

1 What Is Co-Operative Action, and Why Is It Important?

A set of unique practices for the construction of action underlie many diverse forms of human social and cognitive life: language, social organization, tools, pedagogy, sharing experience, the progressive differentiation of human societies and cultural worlds, etc. New action is built by decomposing, and reusing with transformation the resources made available by the earlier actions of others. We thus inhabit each other's actions. Such co-operative action differs from cooperation in that it is not restricted to mutual aid; more crucially it provides, in the midst of action itself, a systematic mechanism for progressive accumulation with modification on all scales, from chains of local utterances, through tools, to the unfolding differentiation through time of human social groups. After introducing co-operative action, an overview of the book's sections and chapters is given, followed by the conventions used for transcription.

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This book investigates a range of phenomena that organize the pervasive, and in many ways unique, practices that human beings use to build action in concert with each other, and that are central to their cognitive and social life. These include:

- Language.
- Complex tools and other material artifacts, including the open-ended construction of new types of objects.
- The diversity of human languages, cultures, forms of social organization, and built environments.
- Distinct forms of social learning and pedagogy.
- Intense, co-operative social organization. This extends from the collaborative actions of speakers and hearers within utterances, through

the co-operative construction of social action by those who are copresent to each other, to encompass social ties that extend beyond kin to link into courses of common action groups widely dispersed in both space and time.

- Rich, changing experiential lives that can be made visible to others, and become organized into different forms of shared experience.
- The ability to accumulate social and material change through time, to reuse with transformation resources and solutions found by our predecessors.

In contemporary research these apparently separate aspects of what makes us human are typically investigated in isolation from each other, indeed within separate academic disciplines. Here, I want to explore the possibility that all of these phenomena are different manifestations of the distinctive ways in which human beings build co-operative, accumulative action in concert with each other.

The clearest way to demonstrate what will actually be examined, what I will call *co-operative action*, is with a specific example (which will be looked at again in Chapter 2). The talk that occurs in Figure 1.1 was recorded by Marjorie H. Goodwin while she was doing fieldwork with African-American children playing on the street. In line 1 Tony tells Chopper, “Why don’t you get out my yard.” to which Chopper replies, “Why don’t you make me get out the yard.”

A number of quite simple observations can be made about what occurs here.

- First, Tony’s action, what he does in line 1, is built by joining *different parts* together (most simply the different words he uses) to create something that cannot be found in any of the parts in isolation.
- Second, Chopper builds his new action in line 2 not from scratch, but instead by *performing systematic operations on the materials found in Tony’s action*.
- Chopper’s operations include (among others):
 - *Decomposing* the combinatorial arrangement created by Tony. Chopper divides Tony’s utterance into two separate pieces (“why don’t you” and “get out my yard”).
 - He *reuses* these parts, incorporating them as elements of his own utterance.
 - In rearranging these parts he *adds something new* to them: “*make* me.”

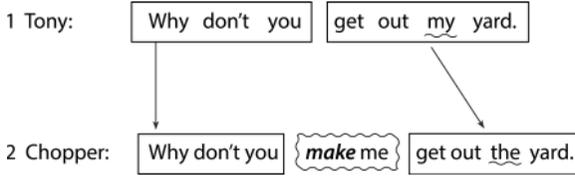


Figure 1.1 Building new action by decomposing and reusing materials created by earlier actors.

- While using resources provided by his opponent Chopper *transforms* them into something new and quite different. He is able to respond to Tony's provocation and request with a rebuttal of that action, contesting Tony's right to perform it by reusing with transformation of Tony's own words.

This process of building something new through decomposition and reuse with transformation of resources placed in a public environment by an earlier actor is what I am investigating as co-operative action. As all of the materials to be examined later in this book demonstrate, it is pervasive in the organization of human action. The ability of this process to endow human history with its unique accumulative power, that is, as something progressively shaped by a consequential past, while remaining both contingent and open-ended, is captured by Merleau-Ponty's (1962:88) observation that "history is neither a perpetual novelty, nor a perpetual repetition, but the unique movement which creates stable forms and breaks them up."

For simplicity the term *substrate* is used to point to the earlier utterance, or another kind of sign complex (a hopscotch grid, for example), that is the focus of transformative operations being used by another actor to create a next action.

The distinctive organization of co-operative action is by no means restricted to language. The tools below the line in Figure 1.2 are all constructed by combining different kinds of parts to create a whole that cannot be found in any of the parts in isolation.

In the first tool below the wavy line an ax is created with a stone, a wooden handle, and leather thongs binding the stone to the handle. The ax cannot be found in any of the parts in isolation (e.g., when decomposed it becomes a stone, thongs, and a piece of wood). Like the sentences on the left, the ax exists as an encompassing pattern that gives organization to the elements that compose it.

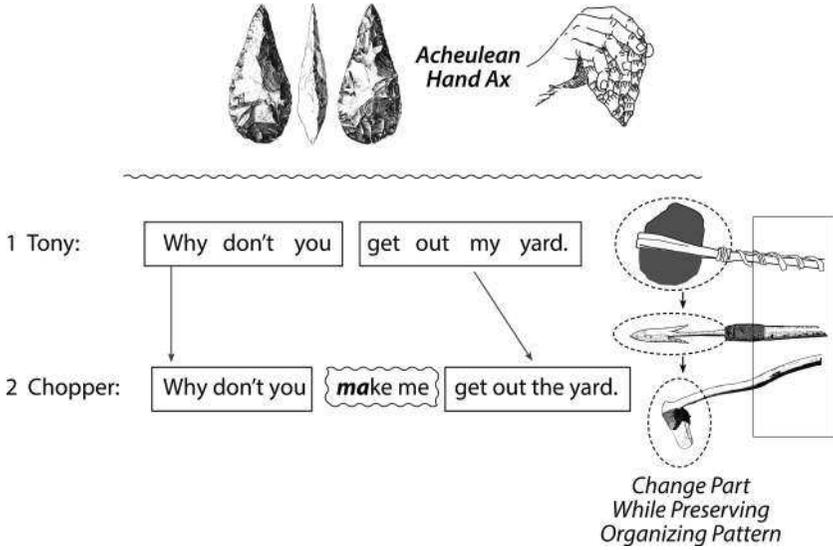


Figure 1.2 Building new action by performing accumulative transformations on materials created by earlier actors.

The constitution of the ax as a web of relationships makes possible systematic, incremental modification of the elements that compose it. The ax can be transformed into a spear by retaining the patterned relationship of *Stone + Handle + Hafting* (some technique for attaching the stone to the handle) while modifying elements within the pattern – substituting a blade or point for the stone, and glue for the thongs – to create something that is simultaneously both new, and visibly inherited from its predecessors. Darwin's (1979) “descent with modification” provides an apt description. As in the exchange between Tony and Chopper, new structures for the accomplishment of consequential action are progressively created by performing systematic transformative operations on what already exists.¹ From this perspective, note that the Acheulean hand ax, the signature technology for most of human history, did not undergo significant transformation for more than a million years. It was not constructed from different kinds of parts,² and thus

¹ See Roth (1996) for examination at a microlevel of how children's artifacts embody resources found in past activities while constituting the point of departure for future action.

² Tools made from different parts, such as bead necklaces, did exist earlier. It has been argued that what was crucial for the flourishing of new tools in the Middle Stone Age in Africa was hafting (Wadley, 2015; Wynn, 2009).

would not be available for the accumulative transformations used to build both Chopper's talk and the tools in Figure 1.2.

1.1 Why Hyphenate Co-Operative?

Cooperation is a most important focus of research in biological anthropology (and in biology in general, with its importance recognized by Darwin). The scale of human cooperation exceeds that of any other animal, extending far beyond kin ties. Cooperation makes possible crucial social institutions such as the division of labor and trade (Boyd and Richerson 2009; Richerson and Boyd 2005). Moreover, humans have the ability to create societies and tools that progressively and accumulatively incorporate solutions to crucial problems found by those who preceded us. Both cooperation and accumulation are central to the phenomena to be investigated in this book, and indeed my interest in these topics was sparked by encounters with biological anthropologists, and by the work of Ed Hutchins (1995).

However, while I have deep respect for their research, the phenomenon being examined in this book is not *cooperation* in the way biological anthropologists conceptualize and investigate it. Boyd and Richerson (2009) state that they “use the word cooperation to mean costly behavior performed by one individual that increases the payoff of others.” Their definition is teleological in that it focuses on the purpose of the action, specifically, that the action must benefit another. Moreover, by definition cooperation is costly for the party performing the action; that party might achieve greater benefit as an individual by not performing the cooperative action. This raises the question why that individual would incur such cost, and thus decrease his or her individual chances of survival. Conceptualizing cooperation in this way is consistent with very important research in biology extending over generations on phenomena such as altruism. It raises in its own terms a range of interesting problems about how a co-operative society can avoid being undermined by defectors who receive the benefits of others' costly cooperation, but do not make contributions of their own; the importance of honest signals that can be trusted, etc. To explain the emergence over the last 2 million years of large, cooperative societies, Boyd and Richerson (2005) look for “important changes that occurred in human psychology.”³

³ A focus on cooperation in terms of relevant mental states and intentions is also the focus of analysis by philosophers investigating how language is understood as action (Grice,

What is being examined here is not cooperation as it is conceptualized and analyzed within biological anthropology. In Figure 1.1 neither Tony nor Chopper is incurring any cost to himself to benefit the other. Moreover, unlike much work in conversation analysis that stresses the importance of a pervasive preference for agreement (Sacks1987 [1973]) for the constitution of human solidarity, Chopper and Tony are *not* working co-operatively with each other to achieve agreement or alignment, but instead are actively creating opposition through strong confrontation, and this occurs massively in their peer group (Goodwin, 1990; Goodwin and Goodwin, 1987).

However, despite the absence of any teleological focus on mutual benefit, Chopper is creating new action by operating on, and transforming, the detailed organization of Tony's utterance, a process that Du Bois (2014) analyzes as dialogic syntax.

The hyphen is used in "co-operative action," first, to mark that what is being examined is not the same as *cooperation* as it is investigated in much important research in fields such as biological anthropology (though there is a strong family resemblance between the two perspectives, in that both focus on how people build action by working together), and, second, to emphasize the importance of performing specific *operations* (most importantly decomposition and reuse with transformation) on materials provided by another.

Tony and Chopper co-operate together by performing operations on resources they are working with together. This focus on building action by performing specific operations on shared resources is also why I am not using the term "joint action" to describe this process. Chopper and Tony build strong oppositional positions by using the same resources; however each builds a distinctively different action. Chopper's response to Tony is co-operative, but his challenging insult is not something that he and Tony construct together as a joint action.

It is not being argued that the practices being examined here never lead to mutual benefit. Moreover, a co-operative action may incur cost to the party performing it. Clear examples will be found in subsequent analysis of interaction with a man with severe aphasia. Such cases clearly fall within the scope of what was described earlier as *cooperation*. Instead, the

1975; Searle, 1990). See Duranti (2015) and Rosaldo (1982) for a critique from the perspective of anthropology. I am not giving page numbers for specific quotes because I am using a version of the article on the Web site for the *Philosophical Transactions of the Royal Society* that does not divide the text into pages: Culture and the evolution of human cooperation | Philosophical Transactions of the Royal Society B: Biological Sciences.

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organization of co-operative action is agnostic about mutual benefit and solidarity. Benefit to the other, and cost for the party performing the action, are possible outcomes of the process of building action co-operatively, but not among its defining characteristics.

What is being focused on are not psychological states that make human cooperation possible, but instead public social practices that human beings pervasively use to construct in concert with each other the actions that make possible, and sustain, their activities and communities.

The practices used to build co-operative action are, however, most relevant to a range of issues that biological anthropologists recognize as deeply tied to human evolution, cultural evolution, and cooperation. Thus Boyd and Richerson note the uniqueness and central importance of “cumulative cultural evolution,” the ability to “accumulate adaptive information over many generations” (2009:8). Were human societies not able to accumulate solutions found by their predecessors, they could not successfully adapt to extreme environments such as the arctic. This accumulative ability, what Tennie and his colleagues (Tennie et al. 2009) call the ratchet effect, is found in only a most attenuated form in other species. For Boyd and Richerson what makes cumulative cultural evolution possible is social learning.

Co-operative action provides an alternative, quite general mechanism, for both accumulation and incremental change, one lodged within the interstices of mundane action itself. Not only does subsequent action include within its own organization materials created by predecessors, but it also transforms those materials in the ways required for adaptation to current circumstances. This is made possible by the ways in which participants not only attend to, but actively participate in, the detailed organization of each other’s action as it unfolds through time.

1.1.1 *The Conceptualization of Cooperation in Animal Experiments*

One way to clarify the distinction between cooperation and co-operative action, and to see how this is relevant, is to look briefly at how cooperation has been conceptualized in some experiments with animals. Plotnik, Lair, Suphachoksakun, and de Waal (2011) studied cooperation in Asian elephants with an experiment in which two elephants had to pull both ends of a rope simultaneously to move a platform containing food to them. This could not be done by a single individual; it required cooperation in the form of coordinated action. Though being tested with a new animal, elephants, their experiment was a variant of a classical experimental paradigm

that had been used to study cooperation in primates since the 1930s. The experiment is designed to probe “the cognition underlying coordination toward a shared goal. What do animals know or learn about the benefits of cooperation” (Plotnik, Lair, and Suphachoksakun, and de Waal, 2011:5116). This work provides an exemplar of how cooperation in animals has been both conceptualized, and experimentally probed.

The experiment with the elephants was a resounding success. Not only did both animals pull their individual ropes simultaneously, but if the arrival of one partner was delayed, the other would wait to pull until the partner arrived. The results were interpreted as “demonstrating an understanding of cooperation” (Plotnik, Lair, Suphachoksakun, and de Waal, 2011:5116).

The experiment provides an elegant and extremely clear picture of cooperation as both an analytic concept, and a way of acting in concert with others. However, the actions of the elephants differ in most important ways from what is here being investigated as co-operative action. While the two elephants perform the same action in unison for mutual benefit, neither performs transformative operations on the partner’s action. There is absolutely no decomposition and subsequent reuse in modified form of materials provided by the partner, and thus no accumulation. Reuse with modification leading to the continuously unfolding accumulation of diversity, as well as the ability to incorporate solutions found by our predecessors, sits at the heart of human action, culture, social organization, and knowledge. This is not present in the forms of cooperation conceptualized and probed in this experiment.

I am not in any way denying the possibility of co-operative action in some animals,⁴ and indeed have seen some examples of it in videos made by Anne Russon of formerly captive Bornean orangutans in a sanctuary where they were being rehabilitated, so as to be able to return to the forest.⁵ My focus here is on distinguishing analytically, in as clear a way as possible, the differences between cooperation and co-operative action. As is apparent from almost all of the analysis in this book, I believe that not only cooperation, but co-operative action with its accumulative power, as well as the way

⁴ Here I am restricting the discussion to flexible action in interaction and excluding the biologically inherited forms of intricate cooperation and coordination found in, for example, the social insects.

⁵ I do, however, think that co-operative action is more rare among animals, and this may be central to why they have not had the flourishing of diverse cultures, tools, etc., that characterize the human species.

in which it enables us to inhabit the actions of others, is absolutely central to what makes us human.

More generally, as formulated by Carballo,

From a contemporary biological perspective, much of human uniqueness is said to rest in our abilities to cooperate at larger scales and *in qualitatively different ways* than all other animals, including nonhuman primates (2013:3; my italics).

Co-operative action provides one precise specification of the specific *qualitative* differences that give human cooperation its unique power. With its combinatorial organization, co-operative action provides an armature, a framework for assembling diverse resources, that enables multiple parties to contribute different materials to common courses of action in ways that preserve with modification contributions provided by earlier actors.

1.2 Phenomena Implicated in Co-Operative Action

The study of co-operative action sheds light from a new perspective on a range of phenomena relevant to human cooperation, language, interaction, and social organization more generally.

1.2.1 *Language*

As noted earlier, in Figure 1.1 Chopper decomposes Tony's utterance into separate parts, and then uses these same units, while adding to them, to create a new pattern that constructs a quite different action. Here, grammar, the ability to operate on syntax created by someone else, and creatively manipulate the patterns they created to build new action precisely adapted to emerging local contingencies, constitutes a powerful form of social practice. Chopper uses syntax to navigate, and reshape for his own purposes, the unfolding social events in which he is embedded. Language structure, as a contingently unfolding form of co-operative action (Hopper, 2011), constitutes one of the most pervasive practices used by human beings to build locally relevant social organization. Simultaneously, this process reveals how the stream of speech can be divided into relevant linguistic units, some of the ways in which these units can be combined to create larger grammatical structures, the different kinds of units that can occur within a particular grammatical slot, etc. Within co-operative action language structure and social organization are deeply intertwined.

Co-operative action is relevant to human language in another way as well. All of the lexical items used by Tony and Chopper are what (Peirce 1998a:9) identifies as symbols, signs recognized through convention: some form of “agreement” or shared practice. Indeed Peirce notes that the Greek word meaning “symbol” was often used to mean convention or contract. A contract, like a handshake, is a form of co-operative action. So are symbols. The ability to recover the meaning of a symbol by performing the proper operations on appropriate materials, such as sounds in the stream of speech or a written text, is not universal but something constituted within a relevant community, such as the speakers of a particular language.

The following provides a vivid example of how the typically unnoticed work required to make appropriate sense of a single written letter must be mastered as a set of transformative practices. The author, herself a neuroscientist, has suffered a stroke in the left hemisphere of her brain. Here she is working with her mother to try to learn to read again:

Together we embarked upon the most arduous task I could imagine: teaching me to make sense of the written word. It befuddled me how she could think these squiggles were significant. I remember her showing me an ‘S’ and saying, “This is an ‘S,’” and I would say, “No Mama, that’s a squiggle.” And she would say, “This squiggle is an ‘S’ and it sounds like ‘SSSSSS’.” I thought the woman had lost her mind. A squiggle was just a squiggle and it made no sound. (Taylor, 2008: 101)

By using language to construct action Chopper and Tony in Figure 1.1 trust each other to perform the necessary operations on the sounds being spoken that are required to recover appropriate meaning unproblematically, that is, to operate co-operatively on the talk that each is producing.

Co-operative action sits at the absolute heart of human language in that it is a constitutive feature of the distinctive forms of semiosis that make symbols, and thus human language, possible.

Human beings are the only animals on the planet that use symbols. Thus a key question posed for not only the development of human cognition, but human evolution itself, is how symbols emerged within our species. In Chapter 20 the meaning-making practices of an aphasic man, who was forced to rely largely upon deictic and iconic gestures to build meaning and action in concert with others, will be used to explore the possibility that co-operative action creates an environment that would first promote, and then sustain meaning-making practices