicts arise related to status hierarchies, and so coordinative rituals can be used to smooth out conflicts and restore the status quo. For example, during times of upheavals, such as when leadership changes occur, coordinative rituals function to make transitions smooth and orderly.

A second overlap between antagonistic and coordinative roles relates to the fact that characters in a storyworld experience the same types of social hierarchies that people do in the real world, since stories are often meant to be realistic depictions of worlds that audience members can relate to and mentally engage in. Just as in our own world, the storyworld of Romeo and Juliet contains social hierarchies comprised of parents, friends, love interests, servants, religious figures, governmental officials, and townspeople, among others. This highlights the fact that there is something strikingly *recursive* about theatre viewing, since some version of our own social world is embedded within the storyworld that we see depicted on the stage of the theatre that we are sitting in. We ourselves are attending a performance of the late 16th century play *Romeo and Juliet* in the real world, but the storyworld that we are viewing on the stage is a microcosm of the real world, and it contains the same types of social hierarchies—and thus the same types of antagonistic and coordinative roles—that we find in the real world. Perhaps the biggest difference is that the theatre goer experiences her own world in a first-person manner as an active participant, whereas she experiences Romeo and Juliet's world in a third-person manner as an outside observer. However, the kinds of social hierarchies and coordinative roles that are played out in both worlds are often times quite similar.

Self/Other Orientation

The narrative arts are based on the "other," since stories are presented through the lens of characters, and observers relate to these characters in a third-person manner, whether these characters be narrated or acted out. The caveat here is that protagonists often show a strong psychological resemblance to the self and therefore serve as *self-proxies*. As a result, we can relate to protagonists as we do ourselves, leading us to sympathize and empathize with them. I will refer to this as the *other-as-self* function of literary characters. If characters were not similar to ourselves, the narrative arts would not be able to serve their primary cultural function as devices for behavioral modeling and social learning. As Storm (2016) points out:

> It is not only that authors invent characters in order to tell a story, but that the figures they create become vehicles for our own experience as observers or as readers. Characters in drama and in fiction are made to look and be like us (a basic feature of the "real person" concern) and as such they represent us and, in effect, stand in for us . . . Characters can, in short, be our experiential surrogates, just like we want them to be. (p. 95)

The coordinative arts are quite different. Due to their participative nature, they are about the self, not about surrogates of the self. However, this focus on the self is not about the individual as an isolated entity but about the relationship of the self to the group (i.e., functional roles). Another way of describing this difference between the two categories of the arts is by saying that the narrative arts—due to their general orientation towards single protagonists—are focused on the individual, whereas the coordinative arts are focused on the collective, through the banding together of individuals in participative rituals. The two categories of the arts are united in their emphasis on social relations. The narrative arts do this through their *simulation* of social relationships—both positive and negative—in stories, while the coordinative arts do this through their *stimulation* of interpersonal interactions, generally highlighting the positivity of this interaction during group rituals. Overall, both categories of the arts are inherently linked with social relationships and with the functional roles that people play during interpersonal interactions.

Core Psychology

The core psychology of the narrative arts is based on character psychology. People perceive the narrative arts in a third-person manner, mediated by characters engaged in a series of social scenarios that make up the plot sequence in the storyworld. Even though these characters explicitly represent "others," the protagonists of stories are generally designed to be self-proxies (Storm, 2016). In

other words, they are similar enough to the intended perceivers of the narrative arts that such perceivers can relate to them and experience their situations and emotions in a vicarious, yet personally meaningful, manner. This takes advantage of the aforementioned other-as-self cognitive mechanism. The psychology of the narrative arts ultimately relates to the problem-solving process (Mandler, 1984; Rumelhart, 1975; Stein & Glen, 1979), whereby the protagonist engages in attempts to resolve antagonisms in a manner that promotes his or her welfare. In fact, the major social function of the narrative arts is to simulate strategies for coping with social threats and conflicts (Abbott, 2008; Boyd, 2009; Mar & Oatley, 2008), typically in a manner that is prosocial, rather than purely self-serving. This is an important socializing function of the narrative arts (Smith et al., 2017).

The core psychology of the coordinative arts is quite different. It is based on the psychology of coordinative roles in social networks, hence dealing with social status, leadership roles, and social hierarchies. In contrast to the third person, simulative aspect of the narrative arts, the coordinative arts deal with first-person social interactions in participative rituals. Therefore, they emphasize direct interpersonal interactions and the psychological processes that support them, including the manifestation of status relationships among individuals in social networks. This can span from the most egalitarian relationships to the most stratified leader/follower relationships. Status in the coordinative arts can, as with the narrative arts, also deal with the valence of social relations, such as whether two individuals are friends or foes (i.e., antagonistic roles). As such, coordinative rituals can serve as a forum for conflict resolution and catharsis for members of a society or social group during times of stress, either internal or external. Such catharsis is of course a critical part of the emotional response to the social conflicts that are depicted in the narrative arts, as pointed out long ago by Aristotle (335 BCE/1996). As mentioned earlier, the recursive aspect of the narrative arts ensures that characters experience social hierarchies and coordinative roles in their storyworlds that are similar to those that perceivers do in the real world. The settings of stories generally have depictions of social hierarchies and coordinative roles, and it is conflicts at these levels that contribute to the antagonism of a story (Boyd, 2009).

Overall, both categories of the arts deal psychologically with social relations in a supervenient manner. The narrative arts simulate the antagonism between self-proxies and antagonistic individuals having competing interests in a storyworld as a way of modeling problem-solving strategies that are played out in plot sequences. The coordinative arts serve as a forum for collective face-to-face interactions between people in a way that reflects and reinforces the social hierarchies of a society and that dampens social conflicts. These are often cooperative interactions. The entrainment that results from such types of group synchrony has a long-term impact on an individual's commitment to the group and his or her willingness to engage in cooperative endeavors with

group members. When they are grounded in antagonism and competition, their goal is generally to smooth out conflicts and restore social stability.

Structure: Plot Structure Versus Leadership Structure

The previous section covered role playing, and the current section deals with the structures through which these roles are played out. The narrative arts are driven by plot structure, whereas the coordinative arts are organized according to a group's leadership structure. In addition, at the level of temporal organization, the narrative arts emphasize sequentiality (through plot structure), whereas the coordinative arts emphasize simultaneity (through synchronized action).

The narrative arts are driven by plot structure, which is a sequence of episodes affecting the livelihood of the protagonist of a story (Boyd, 2009; Propp, 1928/1958). Plot structure is propelled by a "central conflict," which reflects the overarching antagonism between a protagonist and one or more antagonists whose goals are in conflict with the protagonist. The structure is *endpoint-driven*; everything leads to the final resolution of the conflict, as seen from the perspective of the protagonist (Abbott, 2008). A narrative is not considered a real story until the situation is resolved for the protagonist. In most cases, the protagonist is victorious; in tragedies, the protagonist dies or suffers some irreversible setback. In both cases, the resulting outcomes are enduring and often times inalterable.

In contrast to this, the coordinative arts are driven by leadership structure, reflecting the status hierarchies of a society and its division of labor. This is played out in terms of processes related to leading, following, and mutuality in the achievement of interpersonal coordination in performance. This leadership structure in performance serves as a symbol of social relationships outside of the performance. This can vary from a strong leader/follower stratification to a far more mutual and egalitarian structure in which all performance parts are the same (e.g., unison singing) and in which nobody explicitly assumes a leadership role. In contrast to the endpoint-driven dynamic of the narrative arts, the coordinative arts are experience-driven. In other words, it is *the very process of coordinating with others*—the experience of simultaneity that results from entrainment—that is the goal of the event, since this has a positive psychological impact on an individual's feeling of affiliation with others in the group and thus his or her sense of commitment to the group (Brown, 2000; Launay et al., 2016; Reddish et al., 2013). In the end, the short-term intervention of group synchrony and shared emotional experience has the long-term benefit of supporting cooperative endeavors by the group.

The Performance of Roles: Storytelling Versus Entrainment

For the narrative arts, the performance of antagonistic roles occurs via the third-person depiction of characters in oral and written forms of storytelling as well as in the visual arts. A second manner in which it can occur is via fictional first-person embodiment of characters by actors in the theatrical arts. Such character portrayal can also occur, but in a far more transient manner, when storytellers embody characters during the dialogue sections of a recited story (Plato, 380 BCE/1968), as seen in the reading of fairy tales to children (Brown, 2017). Character portrayal takes advantage of what I refer to as a "self-as-other" mechanism of personal mimicry, which is the flip side of the "other-as-self" mechanism for literary characters being self-proxies. The representation of antagonistic roles in the narrative arts—whether through third-person depiction or fictional first-person portrayal—occurs as a simulation of social interactions in a storyworld, as mediated by the story's cast of characters. Audience members, in general, do not interact with such characters, since the latter reside in a storyworld distinct from real world of the audience members (Oatley, 1999).

While performances of the coordinative arts can indeed occur to a nonperforming group of audience members, the common pattern in traditional societies is for such rituals to be highly participative, engaging many if not all members of the group (Dissanayake, 1988, 2017; Schechner, 2013). The performative aspect of the coordinative arts is the kinetic component of performance itself, as seen in musical and dance rituals, where the timing of production leads to various forms of interpersonal entrainment. During such performances, the participants can enact the coordinative roles of leader, follower, or coequal. Compared to the character portrayal that occurs during acting, these coordinative roles are all personas of the self, except in the theatrical case of narrative dance. The outcome of this role playing is some form of entrainment (Chauvigné et al., 2014; Keller et al., 2014), either external entrainment to a beat (mainly in dance) or mutual entrainment among performers (both in music and dance). In summary, in the narrative arts, the performance of interpersonal roles is *simulated* (by storytellers or actors), whereas in the coordinative arts, it is *enacted* (by participants).

Functional Considerations

The two categories of the arts share the supervenient outcome of social cooperation. The simulations of events, people, and objects that are presented in the narrative arts have the ultimate outcome of reinforcing prosocial norms and social hierarchies. Characters in stories are rewarded for prosocial behaviors and are punished for self-serving and antisocial behaviors. The simulations of storytelling serve important evolutionary functions for human societies by conveying critical information about prosocial norms, social networks, cooperative

behavior, and strategies for coping with threats and conflicts that are meant to carry over to the real world (Bietti, Tilston, & Bangerter, 2018; Dunbar, 2014; Mar & Oatley, 2008; Sugiyama, 1996, 2017; Smith et al., 2017; Weissner, 2014). Even when stories are historiographically based on actual events, such as those that underlie the origins of a culture and the group's ancestral figures, the stories are idealizations of such events, as seen from the perspective of the ingroup.

The coordinative arts reinforce social cooperation in a very different manner. Instead of being simulative, they are participative. The coordination that results from group movement and group sounding produces a sense of affiliation with group members and thus a greater willingness to cooperate with others and make personal sacrifices on behalf of the social group. This operates through an increase in feelings of trust, affection, affiliation, attachment, mutuality, empathy, and altruism (Dissanayake, 2006, 2017). The short-term intervention of synchronized kinesis and emotional experience with others has the long-term benefit of supporting cooperative endeavors with them. Overall, we see two routes to cooperation through the arts: a cognitive route based on the simulation of prosocial behaviors by characters living in a storyworld, and a behavioral route based on participative synchronization with members of one's own social world and the psychological consequence that this has on an individual's willingness to cooperate with them. In both cases, the result is a dampening of social conflicts, either in a simulative manner of prosocial modeling or in a behavioral manner of shared emotional experience at the group level. As such, the arts are group-adaptive behaviors that contribute to the stability and viability of social groups. The paradoxical feature of the narrative arts with respect to cooperation is that the individualist good-for-protagonist outcome that is depicted in the storyworld is translated into a collectivist good-for-the-society outcome in the real world with regard to prosocial norms. Hence, even though stories depict individuals trying to improve their own welfare, the social messaging of stories is that people should do this in a cooperative manner that is respectful of others' interests and that ultimately works for the greater good (Smith et al., 2017).

I would argue that a shared neurocognitive process that underlies both categories of the arts is *mentalizing* (also called theory-of-mind). The narrative arts are experienced in a simulative fashion via the depiction of characters engaged in social interactions in a storyworld. The experience of these artforms requires that perceivers engage in third-person processing via mentalizing with the characters in the story in order to understand their desires, intentions, goals, and emotions (Boyd, 2009; Mar & Oatley, 2008; Oatley, 1999). This is the classic view of mentalizing in the psychology and neuroscience literatures as third-person perspective taking (Frith & Frith, 2003, 2006; Nichols & Stich, 2003; Ruby & Decety, 2004). However, mentalizing is also a critical process for the face-to-face social interactions that occur during participative musical and dance rituals. In particular, coordination with others requires a process of

predictive mentalizing about their intentions, goals, and actions. This is as important in polarized leader/follower interactions as it is in highly mutual and egalitarian forms of dancing and music-making. Coordination through entrainment requires a large degree of intuition about what another person intends to do in order for the outcome to be coordinated. Hence, we could think of this process as being "coordinative mentalizing" (or perhaps "cooperative mentalizing"), as seen as well in nonsynchronized cooperative behaviors, such as evolutionary games.

From a neural standpoint, the cortex of the temporoparietal junction (TPJ) might be a good candidate for a brain area that interfaces the mentalizing components of the two categories of the arts. This comes about not only from the TPJ's established role in theory-of-mind and narrative processing (AbdulSabur et al., 2014; Denny, Kober, Wager, & Ochsner, 2012; Mar, 2011; Silbert et al., 2014; Yuan et al., 2018) but also from work showing that the TPJ serves an important role in cooperative and altruistic behaviors, mainly in studies of economic decision-making (Hutcherson et al., 2015; Morishima, Schunk, Bruhin, Ruff, & Fehr, 2012; Park et al., 2017; Strombach et al., 2015). According to Strang and Park (2017), "[M]entalizing processes are important for cooperative behavior, since in order to cooperate with another person, a representation about the other person's preferences and beliefs is essential" (p. 234). In this regard, TPJ activity is much stronger during prosocial behaviors than during selfish or antisocial behaviors. The TPJ is proposed to override selfish impulses during social decisions.

This may also occur during direct physical interactions between individuals in the context of coordinative behaviors. Chauvigné, Belyk, and Brown (2018), in a functional MRI experiment, had participants engage in two-person physical interactions using the two hands. One person (the participant) was being scanned, while the experimenter interacted with him or her while standing next to the bore of the MRI scanner. The study compared the participant being either the leader or follower of the joint physical interaction. It also examined a situation of mutuality, where the movement patterns and roles were equal between the participant and experimenter. This latter condition was associated with activity in the brain network for cooperation, including the TPJ and the ventral striatum, the latter being associated with the presumed pleasure of cooperating. This is the first study to look at cooperative mentalizing at the level of synchronized physical interaction. Overall, the TPJ is a region of the brain that interfaces the simulative aspect of perceiving characters in the narrative arts and the participative aspect of interacting mutually with others in coordinative behaviors. The observation from the cooperation literature that the TPJ is associated with prosocial behaviors through the overcoming of selfish impulses fits perfectly with the view expressed here that there are two distinct routes to cooperation through the arts, a cognitive route for the simulation of prosocial actions by characters in the narrative arts, and a behavioral route for participative

synchronization with group members in the coordinative arts. It appears that these seemingly disparate behavioral processes converge on neural systems for prosocial mentalizing in the TPJ (and potentially other brain areas as well). While mentalizing is clearly mediated by a large network of areas, the TPJ might be associated with a "predictive" component of mentalizing that allows people to infer the intentions of others (Bara, Enrici, & Adenzato, 2016), whether this be of characters in a story or direct interaction partners.

A different viewpoint argues that the so-called mirror neuron system (MNS) is responsible for processes described in the Narration/Coordination model, such as the sharing of meaning between people and the decoding of their intentions (Fogassi, 2013). Overy and Molnar-Szakacs (2009) proposed a MNS perspective on music, arguing that this system mediates processes related to synchronization, agency, and shard musical experience. Hence, an alternative to the TPJ model that I have proposed in this article is one in which the MNS is the point of nexus between narration and coordination. Given that narrative tasks and coordination tasks are investigated in very different literatures, it would seem that an empirical test of whether the mentalizing system or mirror system underlies these processes would depend on designing experiments that contain both types of tasks, either alone or in combination. For example, using video stimuli of a person, a participant could engage in a mentalizing task with the person in one condition (e.g., infer their behavioral intentions in a particular scenario) as well as perform a joint motor task with them in another condition, like tapping or clapping in synchrony. While these two types of tasks are quite different, the use of a "conjunction" analysis could identify the presence of shared activations between them. A better, through far more challenging, paradigm would be to do this using the two-person scanning arrangement of Chauvigné et al. (2018) so as to enhance processes of predictive mentalizing that might not be as strong with a video stimulus of a person.

Conclusions

The Narration/Coordination model of the arts attempts to provide a unifying perspective on the arts with regard to psychological processing and social functions. It divides the arts into the two categories of narrative arts and coordinative arts. The narrative arts simulate social scenarios depicting people within storyworlds having conflicting interests, as played out according to plot schemas. Observers process these simulations of antagonistic situations in a third-person manner by vicariously experiencing the psychophysiological states of the characters depicted in the story, especially the protagonist. As a result, they learn about strategies for coping with social threats and about the benefits of prosocial behaviors. The coordinative arts stimulate direct social interactions by means of participative performance rituals employing music and dance, engendering group emotional expression through processes of sensorimotor

entrainment. Such rituals reinforce status relations and social hierarchies among the people of a social group, spanning from egalitarian to stratified, thus reflecting and stabilizing the division of labor in a society. These two categories of the arts are united by their requirement for mentalizing, either about the characters depicted in stories in the narrative arts or about one's interaction partners during participative rituals in the coordinative arts. As a result of this, both categories of the arts capitalize on the mentalizing network of the brain, including the cortex of the temporoparietal junction. The arts share an overarching emphasis on supporting social cooperation—whether this be through the simulation of prosocial scenarios or the stimulation of interpersonal synchrony—hence making them group-adaptive behaviors.

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Notes

1. This classification is very similar, but not identical, to a related scheme that a colleague and I presented in another publication (Brown & Dissanayake, 2018), in which we classified the arts into "representational" and "performing" arts, where theatre and narrative forms of dance sit in both categories. What I am calling the narrative arts here map perfectly onto the representational arts in Brown and Dissanayake (2018). However, what I am calling the coordinative arts here covers a subset of the performing arts in that article (see the "performing arts" label in Figure 1 of this article). The main difference is that theatre is not considered as a coordinative art here, while it is considered as a performing art in the other publication and in Figure 1.
2. Compared to narration about other people, narration about the self occurs in a first-person manner, as happens during conversation. However, we do not typically consider such storytelling as an artform. Exceptions include forms that have emerged quite recently in the scheme of human history, such as stand-up comedy and autobiographical performance works like Spalding Gray's *Terrors of Pleasure* or acted-out equivalents like *The Belle of Amherst* about Emily Dickinson.

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