Coordinating with each other in a material world

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HERBERT H. CLARK
STANFORD UNIVERSITY, CALIFORNIA

ABSTRACT In everyday joint activities, people coordinate with each other by means not only of linguistic signals, but also of material signals – signals in which they indicate things by deploying material objects, locations, or actions around them. Material signals fall into two main classes: directing-to and placing-for. In directing-to, people request addressees to direct their attention to objects, events, or themselves. In placing-for, people place objects, actions, or themselves in special sites for addressees to interpret. Both classes have many subtypes. Features of material signals were examined in pairs of people who were videotaped as they assembled TV stands, built Lego models, planned furnishings for a house, played piano duets, or bought coffee at Starbucks. In these activities, the pointing and placements were often sustained, creating three phases of signals – initiation, maintenance, and termination – each with its own interpretation.

KEY WORDS: *joint activity, material signals, pointing*

Language and interaction are partners. The ultimate source of language, one can argue, is interaction. Language arises when people try to do things with each other in *joint activities*. In the history of humankind, language is assumed to have emerged from the joint activities of individuals working together in small groups (Croft, 2000). And in the course of childhood, language is first acquired in joint activities such as eating, dressing, and playing (E. Clark, 2002). From the opposite perspective, there is no true interaction without communication, which is often achieved with language. It takes coordination for people to do things together, no matter how simple, and it takes communication to achieve that coordination (Clark, 1996, 1999; see also Goodwin, 2000; Hutchins, 1995).

The full partner to interaction, however, is not language alone – Greek,

Japanese, or Hungarian – but communication. To see this, consider communication on vacation. Travelers to foreign lands often manage to get around knowing almost nothing of the local language. With a little ingenuity, English tourists can shop in Greek markets, eat in Japanese restaurants, and ride on Hungarian buses without a word of Greek, Japanese, or Hungarian. How do these travelers get by? One way is by exploiting the material things around them. They can point at maps, hold up souvenirs, hand over coins, draw in the air, and act out scenes. Many of these actions I will call *material signals*. In this terminology, *signals* are actions by which people mean things for others, and *material* signals are those in which people deploy material objects, locations, or actions around them. Plainly, material signals are communicative acts even though they are not part of Greek, Japanese, or Hungarian.

What is common to material signals is that they are used fundamentally to indicate things. To coordinate with each other in shops, restaurants, and buses, people need to indicate the shirt they want to buy, the dish they want to order, and where they want to get off the bus. In English-speaking countries, they can do this by pointing and saying 'I'd like that shirt', 'Could I get this dish?' and 'I'd like to get off here.' They rely not only on English expressions, but on gestures and other physical actions. But travelers to foreign lands recognize that they can often manage without the English expressions. They can make do with only the gestures and other actions.

The aim of this article is to characterize material signals and their role in joint activities. I start with a characterization of joint activities that rely on material signals. I then take up two classes of material signals – directing-to and placing-for – and examine their role in the joint activities they are found in. As evidence, I refer to four types of joint activities studied on videotape: (1) two people building Lego models (Clark and Krych, 2004); (2) two people assembling a TV stand from its parts (Heiser and Tversky, 2004); (3) couples discussing how to furnish a two-story house (Clark et al., 2002); and (4) two people playing a piano duet. As a final example, I describe how a couple I followed relied on material signals when buying coffee at Starbucks.

Material signals in joint activities

Although joint activities come in many shapes and sizes, my first example is of two university students – whom I will call Ann and Burton – assembling a TV stand from its parts. The two of them had signed up for a psychology experiment. When they arrived at the laboratory, they were shown into a room with the parts of the TV stand laid out on a table and were simply asked to assemble it. They completed the job in about 15 minutes while being videotaped (see Heiser and Tversky, 2004).[1]

A joint activity can ordinarily be divided into two parts: the *basic joint activity* and the *coordinating joint activity*. With the TV stand, the basic joint activity was the assembly proper. It consisted largely of a sequence of basic joint actions, as when Burton held a side piece while Ann attached a top piece to it, or when Ann

held the top piece while Burton screwed in a screw. The coordinating joint activity, in contrast, consisted of the communicative acts by which Ann and Burton coordinated their basic joint actions. Take this pair of turns:

(1) 1 Ann Should we put this in, this, this little like kinda cross bar, like the T? like the I bar?
2 Burton Yeah ((we can do that))

With this exchange, Ann and Burton agreed on the joint action to take next – attaching a cross-piece to a side piece. Ann and Burton's basic and coordinating joint activities clearly depended on each other. People ordinarily cannot carry out a basic joint activity without communicating to coordinate it. At the same time, the reason they communicate about that activity is to coordinate on it.

People carrying out a joint action need to coordinate on, or agree to, at least five elements:

Participants: who is taking part in the joint action;
Participant roles: the role each participant is to take in the joint action;
Content: the joint goal, and what each participant is to do in achieving that goal;
Timing: at what moments the actions are to begin, continue, and end;
Location: where these actions are to take place.

With the exchange in example (1), for example, Ann and Burton agreed to (1) the two of them being participants (2) as co-builders in (3) attaching the cross-piece to the side piece, (4) starting then and (5) there. It took later agreements to specify the content in more detail, for example, that Burton should hold the side piece while Ann affixed the cross-piece to it.

Basic joint activities range from the mostly physical, such as assembling a TV stand or playing a piano duet, to the mostly informational, such as negotiating a price or exchanging gossip. In assembling the TV stand, Ann and Burton communicated largely to agree on their joint course of action – what joint actions to take when. In a negotiation, the participants communicate largely to agree on their joint positions – the positions they are committed to at each stage. No matter what the joint action, it takes communication to agree on some or all of the elements of the next joint action or position. That communication, in turn, may take the form of spoken utterances, material signals, other gestures, or their combination (see Clark, 1996; Goodwin, 2000, 2003; Hutchins, 1995).

The focus here is on material signals – on indicating things by deploying material objects, locations, or actions. Most material signals fall into two types, *directing-to* and *placing-for* (Clark, 2003). With directing-to, *people take an action as a directive to their addressees to focus their attention on an object, place, or event*. By *directive*, I mean the illocutionary act, described by Bach and Harnish (1979) and Searle (1975), which may vary in strength from commands or orders through requests to suggestions or hints. As a shorthand, I will speak of people 'directing

someone to' an object, place, or event. In assembling the TV stand, Burton directs Ann to a side piece by touching it and saying, 'Now let's do this one.' A typical form of directing-to is pointing. In placing-for, in contrast, *people place an object or action for their addressees at a specialized site as a directive to interpret the object or action appropriate to that site*. In a drugstore, I place a bottle of shampoo on the checkout counter as a signal for the clerk to locate it and ring it up. To place an item on the counter is to designate it as an item the customer wishes to buy.

Directing-to and placing-for took many forms in the four joint activities videotaped. People directed addressees to either (1) *other* objects, locations, or events, or (2) their *own* selves, locations, or actions. And what they placed for addressees were either (1) *other* objects or events, or (2) their *own* selves or actions. I take up these four cases in turn.

Directing addressees to objects and locations

The archetype of directing-to is pointing. Pointing may seem simple, but it is hardly that. Depending on the culture, people prefer to point with hands, fingers, thumbs, lips, eyes, or chin (e.g. Enfield, 2001), and when people use their hands, they make further distinctions with hand shapes (e.g. Kendon and Versante, 2003; Wilkins, 2003). People can also indicate objects by touching them, exhibiting them, turning toward them, or standing in front of or behind them. And they can indicate moments in time by vocalizing or tapping at those moments (Clark, 1996; Clark and Fox Tree, 2002). What is indicated by these actions may be either other objects or oneself. In this section, I take up indicating other objects.

Pointing as a communicative signal is not an event, but a process – indeed, a joint action performed by gesturer and addressee together. For an act of pointing to succeed, the gesturer and addressee must collaborate on, among other things, establishing joint attention to the gesture itself, identifying what is being pointed at, and interpreting the gesturer's intention. Beyond that, the gesture itself has distinct phases. As evidence of these propositions, I will examine touching, exhibiting, and poising in two joint activities.

TOUCHING

Directing-to often takes the form of touching. In the task I will call house plans (Clark et al., 2002), engaged or married couples sat at a table with the architectural blueprint (or house plans) for a two-story house and were asked to furnish the house using decals that represented pieces of furniture and plants. There were nine couples in all, and their discussions lasted from 15 to 45 minutes. As they talked, they would typically touch the house plans with a finger. In one episode, Jane asked Ned:

(2) 1 Jane We *[need a plant here]*?"
2 *[*rubs index finger back and forth on house plans*]*

As Jane spoke, she rubbed her index finger back and forth over a small area of the house plan. In the notation I will use, speech is represented in roman script, and gestures in italics enclosed in square brackets. Within the speech, the initiation of a gesture is marked with a left bracket, its continuation with underlining, and the start of its retraction with a right bracket. Finally, co-temporal words and gestures are marked with paired pairings of asterisks; the gesture in example (2) is co-temporal with 'need a plant here' in line 1.

What the couples indicated by touching, the *indicatum*, was rarely what they were actually referring to, the *referent*. The indicatum of Jane's pointing was a small area on the printed house plans. Yet the referent of Jane's *here* was not that location, but the corresponding location in the imaginary house. She intended Ned to pick out the referent of *here* by working out the link between her indicatum in the house plan and the location in the imaginary house. That is, she indicated an area of the house plan (the indicatum) *in order to* indicate an area of the imagined house (the referent of *here*). Let me call this a *chain of indicating*. Most pointing in house plans led to chains of indicating (see Clark, 2003).

The couples in this study often maintained their touching, giving it a time course that they exploited for communicative purposes. Consider this exchange:

(3) 1 Susan and this up here these are bl*[ank rooms? (1.63 sec)
2 *[*holds index finger in middle of a room*]*
3 Ned m-hm]*
4 Susan so [continues]

Susan began touching a part of the house plan just after *bl-* of *blank rooms*, but then held her finger there for almost 2 sec – a very long time in conversation (see Jefferson, 1989). She initiated the gesture apparently to direct Ned's attention to two particular rooms. But she couldn't be sure that Ned had registered her gesture until he replied 'm-hm'. Only then did she retract her gesture.

Sustained pointing, therefore, has three phases, each with its own characteristic interpretation:

Phase 1: Initiation. 'I *now* want you to attend to this'
Phase 2: Maintenance. 'I *continue* to want you to attend to this'
Phase 3: Termination. 'I *now* consider your attention to this to be complete'

In (3) Susan used phase 1 to signal that she wanted Ned to attend to her indicatum in order to identify the referent of 'these'. She used phase 2 to implicate that she didn't yet know whether he had identified the referent. And she used phase 3 to implicate that she now believed that he *had* identified it well enough for current purposes. People in the house plans study maintained their pointing on many occasions. Sometimes they held their gesture in a fixed position, as Susan did in (3). Other times they iterated a movement, as Jane did in (2).

EXHIBITING

Another form of directing-to is *exhibiting*, the act of deliberately displaying an object to a partner. In the Lego models study (Clark and Krych, 2004), one partner (the *director*) was given an abstract model made of six or seven Lego blocks and was asked to get his or her partner (the *builder*), sitting across the table, to build a replica from other Lego blocks on the table. The two of them were free to talk as they liked, but the director couldn't show his or her model to the builder. In the course of their talk, the builder often exhibited blocks or the model-so-far to the director.

Consider a sequence in which Danny is telling Ed what type of block to add next and where to attach it to the model-so-far:

(4)

1	Danny	and now get (.75 sec) a-uh eight piece *[green, (1.4 sec)]*
2	Ed	*[*starts searching for and then retrieves a green block*]*
3		**[***exhibits* *the green block to Danny*]**
4	Danny	**[(.1 sec) and join]** the two so that it's all
5	Ed	*[***poises** *the green block over one part of the model-so-far*]*
6	Danny	*[symmetric, yeah,]* right in the center

When Danny reaches *green* in the description *eight piece green*, Ed starts rummaging through his Lego blocks and finds what he believes is the right type of block. This takes 2.13 seconds. At the end of his search, Ed exhibits the block to Danny; that is, he holds it up for Danny to inspect. This exhibit lasts for 0.43 seconds. Danny has been watching Ed's search and, after 0.1 second of the exhibit, goes on to the next instruction. In going on, he implicates that Ed has the right block.

An exhibit and its uptake, then, constitute a pair of actions that are much like a question and answer:

(5)

1	Ed	*[***exhibits** *the green block to Danny*]*
2	Danny	*[(.1 sec) and join]* the two so that it's all

In line 1, Ed is asking, 'Is this the type of block you mean?' and in line 2, Danny implies that the answer is yes. Ed maintains the exhibit until Danny acknowledges it with his reply, at which point he terminates it. So, exhibits are like pointing: they have initiation, maintenance, and termination phases, each with its own interpretation.

POISING

Pointing can also be performed with an object instead of a finger. In assembling the Lego models, builders sometimes needed to indicate where on the model-so-far they thought a block was to go. They often did this by holding the block just above the right location – by *poising* it there. In example (3), Danny tells Ed where the 'eight piece green' block is to go, 'join the two so that it's all symmetric.' At the word *symmetric*, even before Danny is finished, Ed begins to poise the block

above a particular location. Danny immediately responds 'Yeah, right in the center.' To poise a block above a location is to use the block itself to point at that location – to direct the addressee to that location. That makes poising a type of directing-to.

Like the exhibit plus its uptake in example (5), poising and its uptake in example (6) form a pair of actions that are much like a question plus an answer:

(6) 1 Ed *[*poises the green block over one part of the model-so-far*]*
2 Danny *yeah.]* right in the center

In line 1, Ed is asking, 'Does it go here?' and in line 2 Danny answers, 'Yeah, right in the center.' Danny's 'yeah' is the spoken answer to Ed's unspoken question. As with pointing and exhibiting, Ed maintains his poising until Danny acknowledges it with 'yeah'. Indeed, Ed begins attaching the block to the model-so-far just after Danny's 'yeah', and in this way, he acknowledges that he has heard and accepted Danny's reply.

Touching, exhibiting, and poising, then, are effective techniques for indicating objects and locations with or without speaking. All three techniques, in turn, are joint actions. Each requires the gesturer and addressee to coordinate on locating the indicatum in a shared perceptual space, identifying the referent, and establishing that the gesture has been seen and interpreted well enough for current purposes. And each has three interpretable phases: initiation, maintenance, and termination.

Directing addressees to oneself

When we think of pointing, we normally think of pointing at other things – at other people, other objects, other locations, other events. But people can also point at themselves, their own location, their own actions. Speakers point at themselves, for example, whenever they use the word *I*. In assembling the TV stand, Ann tells Burton at one point, 'I'm sure it'll be fine.' She refers to herself by pointing at herself with the very vocalization of the word *I*. Vocalizing is an effective way of indexing oneself or one's location. In a dark room, Ann could indicate her location by vocalizing 'Here I am', 'Yo', or 'Burton?' People can also point at themselves by the very manner in which they perform their actions.

When people do their part of a joint activity, they can perform it simply, normally, as expected. But they can also perform it in a way that calls attention to itself – that *points* to itself. Several years ago, at a conference in Glasgow, I watched a woman walk into a lecture after it had already started. To do that, she had to walk directly behind the speaker. Now, she *could* have walked normally and quietly, but she didn't. Instead, she tiptoed with exaggerated steps – she *minced* her way in – in order to signal to those watching that she was trying not to disrupt the speaker. Paradoxically, by calling attention to her walk, she was distracting us from the speaker she was trying not to disrupt.

The Glasgow woman was trying to accomplish two goals at once. One was to get to her seat, which she did by walking. The second was to *tell us* that she was trying not to disrupt the speaker, which she did by adding the exaggerated manner to her walk. I will call her use of the exaggerated manner a *manifesting action* (see Clark, 1996). Her manifesting action was not the walking itself, but the non-standard way in which she did it – the mincing manner. Manifesting an action is the doing of that action *in a time, place, or manner intended to be recognized as marked or special*. In this way, it directs the observer to that action for a reason recognizable in these circumstances. Manifesting an action is therefore a type of directing-to.

One advantage of a manifesting action is that it is done in the course of the action it is intended to manifest. I will illustrate with examples from two amateur pianists, Jean and Edward, who were videotaped as they practiced duets for one piano four hands over two one-hour sessions. Jean played the upper, or *primo*, part, and Edward the lower, or *secondo*, part. Duet playing is a special challenge because, even after the pair has decided what to play and in which roles, they must coordinate on style, loudness, tempo, starts, breaks, and stops throughout the piece. Here I will focus on timing.

Take the problem of starting a piece in synchrony. In one episode, Jean and Edward are trying to start in the middle of a Brahms duet:

(7)	1	Edward	How about from just 17 on.
	2	Jean	Okay. [*places her hands on keyboard ready to begin*]
	3	Edward	Uhm, or no. Le- No, from the double bars up here [*pointing at Jean's music*].
	4	Jean	Okay.
	5	Edward	[*places hands on keyboard, but in wrong place*]
	6		Sorry. [*re-positions his hands*] Okay.
	7	Jean-&-Edward	[*raise and lower hands together, initiating the first chord*]

Edward and Jean accomplish much of their coordination with speech. They first agree on where to start ('From the double bars up here', 'Okay'). Eventually Edward says 'Okay.' The two of them take the timing of 'Okay' as an up-beat in the tempo of the notes to be played. At that moment, the two of them lean in slightly, breathe in, raise their hands together, and, a beat later, strike the keys in unison.

Jean and Edward also use manifesting-to in this process. In line 2, Jean places her hands on the keyboard to signal that she is ready to begin. Striking the keys, of course, requires Jean to place her hands over the keyboard, but by placing them *at that moment* she manifests her readiness to play *from that moment on*. At other times, she *withheld* her hands from the keyboard to signal that she didn't yet understand where they were to start. In line 5, Edward places *his* hands on the keyboard to signal his own readiness. In line 6, he lifts his hands to stop the process, apologizes, and places them at a new location on the keyboard, once again to signal his readiness. These manifesting actions were crucial to coordinating their start.

Starting is not always so smooth. In another episode, it takes Jean and Edward three tries to start in synchrony:

(8)	1	Edward	Okay. M-hm. [*raises, lowers hands*]
	2		*[*strikes keys*]*
	3	Jean	*[*(0.2 sec) strikes keys*]*
	4	Edward	**[*raises hands 25 cm in stylized way, to stop*]**
	5	Jean	**[*(0.6 sec) raises hands slightly, stopping*]**
	6		. . .
	7	Edward	[*raises hands 18 cm in stylized way, then lowers them*]
	8	Jean-&-Edward	[*strike keys together*]

In line 1, Edward raises and then lowers his hands, and in line 2, he strikes the keys, but Jean strikes the keys after a 0.2 second delay. In line 4 Edward raises his hands 25cm high off the keyboard – a clearly exaggerated gesture – as a signal for them to stop playing. In line 5, Jean responds 0.6 seconds later by lifting her hands, though without the stylization. After another false start, in line 7, Edward does an exaggerated start, lifting both hands 18cm high off the keyboard before dropping them. Jean can apparently see his hands in her periphery, and in line 8, the two of them strike the keys in synchrony. So Edward uses manifesting actions both to cut off a bad start and to synchronize a good one.

Finishing together is just as difficult as starting. In another episode, Jean and Edward retard slightly on the last three chords of a Brahms duet. On the second of these chords, both Jean and Edward make exaggerated movements in striking the keys, each able to see the other's movements in the periphery. For the last chord, Edward lifts his left hand an exaggerated 15cm before striking the keys. Jean visibly turns her head to watch his hands, and the two of them strike the last chord in synchrony. In this episode, both pianists use manifesting actions – exaggerated lifts – to synchronize the slowing tempo and the final chord.

To sum up, two pianists can synchronize their playing by manifesting their actions to each other with an exaggerated manner or with conspicuous timing. Over two sessions, Jean and Edward used these tactics to coordinate preparation, onsets, offsets, tempos, volumes, and much more. When they manifested their actions, they directed their partner to the actions as a way of referring to the actions. To manifest an action to others is to direct them to it – to ask them to focus their attention on it.

Placing objects for addressees

Placing-for contrasts with directing-to. At the supermarket, when I place a box of cornflakes on the checkout counter, I am not asking the clerk to attend to it at that moment. If I had wanted to do that, I would have exhibited it or pointed at it, and checked his or her gaze to see whether I had succeeded. Rather, I am trying to supply the cornflakes with a particular interpretation. Checkout counters are places that confer interpretations on the items that are placed there.

When groceries are placed on the counter, they are interpreted as 'items to be bought'. When they are re-placed to another part of the counter by the clerk, they are re-interpreted as 'items that have been rung up'. The interpretations conferred may be conventional (as with items on checkout counters), or *ad hoc* – for that occasion only (as with examples I will come to).

What people place for their addressees may be other objects, as when I place the cornflakes on the checkout counter, or the people themselves or their own actions, as when I place myself in front of the checkout counter. I take up the placement of other objects first.

Placing objects for others is nicely illustrated in the assembly of the TV stand. In one wordless passage, Ann transfers a screwdriver to Burton in the following sequence:

(9)	1	Ann	[*finishes screwing in a screw, then places the screwdriver on the table halfway between Burton and herself*]
	2		(2.20 sec)
	3	Burton	[*picks up the screwdriver, then starts screwing in a screw*]

In line 1, Ann finishes with the screwdriver and places it on the table equidistant from Burton and her. She appears to signal that it is now available to whoever needs it next. She and Burton let it sit for 2.2 seconds until, in line 2, Burton picks it up for his own use. Here again, we find three phases – initiation, maintenance, and termination. In (9), Ann and Burton apparently interpret these phases as follows:

Phase 1: *En-placement*. Ann, 'I hereby cede possession of this screwdriver and make it available to either of us.'

Phase 2: *Maintenance* (which lasts 2.2 sec). Ann and Burton, 'We hereby continue to make this screwdriver available to either of us.'

Phase 3: *De-placement*. Burton, 'I hereby take possession of this screwdriver, terminating its availability to Ann.'

Transferring screwdrivers, screws, pegs, and wheels was common between the two people assembling the TV stand. Here are four examples (from three different pairs):

(10) Burton offers Ann a screwdriver by *handing* it to her handle first; she accepts his offer by taking the screwdriver in one smooth joint action. She makes her acceptance clear by saying "thank you" as she grasps the screwdriver.

(11) Sam offers Ted a screwdriver by *placing* it on the table next to Ted; Ted accepts the offer by immediately picking it up. They exchange no words.

(12) Kate is holding a screwdriver when Justin points at it, uttering two indistinct words. Kate then *holds it out*, and he takes it. She says nothing, and he says nothing further.

(13) Justin *slides* two wheels from his side of the table to Kate's while she is still screwing in a screw. He thereby signals that the wheels are for Kate to attach to the TV stand. They exchange no words.

TABLE 1. *Interpretation and placement*

	Object	*Placement*	*Interpretation of object so placed*
(9)	Screwdriver	Half-way between Ann and Burton	'Screwdriver available to Ann or Burton'
(10)	Screwdriver	In Ann's hand	'Screwdriver on offer to Ann'
(11)	Screwdriver	Next to Ted's hand	'Screwdriver on offer to Ted'
(12)	Screwdriver	In Kate's hand in front of Justin	'Screwdriver requested by Justin'
(13)	Two wheels	On Kate's side of the table	'Wheels for Kate to attach'

Here, then, are four examples of placement: handing the screwdriver to another; placing the screwdriver on the table next to the other; holding the screwdriver out for the other; and sliding the wheels from one side of the table to the other. In each case, the first partner expects the second to recognize what he or she is signaling with these placements.

Placements acquire interpretations from the places to which the objects are moved. In examples (9) through (13), the screwdrivers and wheels were moved into places that provided them with the interpretations listed in Table 1.

The initiators of placement in examples (9) through (13) expect their addressees to interpret each placement in part according to a *preparatory principle* (Clark, 2003):

> The participants in a joint activity are to interpret acts of placement by considering them as direct preparation for the next steps in that activity. (260)

In example (11), Sam places the screwdriver next to Ted's hand. Placing it there makes it immediately available – directly preparatory – for Ted's next move, which is to screw in a screw. The same rationale applies to the other four examples.

Placing things for addressees, then, has much in common with directing addressees to things. Both are material signals. Both are used for indicating things. And both have three phases – initiation, maintenance, and termination – each with its own interpretation. The primary difference is in the process of indicating. In directing-to, people try to get their partners to attend to an object or action. In placing-for, they move the object into a place that confers an interpretation on it for their partner.

Placing oneself for addressees

What people place for their addressees may be another object, as when I place a box of cornflakes on the checkout counter, or themselves, as when I step onto a podium to signal to the audience that I am ready to speak. What they place may

even be their own actions. Consider two almost identical exchanges at a notions counter in a drugstore (Merritt, 1976):

(14)	1	Customer A	Do you have Marlboros?
	2	Server	Yeah. Hard or soft pack?
	3	Customer A	Soft please.
	4	Server	Okay. [*turns to get*]
(15)	1	Customer B	Do you have Marlboros?
	2	Server	Hard or soft pack?
	3	Customer B	Hard.
	4	Server	[*turns to get*]

In example (14), the server agrees to get customer A a pack of cigarettes by saying 'Okay' and then 'turns to get'. In example (15), she agrees to do the same thing for customer B, but simply by 'turning to get'. She signals her agreement in (15) by putting the appropriate next action on display to customer B – by making it known to the customer as she performs it. In the terminology I will use, people can *make* an action *public* to their addressees by placing its performance at a site for their addressees to attend to. In this way, making an action public is a type of placing-for.

People cannot always make their actions public the way the server did in example (15). In the study of Lego models, the participants built the models under one of two conditions (see Clark and Krych, 2004). In one, the directors could see the builders' workspace, but in the other, there was an opaque screen that prevented the directors from seeing the builders' workspace. In example (16), Doris can see Betty's workspace, and the two of them take advantage of this:

(16)	1	Doris	Take a short blue.
	2	Betty	[*Retrieves a short blue block.*]
	3	Doris	[*Looks at Betty's block.*] Put it at the end of the yellow close to the green.
	4	Betty	[*Places the blue block on the yellow block.*]
	5	Doris	[*Looks at result.*] Take a . . .

Betty keeps Doris informed of her actions on the blue block by making them public to her. In example (17), Ben is trying to attach the same blue block at the same stage of assembly, but David cannot see Ben's workspace:

(17)	1	David	And then you're gonna take a blue block of four.
	2	Ben	M-hm.
	3	David	And you're gonna put it on top of the four blocks – four yellow blocks farthest away from you.
	4	Ben	Which are the ones closest to the green.
	5	David	Yeah
	6	Ben	Okay. But the green's still not attached.
	7	David	Yeah. And then . . .

Although Ben performs roughly the same physical actions as Betty, the only way he can keep David informed of his actions is by telling him about them, and it takes him 16 words to do that. Betty establishes the same information without a word. Making actions public is an effective way of establishing them as common ground.

Making actions public is also, therefore, an effective means of coordinating actions in joint activities. Consider what I will call a *prepared wait*. At one point in assembling the TV stand, Ann and Burton are detaching the top piece in order to turn it around (they had attached it backwards). Ann has just finished unscrewing her side of it when they have this exchange (lines 2, 3, and 4 are co-temporal):

(18)	1	Ann	[*tries to lift the top-piece with two hands, but cannot*] Oh.
	2	Burton	*[*finishes unscrewing his side of the top-piece*]*
	3	Ann	*[*watches attentively*]*
	4		*(12.9 sec)*
	5	Burton	[*exhibits readiness to go on*]
	6	Ann	[*joins Burton in lifting the top-piece*]

In line 1, Ann shows that she is ready to go on. In line 2, Burton takes actions that he realizes are public to Ann and imply that he is not yet ready to go on. He therefore lets his public actions speak for themselves, and Ann waits attentively for him to finish. (If he had thought that she couldn't see his actions, he might have said, 'Hold on' or 'Wait.') Here, then, Ann and Burton coordinate the timing of their lift in part though Burton's making his actions public to her.

The prepared wait can also be illustrated in the assembly of a Lego model. In one episode, Alan has just told Ben where to put a block on the model-so-far (lines 2, 3, and 4 are co-temporal):

(19)	1	Alan	Right. [*appears ready to go on*]
	2	Ben	*[*picks up model-so-far and tries to attach the block just identified, mumbling to himself*]*
	3	Alan	*[*watches attentively*]*
	4		*(8.9 sec)*
	5	Ben	There we go. [*sets model-so-far back down on the table*].
	6	Alan	Okay. Now take a two by two . . .

In line 1, Alan is ready to go on, but Ben isn't. Still, Ben doesn't say 'Hold on' or 'Wait', as some builders did when their workspaces weren't visible. Instead, he appears to realize that his actions, being public, give Alan the reason why he cannot go on. By mumbling to himself, Ben also makes public his frustration in attaching the new piece (see Goffman, 1978). So, Alan and Ben exploit the publicness of Ben's actions in order to coordinate their next moves.

Public actions, like other forms of placing-for, have three phases. In line 2, Ben initiates his public actions right after Alan's 'Right.' He continues until he has attached the block. And in line 5, he terminates those actions by saying

'There we go', replacing the model-so-far on the table, and relaxing his shoulders. Ben takes the initiation to imply 'Wait a moment', the continuation to imply 'I'm not ready yet', and the termination to imply, 'Now I'm ready to go on.' Alan cooperates, going on only when Ben publicly displays that he is ready to go on.

It is sometimes hard to distinguish between manifesting an action and making the action public. Recall that in example (15) the server agrees to get the customer a pack of cigarettes by turning to get it at that moment. We treated this as *making* her action *public* as a way of designating it as compliance with the customer's request. Instead, we could have viewed the server as *manifesting* the action by the timing of her performance: She signaled compliance by turning at a conspicuously precise time after the customer's request. Here, perhaps, is evidence that directing-to and placing-for can be fused in a single technique.

Buying coffee at Starbucks

Tourists have little trouble buying coffee at Starbucks whether the shop is in Athens or Beijing, Istanbul or Jakarta, Santiago or Tokyo. One reason is material signals, which Starbucks uses to great advantage. It is therefore instructive to examine how one buys a cup of coffee at Starbucks. To collect evidence, I followed two long-suffering friends, whom I will call Ken and Maggie, as they bought coffee at a Starbucks in a small California town. I documented as many of their actions as I could with a still camera.

SIGNALS PREPARED FOR CUSTOMERS

The Starbucks Ken and Maggie visited was prepared to coordinate with customers long before the two of them arrived. It was replete with sustained signals, both linguistic and material, directed at potential customers.

Directing-to

Starbucks made extensive use of directing-to, or pointing. The most obvious was done with labels, which are indexes to particular objects (Shanon, 1980). These included: the circular Starbucks mermaid logo on an outside arch; the words *STARBUCKS COFFEE* below that; *1428* on the door (for 1428 Main Street); *Beverages* on a menu on the wall behind the main counter; *Daily Offerings* chalked on a small blackboard next to the wall menu; *Men* and *Women* plus conventional stick figures of a man and a woman (and a wheelchair) on the doors to the restrooms, etc. Although customers may need English to read the labels, they could interpret many of the logos regardless of language.

Directing-to was built into the very design of the store. The main entrance wasn't labeled as such, but was marked by its location on the street side of the store; the employees' entrance was accessible only from a back alley. The main counter wasn't labeled either, but it was the only large counter directly visible as one entered the store. The seating area was marked by the presence of tables and

chairs. The layout of the store invited customers to flow from the main entrance to the main counter, from there to the pick-up counter, and from there to the seating area. The spatial affordances built into the architecture were intended to be taken as markers directing customers to step in here, order there, pick up there, and sit over there.

Placing-for

Starbucks also made extensive use of placement as a signal. Starbucks sells many items by placing them in sites that confer on them the interpretation that they are for sale. In the Starbucks Ken and Maggie visited, there were many such sites. To the right of the main counter was a shelf with mugs, boxes of tea, and other merchandise; also to the right was a newspaper holder with copies of the *New York Times*; on the floor to the left of the counter was a basket full of bottles of spring water; in small bins on the counter were assortments of candies and other edibles. Starbucks had placed items in these sites to designate them as items customers could de-place and take to a server for purchase. To the right of the main counter were pastries in a glass case, and behind the counter were paper cups, open boxes of tea, etc. Starbucks has placed these items, too, for customers, but they had to ask a server to get them. In the seating area were wooden baskets on the floor, special sites designated for customers to deposit and extract reusable newspapers.

All Starbucks outlets appear to have an accessories counter. In this store it was about four meters from the main counter. On it were: steel pitchers of whole milk, skim milk, and half-and-half; boxes with packets of brown sugar, Sweet'n'Low, and Equal; dispensers of white sugar, vanilla, and nutmeg; boxes of plastic knives, forks, and spoons, straws, and wooden stirrers; and a napkin dispenser. The management had placed the items there to designate them as items for customers to take for their own use. In short, there was sustained directing-to and placing-for throughout the store.

THE CUSTOMERS' JOURNEY

The best way to illustrate many of the material signals in Starbucks is to follow Ken and Maggie as they bought their coffee. Here are the steps they took:

1. Ken and Maggie entered the store. In doing so, they *placed themselves* within the jurisdiction of Starbucks, designating themselves to the management and others as current customers.
2. Ken and Maggie *placed themselves* in a queue at the main counter. In doing so, they designated themselves as customers in line for service after the people in front of them. Queues are conventional placement sites. People initiate their position in the queue by placing themselves at the end, maintain their placement by remaining in the queue, and terminate their placement by leaving the queue. Indeed, Maggie soon *de-placed herself* from the queue (leaving Ken behind), designating herself as no longer in line for service.

3. Maggie found an empty table in the seating area and *placed herself* in a chair at a table and *placed* her handbag on a second chair. This way she marked the table and two chairs as temporarily in her possession.
4. Once Ken reached the head of the queue, he *de-placed himself* from the queue and *placed himself* at the counter. This way he terminated his designation as a person waiting for service and initiated his designation as the person currently being served.
5. A woman wearing a Starbucks apron *placed herself* behind the counter facing Ken. In doing so, she signaled that she was a server available to serve him.
6. Ken ordered two coffees and then ordered two pastries from the pastry case in part by *pointing* at them. The server put the pastries in two paper bags and *placed* the bags on the counter for Ken, designating them as for him.
7. The server *publicly* rang up Ken's order on a cash register, the total appearing in a display above it. He *publicly* pulled out his wallet, took bills from it, and *placed them* on the counter for the server. In doing that, he initiated an exchange of money. The server *de-placed the bills* from the counter, terminating that exchange. After she *publicly* manipulated money in the cash register, she *placed* change in Ken's hand, initiating an exchange of the money, and he grasped the money, terminating that exchange.
8. Behind a barrier, unseen Starbucks employees prepared the two cups of coffees and then *placed them* for Ken on a special pick-up counter. In doing so, they initiated the signal that these cups of coffee were ready. Once Ken saw them, he *de-placed them* from the counter, terminating the signal. He *placed* them on the table in front of Maggie and himself, designating them as in their possession.
9. Maggie and Ken kept themselves *placed* at the table until they had drunk their coffee and eaten their pastries, maintaining the signal that they were in possession of the table. When they *de-placed themselves* from the table, they terminated that signal.
10. As Maggie and Ken left, they each *placed* their used cups and paper bags in a trash bin, designating them as trash in the possession of Starbucks.
11. Finally, Maggie and Ken left the store. By *de-placing themselves* from the premises, they terminated their designation (to the management and others in the store) as customers at Starbucks.

What is striking about Ken and Maggie's journey is how often they and the management of Starbucks relied on placing-for. Table 2 lists just some of the objects, placements, and interpretations of the objects that came up in their visit.

Ken and Maggie's tour illustrates only some of the ways in which customers in Starbucks coordinate with servers, management, and other customers. Although part of their coordination is accomplished with words, much more is accomplished with the many varieties of directing-to and placing-for – of pointing and placing.

TABLE 2 *Placing-for in Starbucks*

	Object	*Placement*	*Interpretation of object so placed*
(1)	Ken, Maggie	Inside store	'Current customers at Starbucks'
(2)	Ken, Maggie	Queue for service	'Customers waiting for service'
(3)	Ken, Maggie	Chairs at table	'Current occupants of this table'
(5)	Server	Behind counter	'Server available to serve next person in queue'
(7)	Money	On check-out counter	'Money in payment for coffee, pastry'
(7)	Money	In Ken's hand	'Change for payment"
(10)	Used cups, bags	Trash bin	'Trash in possession of Starbucks'
(11)	Ken, Maggie	Outside store	'No longer current customers at Starbucks'

Conclusion

Material signals are an important method of coordinating joint activities. In the activities described here, participants often directed their partners to objects or locations or to themselves. Not only did they point at, touch, exhibit, or poise objects for their partners, but they manifested their own actions with an exaggerated manner or conspicuous timing. People also placed objects, actions, and themselves for their partners to interpret. Often they relied on conventional sites such as checkout counters and queues. But they also created *ad hoc* sites such as the areas around the TV stand. Institutions like Starbucks exploit directing-to and placing-for to the limit.

Material signals, as the examples here show, are created over time. Their time course is represented in Figure 1. In directing-to, people prepare to gesture, then initiate, hold, and terminate their gesture, and then retract it. They signal different things in the initiation, maintenance, and termination phases:

Phase 1: *Initiation*. 'I want you to direct your attention to this indicatum'
Phase 2: *Maintenance*. 'I continue to want you to attend to this indicatum'
Phase 3: *Termination*. 'I no longer want you to direct your attention to this indicatum'

Placing-for has the same three phases, but with different interpretations:

Phase 1: *Initiation*. 'I want you to interpret this indicatum according to this place'
Phase 2: *Maintenance*. 'I continue to want you to interpret this indicatum according to this place'
Phase 3: *Termination*. 'I no longer want you to interpret this indicatum according to this place'

Material signals may merely indicate things, but they allow a range of options in method, timing, and interpretation.

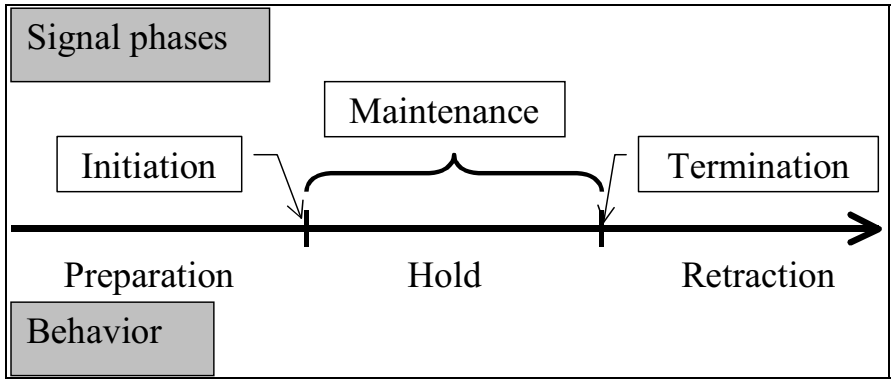

FIGURE 1. *Time course of pointing and the phases of the signaling achieved*

One final point. Communication and interaction aren't merely close partners: They are on intimate terms. In the joint activities described here, people often communicated in the very execution of their actions. In assembling the TV stand, Ann offered Burton a screwdriver by holding it out for him. So, when he grasped it, he was not only accepting the offer, but preparing himself for the next step of the assembly. In building a Lego model, Ed asked Danny where to attach a block by poising it over the potential location. By the time Danny said 'yeah', Ed was already in a position to attach it. In playing duets, Jean and Edward synchronized their starts, interruptions, and endings by manifesting the very key strokes they were making. Coordinating and executing joint activities, in short, are not just linked. They are often achieved with the same behavior.

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HERBERT H. CLARK is Professor of Psychology at Stanford University. He received his BA from Stanford University in 1962 and his PhD from the Johns Hopkins University in 1966. He is a member of the American Academy of Arts and Sciences, the Royal Dutch Academy of Arts and Sciences; he has been a John Simon Guggenheim Fellow and a fellow of the Center for the Advanced Study in the Behavioral Sciences. He is author of four books and over 100 scientific articles and review chapters. ADDRESS: Department of Psychology, Building 420, Jordan Hall, Stanford University, Stanford CA 94305–2130, USA. [email: Clark@Stanford.edu]