CULTURE, CIRCLES, AND COMMERCIALS

PUBLICITY, COMMON KNOWLEDGE, AND SOCIAL COORDINATION

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ABSTRACT

This paper applies a game theoretic argument, that common knowledge is necessary for 'solving' coordination problems, to a variety of cultural practices. This argument helps in understanding how cultural practices such as mass ceremonies constitute power, how talking in inward-facing circles helps coordination, and why 'social' goods tend to be advertised on popular and expensive television shows. The main conclusion is that cultural practices, usually understood in terms of 'meaning' or 'content', must also be understood in terms of 'publicity', or more precisely common knowledge generation.

KEY WORDS • collective action • communication • common knowledge • culture • ritual • television advertising

Introduction

In this paper, I take a simple game theoretic argument and apply it to a variety of cultural practices. The argument goes like this: in some situations, called 'coordination problems', each person wants to participate in a coordinated action only if others participate also. One way to coordinate is simply to communicate a message, such as 'Let's all participate'. But since each person will participate only if others do, for the message to be successful, each person must not only know about it, each person must also know that each other person knows about it. In fact, each person must know that each other person knows that each other person knows about it, and so on; that is, the message must be 'common knowledge'.

I then consider three applications of this argument (referred to throughout as 'the argument' or 'our argument'). First, I claim that it helps us to understand how cultural practices such as mass ceremonies

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constitute power, and relate it to discussions of Clifford Geertz, Lynn Hunt, James Scott and Benedict Anderson. Second, I use it to understand how talking in an inward-facing circle can help in coordination. Third, I apply it to television advertising: I argue that it explains the empirical finding that 'social' goods, goods that a person is more likely to buy if others do, tend to be advertised on more popular shows.

I then discuss common knowledge more broadly, looking at how social structure and history generate it, how people fight over it, and whether it is an ideal abstraction impossible in reality. Finally, the main conclusion of this paper is that cultural practices, most often understood in terms of 'meaning' or 'content', must also be understood in terms of 'publicity', or more precisely common knowledge generation. Separating content and publicity is useful and necessary analytically; in the final section, however, I explore how they interact interestingly in practice.

The idea that game theory might be helpful in looking at cultural practices might seem novel, but was in fact advocated by Claude Lévi-Strauss (1963, 298) and Erving Goffman (1969). Almost always, however, rational choice sees culture as something that can help explain, not something to be explained (for example see Greif 1994). Rational choice often sees culture as determining people's preferences, a view that some theorists on culture find misleading (Swidler 1986; Laitin and Wildavsky 1988). Thomas Schelling's 'focal point' is usually understood as a tacit commonsense understanding (for example Kreps 1990); much less discussed in his observation that 'when there is no apparent point for agreement, [a person] can create one by his power to make a dramatic suggestion' (1980, 144; see also Calvert 1992 and DeMarzo 1992).

At the same time, rational choice cannot consider cultural practices as mere side applications (see also Bates and Weingast 1995). Recently, game theorists have found that the issue of coordination, also known as the problem of 'multiple equilibria', is fundamental. Hence, one must understand the communication mechanisms by which people coordinate (see also Johnson 1993); in a strategic context, this understanding must involve more than just transferring information from one person to another. Considering cultural practices immediately follows.

The Argument

The argument of this paper is a truism, implicit in everyday social interaction. David Lewis (1969), influenced by Thomas Schelling

[1960] (1980), first made it explicitly; Robert Aumann (1974, 1976, 1987) developed the mathematical representation that makes it elementary. It is best expressed in an example.

Say you and I are co-workers who ride the same bus home. After work, we like to go for a drink; we usually just go to the neighborhood bar near our usual stop. Today the bus is completely packed and somehow we get separated, with you standing near the front of the bus and me near the back door; I catch a glimpse of you only at brief moments. Before we reach our usual stop, I notice a mutual acquaintance yelling at us, 'Hey you two! Join me for a drink!' Joining this acquaintance would be nice, but we care mainly about each other's company. The bus doors open; separated by the crowd, we must decide independently whether to get off.

Say that when our acquaintance yells out, I look for you but cannot find you; I'm not sure whether you notice her or not and thus decide to stay on the bus. How exactly does the communication process fail? There are two possibilities. The first is simply that you do not notice her; maybe you are asleep. The second is that you do in fact notice her. But I stay on the bus because I don't know whether you notice her or not. In this case we both know that our acquaintance yelled out but I do not know that you know.

Successful communication sometimes is not simply a matter of whether a given 'message' was received. It also depends on whether people are aware that other people have received it. In other words, it is not just about people's knowledge of the message; it is also about people knowing that other people know about it: 'metaknowledge' of the message.

Say that when our acquaintance yells, I see you raise your head and look around for me, but I'm not sure if you manage to find me. Even though I know about the yell, and I know that you know since I see you look up, I still decide to stay on the bus because I do not know that you know that I know. So just one 'level' of metaknowledge is not enough.

Taking this further, one soon realizes that every level of metaknowledge is necessary: I must know about the yell, you must know, I must know that you know, you must know that I know, I must know that you know that I know, and so on; that is, the yell must be 'common knowledge' (Lewis 1969; see also Clark and Marshall 1992; Geanakoplos 1992). The term 'common knowledge' is used in many ways but here we stick to a precise definition. We say that an event or fact is common knowledge among a group of people if everyone knows it, everyone knows that everyone knows it, everyone knows that everyone

knows that everyone knows it, and so on. Two people can create these many levels of metaknowledge simply through eye contact: say that when our acquaintance yells I am looking at you and you are looking at me. Thus I know you know about the yell, you know that I know that you know (you see me looking at you), and so on. If we do manage to make eye contact, we get off the bus; communication is successful.

The key assumption behind the example is that we mainly enjoy each other's company: I want to get off only if you get off and you want to get off only if I get off. For example, say that instead of an acquaintance it is your boyfriend yelling; I care only about your company, but you would rather join him than me. I would thus get off if I knew that you heard the yell, but I need not care if you know that I heard it, since you will get off regardless of whether I do. Situations like the acquaintance example are called 'coordination problems': each person wants to act only if others do also. Another term is 'assurance game', since no person wants to act alone (Sen 1967). The boyfriend example is not a coordination problem because one person wants to act regardless of whether anyone else does.

The entire point of this paper is that in coordination problems, each person cares about what other people do, and hence each person cares about what other people know. Hence communication is not just about distributing a message: it is also about what the people involved know about each other's knowledge. Two examples illustrate this further.

Rebelling against a regime is a coordination problem: each person is more willing to show up at a demonstration if many others do, perhaps because success is more likely and getting arrested is less likely (see Chong 1991; Moore 1995). Regimes in their censorship thus target public communications such as mass meetings, publications, flags and even graffiti, by which people not only get the message but know that others get it also (Sluka 1992; Diehl 1992). For nearly 30 years, the price of a loaf of bread in Egypt was held constant; Anwar el-Sadat's attempt in 1977 to raise the price was met with major riots. Since then, one government tactic has been to gradually make the loaves smaller; another has been to quietly replace a fraction of the wheat flour with cheaper corn flour (Jehl 1996). These tactics are more than just a matter of individual deception: each person could notice that their own loaf was smaller or tasted different, but be unsure about how many other people also noticed. Changing the size or taste of the loaves is not the same public event as raising its price.

In January 1984, Apple Computer introduced their new Macintosh computer with a visually stunning 60-second commercial during the

Super Bowl, the most popular regularly scheduled television program each year. The Macintosh was completely incompatible with existing personal computers: Macintosh users could easily exchange data only with other Macintosh users, and if few people bought the Macintosh, there would be little available software. Thus a potential buyer would be more likely to buy if others bought them also; the group of potential Macintosh buyers faced a coordination problem. By airing the commercial during the Super Bowl, Apple did not simply inform each viewer about the Macintosh; Apple told each viewer that many other viewers also know about the Macintosh. According to the senior vice president of marketing for Walt Disney Attractions, the Super Bowl 'really is the convening of American men, women and children, who gather around the sets to participate in an annual ritual' (Lev 1991).

Culture

In this section, I try to show how our argument helps in understanding how cultural practices such as rituals and ceremonies constitute power. Clifford Geertz (1983, 124) writes that 'the easy distinction between the trappings of rule and its substance becomes less sharp, even less real; what counts is the manner in which ... they are transformed into each other'. Lynn Hunt (1984, 54) is more direct: during the French revolution, 'political symbols and rituals were not metaphors of power; they were the means and ends of power itself'. How exactly does this happen? What is the mechanism?

Our explanation starts by saying that submitting to a social or political authority is a coordination problem: each person is more willing to support an authority the more others support it. For example, as explained by Jürgen Habermas (1986, 76) Hannah Arendt's position is that 'the fundamental phenomenon of power is not the instrumentalization of *another's* will, but the formation of a *common* will in a communication directed to reaching agreement' (see also Luhmann 1985; Postema 1982; Weingast 1995). This coordination problem can result not only from a desire to reach consensus, but also from intimidation: according to Michael Polanyi (1958, 224),

> if in a group of men each believes that all the others will obey the commands of a person claiming to be their common superior, all will obey this person as their superior ... [A]ll are forced to obey by the mere supposition of the others' continued obedience, without any voluntary support being given to the superior by any member of the group.

Since submitting to an authority is a coordination problem, an authority creates ceremonies and rituals that form common knowledge.

Geertz's explanation starts with a society's core cultural beliefs, its 'master fiction'; a symbolic communication such as a ceremony or ritual is powerful through an 'intimate involvement' with this master fiction. Geertz (1983, passim) illustrates this in three examples of royal progresses. In 16th-century England, the progress was didactic and allegorical: 'four townsmen [were] dressed to represent the four virtues—Pure Religion, Love of Subjects, Wisdom, and Justice', with Elizabeth Tudor representing the Protestant virtues of 'Chastity, Wisdom, Peace, Perfect Beauty, and Pure Religion'. In 14th-century Java, which had a hierarchical, nested-circle world view, the king Hayam Wuruk appeared in the middle of the procession, with each of the four compass points represented by a princess. In 18th- and 19th-century Morocco, a core belief was that 'one genuinely possesses only what one has the ability to defend', and hence 'as long as he could keep moving, chastening an opponent here, advancing an ally there, the king could make believable his claim to a sovereignty conferred by God'. For our purposes, the more basic question is not how these three cases differ but how they are the same: that is, why progresses? 'Royal progresses ... locate the society's center and affirm its connection with transcendent things by stamping a territory with ritual signs of dominance ... When kings journey around the countryside ... they mark it, like some wolf or tiger spreading his scent through his territory, as almost physically part of them' (Geertz 1983, 125).

But this interpretation misses, or takes for granted, the most obvious aspect of progresses: their very large audiences, 'crowds of astonished peasants' (Geertz 1983, 132); under this interpretation, the audience would be powerfully affected regardless of how large or small it is. Our interpretation focuses exactly on publicity, the common knowledge that ceremonies create, with each onlooker seeing that everyone else is looking too. Progresses are mainly a technical means of increasing the total audience, since only so many people can stand in one place: common knowledge is extended since each onlooker knows that others in the path of the progress have seen or will see the same thing. That the monarch moves is hence not crucial; mass pilgrimages or receiving lines, in which the audience moves instead, also form common knowledge. Under our interpretation, widespread ritual signs of dominance do not by their omnipresence evoke transcendence, but are rather more like saturation advertising: when I see the extent of a vast advertising campaign, I know that other people must see the advertisements too.

Taking the wolf analogy seriously leads us sharply away from considerations of publicity: a lone animal knows to stay away from another's area by smelling the scent at a given place; no one perceives the entire scent trail (for that matter, scents keep away rivals, while progresses are for 'domestic' consumption).

Another way of saying this is that Geertz's explanation focuses on the meaning or content of progresses, while ours focuses on how progresses create common knowledge, or publicity. To see the distinction, consider two examples. Abner Cohen (1974, 133) describes the Friday midday prayer in Islam as both 'a demonstration of allegiance to the existing political order ... [and] an ideal strategic occasion ... for staging rebellion ... in the presence of all the men of the community in one gathering.' The public execution, described by Michel Foucault 1979, 50, 58–60) as a 'ritual of armed law', was actually quite unstable:

> the people, drawn to the spectacle intended to terrorize it, could express its rejection of the punitive power and sometimes revolt. Preventing an execution that was regarded as unjust, snatching a condemned man from the hands of the executioner, obtaining his pardon by force ... overturned the ritual of the public execution.

An event's meaning can be 'overturned', but the aspect of publicity, necessary for both mass legitimation and mass rebellion, remains constant.

The point is not that content and meaning are unimportant, but that the aspect of publicity must also be considered. According to Geertz (1980, 135),

> anything that somehow or another signifies is intersubjective, thus public, thus accessible to overt and corrigible *plein air* explication. Arguments, melodies, formulas, maps, and pictures are not idealities to be stared at but texts to be read; so are rituals, palaces, technologies, and social formations.

But using 'public' to include anything intersubjective nullifies its powerful commonsense meaning; my income tax returns are intersubjective and to some extent accessible, but they are not public. 'Public' in Geertz's sense does not allow us to see that the whole point of some ceremonies is to make public. Speaking glibly, rituals and ceremonies are not just 'texts' but also publishing processes (see also Keesing 1987).

Lynn Hunt (1984, 88), in her analysis of the symbolic and cultural practices of the French revolution, writes that

> radicals ... exposed to themselves and everyone who watched the fictionality of the Old Regime's 'master fiction' ... [A] new political authority required a new

> 'master fiction' ... [T]he members of society could invent culture and politics for themselves.

In adopting Geertz's framework, Hunt shows its weakness: if cultural practices can be used to create a new master fiction, the power of cultural practices cannot be based solely on association with the existing master fiction. But Hunt (1984, 54) continues:

> Governing cannot take place without stories, signs, and symbols that convey and reaffirm the legitimacy of governing in thousands of unspoken ways. In a sense, legitimacy is the general agreement on signs and symbols. When a revolutionary movement challenges the legitimacy of traditional government, it must necessarily challenge the traditional trappings of rule as well. Then it must go about inventing new political symbols that will express accurately the ideals and principles of the new order.

Here Hunt acknowledges that it is not enough to simply invent new symbols; they must also be made to enjoy 'general agreement'. Although what this means is not made explicit, by using the term 'unspoken', Hunt seems to mean universal familiarity, something each person knows and also can presume that everyone else knows. Indeed most of the practices Hunt examines, especially revolutionary festivals, an 'incurable mania for oaths' (Jean-François La Harpe, quoted in Hunt 1984, 21), and even planting liberty trees and wearing revolutionary colors, are ceremonies that generate common knowledge, in which each participant can see that others are participating. The National Convention established new units of weight and measure (the metric system) and invented a new calendar, with new holidays and the 7-day week replaced by a 10-day 'decade'. That much of the world today drives on the right is also due to the French revolution: the previous custom in western Europe was to drive on the left, and since ordinary people walked on the right to face the oncoming traffic, that direction was considered more democratic (Young 1996). Hunt (1984, 71) interprets these changes in terms of propaganda, so that 'even clocks could bear witness to the Revolution', but we can be more specific: solving the coordination problem of accepting new conventions of trade, time and travel is a step toward solving the coordination problem of accepting a new government.

James Scott (1990, 203–4, 56) distinguishes explicitly between public communications, the 'public transcript', and non-public communications, the 'hidden transcript': for example,

> the Catholic hierarchy ... understands that if large numbers of their adherents have chosen to live together out of wedlock, such a choice ... is of less institutional

> significance than if these same adherents openly repudiated the sacrament of marriage.

Similarly, 'if the sharecropping tenants of a large landowner are restive over higher rents, he would rather see them individually and perhaps make concessions than to have a public confrontation.' Again, the question is why.

Scott (1990, 41, 224) sometimes claims that the emotions that 'breaking the silence' brings about have causal significance. For example, immediately after the live radio broadcast of black boxer Jack Johnson's victory over the white Jim Jeffries in 1910, 'there were racial fights in every state in the South and much of the North ... [I]n the flush of their jubilation, blacks became momentarily bolder in gesture, speech, and carriage ... Intoxication comes in many forms.' Also, to understand how widespread the impact of a public declaration's 'political electricity' is,

> we can metaphorically think of those with comparable hidden transcripts in a society as forming part of a single power grid. Small differences in hidden transcript within a grid might be considered analogous to electrical resistance causing loss of current.

But Scott's main explanation is the same as ours, that public declarations create common knowledge: 'It is only when this hidden transcript is openly declared that subordinates can fully recognize the full extent to which their claims, their dreams, their anger is shared by other subordinates.' When Ricardo Lagos accused General Pinochet of torture and assassination on live national television, he said 'more or less what thousands of Chilean citizens had been thinking and saying in safer circumstances for fifteen years'; the openness and publicity, not the content, of his speech, made it a 'political shock wave'. 'In a curious way something that everyone knows at some level has only a shadowy existence until that moment when it steps boldly onto the stage' (Scott 1990, 223, 207, 215–6).

Even so, Scott (1990, 48) does not realize the power of his main explanation.

> Imagine, for example, a highly stratified agrarian society in which landlords *recently* had the coercive force to reliably discover and punish any tenants or laborers who defied them ... So long as they maintained a bold ritual front, brandishing their weapons, celebrating past episodes of repression, maintaining a stern and determined air ... they might exert an intimidating influence all out of proportion to the elite's actual, contemporary power.

Here Scott, like Geertz, bases the power of state rituals on association: for Scott an association with previous actual weapons-based power, for

Geertz an association with the master fiction. But as Scott (1990, 49) notes,

> the successful communication of power and authority is freighted with consequences insofar as it contributes to something like a self-fulfilling prophecy. If subordinates believe their superior to be powerful, the impression will help him impose himself and, in turn, contribute to his actual power.

Hence, the publicity of rituals, their 'successful communication', can constitute power all by itself; association might be helpful but is not necessary. Instead of resistances in a power grid, one could say that differences in hidden transcripts cause weaknesses in common knowledge; this is how Mika Gupta describes her feelings reading Simone de Beauvoir's *The Second Sex* as a young woman in Calcutta: 'Her words had a potency because she knew how *I* felt ... At the same time I found her alienating ... There were no spaces into which I could fit my experience as a "bastard of cultures"' (Okely 1986, 4). Finally, one need not explain the reaction to Jack Johnson's live radio victory in terms of 'intoxication': if I allow myself one moment to behave authentically, it might be rational to do so when I think that others will also.

People often coordinate in fairly arbitrary groups: I might enlist in the army and help protect your family in Miami since you agree to help protect mine in Chicago, but why don't I make this agreement with people in Toronto or Havana? Social linkages alone cannot be the reason; as Benedict Anderson (1991, 6) notes, 'members of even the smallest nation will never know most of their fellow-members, meet them, or even hear of them.' Yet nations are no doubt serious collective actors.

Anderson (1991, 6, 44) defines a nation as an 'imagined political community', where the meaning of 'imagined' is essentially common knowledge:

> Speakers of the huge variety of Frenches, Englishes, or Spanishes, who might find it difficult or even impossible to understand one another in conversation, became capable of comprehending one another via print and paper. In the process, they gradually became aware of the hundreds of thousands, even millions, or people in their particular language-field ... These fellow-readers ... formed ... the embryo of the nationally imagined community.

Anderson (1991, 35–6) calls reading the morning newspaper a

> mass ceremony ... performed in silent privacy ... [E]ach communicant is well aware that the ceremony he performs is being replicated simultaneously by thousands (or millions) of others ... [as he observes] exact replicas of his own paper being consumed by his subway, barbershop, or residential neighbors.

Here content, exactly what these fellow-readers are reading, does not matter much (Anderson does analyze the content of newspapers and novels elsewhere); what matters is publicity, that each reader knows that other readers are reading the same thing. Like Scott, and unlike Hunt, Anderson states explicitly that publicity is not just everyone knowing but everyone knowing that others know. Of course, this reasoning applies not only to nations: on pilgrimage to Mecca,

> the Berber encountering the Malay before the Kaaba must, as it were, ask himself: "Why is this man doing what I am doing, uttering the same words that I am uttering, even though we can not talk to one another?" There is only one answer, once one has learnt it: "Because *we* are Muslims" (Anderson 1991, 54).

Perhaps it is not just the obviousness of the commonality, but the mutual obviousness: as we pray together, I discover that you know the same prayer as I do, I know that you know that I know, and so on.

Somehow royal progresses, revolutionary festivals, public declarations, reading the morning newspaper, and pilgrimages, all foster something that seems important for social coordination. In progresses the king moves, while in pilgrimages, the followers move; in festivals, each person sees fellow spectators, while each solitary newspaper reader or television viewer infers or later verifies that others do the same. They can all have quite different meanings; one thing they have in common is the widespread common knowledge they create.

Circles

So far we have talked about common knowledge generation in fairly general terms. One specific way to generate common knowledge, as mentioned in our bus example, is eye contact. For larger groups the closest thing to eye contact is for everyone to face each other in a circle, which enables each person to see that everyone else is paying attention. In this section, I speculate that this is one reason why inward-facing circles help in coordination, and show how the distinction between content and publicity again arises in an interesting way.

A common feature of prehistoric structures throughout the southwestern US is the 'kiva'. Built partially underground, kivas were typically circular and people presumably sat facing each other (some kivas had a masonry bench built along the wall). The large 'great kivas' of Pueblo Bonito in Chaco Canyon, New Mexico, for example, had impressive features such as deposits of beads in niches in the walls. The difficulty of their construction suggests their importance: 'in a limited sense Great

Kivas can be considered public monumental building' (Lekson 1984, 52; see also Lipe and Hegmon 1989). Most interpreters see the function of kivas, especially the large great kivas, as ritual structures for the village, where public activities can be held. Their purpose was to integrate the village across household and family groups, which presumably involved solving coordination problems.

In his survey of city halls in the US and Canada, Charles Goodsell (1988, 158) finds that curving rows feel friendlier than the more traditional parallel linear rows: they 'help to create the impression that the occupants are bound together'. In Fort Worth's city hall, the seats are arranged in concentric inward-facing circles; the architect Edward Durrell Stone hoped

> that a council meeting would be in the vein of a town hall meeting ... [I]n the circle, members of the audience would have visual contact with each other as well as the council, therefore enabling them to observe feelings and responses (Goodsell 1988, 166).

Note that Goodsell's explanation of the effect of circular seating is based on content, an interpretation of its meaning; Stone's explanation is based on publicity, the ability of people to see each other.

Mona Ozouf (1988, 130–1) finds that for revolutionary festivals in the French revolution, circular forms were considered ideal: there was an 'obsession with the amphitheater ... which enabled the spectators to share their emotions equally and to see one another in perfect reciprocity'. Another reason was that organizers wanted to emphasize inclusivity by making the boundary of the festival as loose as possible; a circle is nicely enclosed by the outermost spectators, and can grow organically as more spectators arrive. Finally, the 'circle was an emblem of national unanimity'.

Again, the last reason relies on content, the symbolic meaning of a circle, while the first relies on publicity, people being able to see each other. Ozouf's quotations (1988, 308, 131) from contemporary observers Mouillefarine fils and De Wailly set up this distinction nicely: according to Mouillefarine fils, 'the circle is more symbolic of the facts to be immortalized, its solidity deriving from reunion and unanimous accord'; De Wailly writes that: 'the audience placed in front of the boxes thus becomes a superb spectacle, in which each of the spectators seen by all the others contributes to the pleasure that he shares'. Is the circle symbol or communication technology?

Ozouf (1988, 136) answers directly:

> What was most important in the conversion of churches into *temples décadaires* was not the ingenuity employed in transforming a former Eternal Father into

> Father Time ... or a Saint Cecelia into a goddess of Equality ... The essence of such conversions was to be found in those abolished side chapels, those truncated transepts, that re-creation within the church—by means of flags, hangings, foliage —of a place that could be taken in at a glance.

It's not just a matter of changing symbols, but of changing the physicality of ceremonial spaces to make it difficult for someone to see you without you also seeing them, to better generate common knowledge.

Commercials

The best mass common knowledge generator in the US today is network television, which plays its part in maintaining social authority but of course exists because of its ability to advertise products. In this section, I call a product or good 'social' if a person is more likely to buy it the more other people buy it; hence buying a social good is a coordination problem. Assuming that viewers know which shows are popular, when a product is advertised on a popular show, not only do many people see the ad, but each viewer also knows that many other people see the ad. Hence, our argument would say that social goods should be advertised on popular shows. Here I present data that not only suggest that social goods are advertised on more popular shows but also that advertisers of social goods are willing to pay more per viewer to do so. The analysis here is meant to be short and suggestive; I leave statistical tests, regression analysis, and a more careful consideration of alternative explanations to another paper (Chwe 1997).

I look at cost and audience size data on 119 brands advertised on the three US networks during 3 months representative of a network year (October 1988, February 1989 and July 1989). This sample of 119 brands is not random or representative, but are simply those brands for which data are available (the data set, compiled from the publications of Nielsen Media Research, is discussed in the appendix and available from the author). By seeing on which shows a given brand advertises, and finding demographic and cost data available on each show, it is possible to get an idea of that brand's overall advertising strategy.

First, I categorize the brands into social and non-social; very crudely, along with computers, I include in 'social' brands those that are typically consumed together with people outside the household: in our sample, the social brands are the Apple Macintosh, IBM hardware, the

US Army, Dominos Pizza, Gallo Wines, and thirteen brands of beer. The reason that computers are social goods is because of technological compatibility: a person is more likely to buy a Macintosh the more others buy a Macintosh (see for example Katz and Shapiro 1994). The idea with beer (and wine and pizza similarly) is that I might prefer to buy a beer brand that I think my guests will know and like, I might not want to be the only person who brings a strange brand of beer to a party, or simply that if everyone else drinks Coors Light, then I might prefer to drink Coors Light also. This is fairly ad hoc, but at least we might say that goods which are consumed in separate households are less likely to be social goods, because people buy them for themselves, other people cannot see them consuming them, and they cannot directly see what other people are consuming (see also Becker 1991, 1110). Table 1 shows the social and non-social brands by product type.

Table 1 also shows the average audience size and average cost per thousand for each brand category. What these terms mean is best explained in an example: if Brand X pays $25,000 for one 30-second slot on a show with an audience of 9 million households and pays $10,000 each for two 30-second slots on a show with an audience of 3 million households, the average audience size for Brand X is 5 million and the average cost per thousand is $3, since the total cost is $45,000 and there are a total of 15 million 'gross impressions' (see Webster and Lichty 1991, 192). Average audience size indicates the popularity of the shows that a brand's commercials appear on, and the average cost per thousand indicates how expensive those commercials are.

Two differences between social and non-social brands are apparent. First, audience sizes for social brands are larger than for non-social brands, on average 28 percent higher. With two exceptions (bath and soap and shaving) non-social categories have audience sizes of less than 7 million, and with two exceptions (armed forces and computers) social categories have audience sizes of greater then 7 million. If we exclude computers, Canon cameras, and the US Army because they are the only brands in the sample that have a price of more than a few dollars, the distinction is clearer. Second, the average cost per thousands for the social brands are consistently higher than for the non-social brands, on average almost twice as high (exceptions are shaving and cameras and film processing). That is, beer and pizza companies are willing to spend almost twice as much per household than battery and deodorant companies. Makers of non-social goods not only advertise their products on more popular shows, they are willing to pay extra to do so.

There are several complicating factors, however, One of them is

Table 1. Average audience size and average cost per thousand for various brand categories

Category	*Number of brands in category*	*Typical brand in category*	*Average audience size (millions)*	*Average cost per thousand (dollars)*
Armed forces	1	US Army	5.9	10.1
Beer	13	Coors Light	7.3	10.5
Computers	2	Apple Macintosh	5.4	9.5
Pizza	1	Dominos Pizza	9.5	9.1
Wine	1	Gallo Wines	7.9	9.1
Total social brands	18		7.1	10.2
Baby care	2	Chubs Baby Wipes	4.6	4.8
Bath and soap	3	Caress Beauty Bar	7.4	7.0
Batteries	2	Energizer	5.3	5.8
Bleach and detergent	6	Clorox Bleach	5.9	4.6
Cameras and film processing	2	Canon Cameras	6.9	10.7
Candy	2	Carefree Gum	6.1	4.2
Cereal	27	Kellogg Crispix	6.0	6.3
Deodorant	6	Arrid Deodorant	5.6	5.2
Foods	12	Shedds Spread	5.5	5.0
Hair care	10	Head & Shoulders	5.5	5.0
Household cleaners	14	Lysol	5.3	3.9
Household medications	10	Nuprin	5.3	5.2
Pet food	1	Milk Bone Biscuits	5.7	4.8
Shaving	2	Atra Plus Razor	7.8	9.7
Toothpaste	1	Aquafresh	4.3	5.5
Wood finishing	1	Minwax	4.5	5.1
Total nonsocial brands	101		5.6	5.4

demographics: the non-social brands are fairly diverse in our sample, but the social brands, especially beer, are heavily oriented toward young or perhaps middle-aged men; unfortunately, data is not available on clothing, shoes, soft drinks and automobiles, which might also be considered social brands. One way of correcting for this (again, short of a regression) is to consider only male-oriented products and the audience of men aged 18 to 49 years, as shown in Table 2.

Even when considering only men aged 18 to 49 years, social brands are advertised more expensively and on more popular shows. The Atra Plus razor is a notable exception that can be 'explained away' by the fact that Gilette introduced its 'Best a man can get' campaign in 1989

Table 2. Men 18 to 49 years: Average audience size and average cost per thousand

Brand or category	*Average audience size (millions)*	*Average cost per thousand (dollars)*
US Army	2.77	21.6
Beer	3.13	24.5
Apple Macintosh	1.60	23.7
IBM Hardware	2.11	27.7
Dominos Pizza	3.36	25.7
Gallo Wines	3.24	22.0
Aqua Velva Aftershave	1.61	21.2
Atra Plus Razor	5.05	21.7
Mennen Deodorant	2.42	18.1

partly in preparation for the 1990 product launch of its Sensor razor (Fahey 1989).

We graph average audience sizes and cost per thousands for all 119 brands in Figure 1. Again, the first finding is that social brands tend to be advertised on popular shows. The second finding is that campaigns for social brands pay a higher cost per viewer.

There are several plausible explanations for why popular shows tend to be more expensive per viewer. One is that a commercial that reaches 10 million households costs more than a pair that each reach 5 million, because the pair have overlapping audiences and do not reach a total of 10 million (see also Fisher et al. 1980, 700). Another explanation might be that popular shows have better demographics, a greater ability to reach rich people for example. However, data are available on cumu-

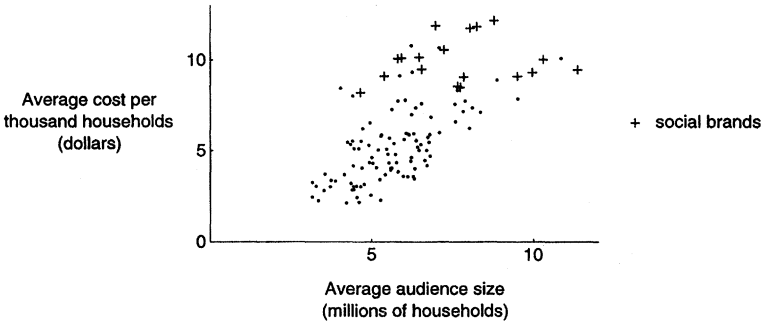

Figure 1.

lative exposure and a full range of demographic categories, and after correcting for these the result remains (Chwe 1997). Another explanation might be that there are relatively few popular shows, and hence networks are in a better bargaining position for these shows when negotiating with advertisers. Popular shows might be more interesting and hence viewers might recall the commercials better (Webster and Lichty 1991). Advertising a brand expensively on a popular show might indicate high quality (Nelson 1974; Kihlstrom and Riordan 1984; Milgrom and Roberts 1986). Popular shows might simply be more persuasive and better at changing preferences toward purchase. These explanations of why popular shows are more expensive per viewer are all plausible, but none can explain why social brands tend to be advertised on more popular shows. In other words, there is no obvious reason why issues of recall, quality and persuasion apply more to social brands than to non-social ones.

Again, our sample of social goods is quite limited, dominated by male-oriented goods, especially beer; determining independently whether a good is social or not is also difficult. More data and work could remedy this; for now at least we can say that our argument is empirically falsifiable and not just a logical nicety.

Common Knowledge

In this section, I explore the concept of common knowledge more fully: first, I consider other mechanisms for generating common knowledge; second, I consider how people fight over these mechanisms; third, I consider the problem that common knowledge seems to require that people think through arbitrarily many 'I know that you know that I know ... ' iterations.

So far, we have discussed common knowledge as generated by direct communication. Another influence on common knowledge is social structure: James Coleman (1988) mentions that the 'study circles' of South Korean student activists constitute 'social capital', which helps in mobilizing for demonstrations. If my friends all know and talk with each other ('strong links'), then common knowledge can more easily form than if my friends don't know each other ('weak links'; see Granovetter 1973; Chwe 1996). According to Roger Gould (1995, 18–20),

> potential recruits to a social movement will only participate if they see themselves as part of a collectivity that is sufficiently large and solidary to assure some chances of success through mobilization. A significant source of the information

> they need to make this judgement is ... social relations [which are] the mechanism for mutual recognition of shared interests (and of recognition of this recognition, and so on).

Historical precedent is another way to generate common knowledge: 'if we were cut off on the telephone and you happened to call back as I waited, then if we are cut off again in the same call, I will wait again' (Lewis 1969, 36). Seeing a movie is a coordination problem; people want to see what's popular, if only because they want to know what everyone else is talking about (Becker 1991). Hollywood since the 1970s has seen the increasing dominance of the 'high concept' film, intended to have a huge audience immediately upon release (Wyatt 1994). This requires not only intensive advertising, but also a 'pre-sold property': *Jaws* was based on a bestselling novel, and films such as *Dick Tracy*, *Superman* and *The Addams Family* have been based on sometimes very old comic strips and television series. One interpretation of this is that studios try to use ideas that have a proven profit-generating record (Wyatt 1994, 78). But whatever blockbuster profits *Dick Tracy*, *Superman* and *The Addams Family* enjoyed occurred decades before their movie adaptations, if ever. These characters are common knowledge not because of recent mass success, but because they are historical, appearing to small unexcited audiences, but recurringly, year after year in comic strips and late-night syndicated television. In terms of common knowledge, history is just like publicity: when I see ads for *Independence Day* I know that everyone else knows something about it because I see the massive ad campaign; when I see ads for *The Addams Family* I know that everyone else knows something about it, because everyone knows about the Addams Family. Also, if history can substitute for publicity, then publicity can substitute for history: Eric Hobsbawm (1983, 304–5) finds a flurry of 'invented traditions' between 1870 and 1914, as the advent of universal male suffrage made nations appeal to mass 'audiences' for legitimacy, and relates this to the 'invention in this period of substantially new constructions for spectacle and de facto mass ritual such as sports stadia, outdoor and indoor'.

Most of our examples so far have treated coordination as uncontested. But of course people disagree about how to coordinate: for example, 'many Ghanaians would prefer to rely on a common indigenous national language but differ as to which it should be' (Laitin 1994, 626). Since people fight over coordinations, and common knowledge is helpful for coordination, people fight over mechanisms for generating common knowledge. The former Soviet Union and eastern European states have been described as exhibiting 'pluralistic ignorance': because of criminal

penalties for self-expression, a government-controlled press, and a lack of social ties, dissatisfaction was widespread but few people knew how widespread it was (O'Gorman 1986; Coser 1990; Kuran 1991). To create Solidarity in Poland,

> the organizing conversations at Cegielski [Railway Works] were conducted in places beyond the gaze of foremen—in trains and buses to and from work, in remote sections of the plant, at lunch breaks ... This space was not a gift; it had to be created by people who fought to create it (Lawrence Goodwin, quoted in Scott 1990, 123).

Or as microbroadcaster Napoleon Williams of Decatur, Illinois notes, 'You can buy a Uzi fully assembled, but it's illegal to buy [an FM transmitter] fully assembled in this country' (Burke 1997). Schelling ([1960] 1980, 144) writes that 'the participants of a square dance may all be thoroughly dissatisfied with the particular dances being called, but as long as the caller has the microphone, nobody can dance anything else'. The idea that fair and equal communicative capability is necessary for fair outcomes is basic enough to build a theory of ethics on (Habermas 1989).

That people fight over common knowledge generation is an obvious point, but it helps in understanding that cultural struggles include more than just struggles over meanings and symbols. Sometimes cultural practices are seen as mostly superstructural:

> In the case of American slavery, for instance, it is revealing to talk about the 'trappings' of master-class authority and about symbolic exchanges between blacks and whites. But there comes a point at which that translates a harsh condition into form and theater (Walters 1980, 554).

But mechanisms for generating common knowledge, which include rituals and ceremonies, are more than just 'theater'. In the case of American slavery, the prohibition on teaching slaves how to read and write was not just one of the 'trappings' of White rule but an attempt to suppress communication and hence rebellion; interestingly, the real power of the written word is in communicating publicly (putting up a sign) and over long distances (notes to slaves on other plantations); in face-to-face interactions talking is easier. Even at the face-to-face level, 'gatherings of five or more slaves without the presence of a white observer were universally forbidden' (Raboteau 1978, 53, quoted in Scott 1990). In turn, slaves fought back by for example talking secretly in 'hush arbors' and placing hidden meanings in publicly sung spirituals ['Canaan' meant the North and freedom (Scott 1990, 116)]; this fight was not merely 'symbolic' but was a struggle for the communications

infrastructure that would help in real coordinated actions, such as escape attempts.

One problem with common knowledge is that it seems impossible to achieve in reality; do people really think through arbitrarily many levels of 'I know that he knows that . . . '? This is not so important if people are boundedly rational (see Simon 1959 and Conlisk 1996), but it is if we take game theory's perfect rationality assumptions to their full logical extent: Ariel Rubenstein (1989) gives an example in which two people have 99 levels of metaknowledge but cannot coordinate because they do not have the hundredth. There are various ways of making the concept of common knowledge less strict and more plausible. One is instead of requiring that I know that you know, one can require that I believe with 99% probability that you believe with 99% probability and so on (Monderer and Samet 1989; Morris et al. 1995). The second is to define common knowledge not as a condition on arbitrarily many levels, but on a recursive step that is more plausible as an actual thought process (see Lewis 1969, 52; also for example Milgrom 1981): assume that when we make eye contact, we both know that we are making eye contact. When we make eye contact, I know that we are making eye contact, and hence I know that you know that we are making eye contact, and so forth. The third and perhaps most plausible, as pointed out by Herbert Clark and Catherine Marshall (1992, 33), is that people recognize common knowledge and the deviations from it heuristically: 'if A and B make certain assumptions about each other's rationality, they can use certain states of affairs as a basis for *inferring* the infinity of conditions all at once'. When we make eye contact, I don't have to think through anything; I can simply infer from past experience that usually when we make eye contact, common knowledge is formed. In any case, no communication is 'failsafe' (Sperber and Wilson 1986, 44); all that is necessary is to acknowledge that common knowledge helps bring about, but by no means guarantees, coordinated action.

Publicity and Content

The main message of this paper is that publicity as well as content must be considered in understanding cultural practices such as rituals. But although this distinction is useful analytically, content and publicity are never fully separable in practice; in this section I explore how they interact.

By separating content and publicity, we do gain a sometimes necessary flexibility. Daniel Boorstin (1961, 5, 57–9) complains that

> *the celebrity is a person who is known for his well-knownness* ... [T]he phrase 'By Appointment to His Majesty' was of course, a kind of use of the testimonial endorsement. But the King was in fact a great person, one of illustrious lineage and with impressive actual and symbolic powers ... He is not a mere celebrity.

But as we have seen, a king's 'actual' power is at least partly constituted by 'pseudo-events' such as royal progresses: indeed, a pseudo-event is usually 'intended to be a self-fulfilling prophecy' (Boorstin 1961, 12). Earlier 'power draped itself in the outward garb of a mythical order'; today Guy Debord's ([1967] 1995, 20) 'society of the spectacle' is 'self-generated, and makes up its own rules: it is a specious form of the sacred'. The point here is that sometimes it does not matter whether the content of a message is 'true': Lewis (1969, 39) notes that

> if yesterday I told you a story about people who got separated in the subway and happened to meet again at Charles Street, and today we get separated in the same way, we might independently decide to go and wait at Charles Street. It makes no difference whether the story I told you was true, or whether you thought it was, or whether I thought it was, or even whether I claimed it was. A fictive precedent would be as effective as an actual one.

But the reason that content and publicity cannot really be separated is simply that all communications have an assumed or implied audience. In John Austin's (1975) terminology, a speech act has not just a 'locutionary' literal meaning, but also an 'illocutionary' meaning having to do with the speaker's intentions in a given situation: for example, 'Yes, I will marry you' has a different meaning when spoken in private than when spoken publicly in front of friends. Perhaps instead of saying that this paper is about publicity as distinct from content, I should say that this paper is about one aspect of illocutionary meaning.

Content and publicity can interact in interesting ways. Sometimes content indicates the social situation, which includes considerations of publicity, in which it is to be understood: when a paperback best-seller has 'Over 5 million copies sold' on its cover, this sentence is part of the 'text' of the book. The language in which a book is written indicates a presumed audience. Medieval Russian manuals for icon painters instructed that

> the righthand part of the painting was thought of as the 'left', and conversely the left part of the painting as the 'right'. In other words the reckoning was not from our point of view (as spectators of the picture) but from the point of view of someone facing us, an internal observer imagined to be within the depicted world (Uspensky 1975, 34).

Here the content of the icon indicates the painter's understanding of the viewer's relationship to it.

A second way that content and publicity interact is that mechanisms of publicity are sometimes simply included in the content, as in the title of Jean Genet's (1966) *The Balcony*. An inward-facing circle generates common knowledge; this is perhaps one reason why an inward-facing circle symbolizes solidarity, just as a reason that a ceremonial sword symbolizes power is because it is similar to an actual weapon. In the 1954 feature film *On the Waterfront*, scenes involving the unorganized longshoremen depict them each facing in a different direction, while the gang which exploits them is shown united in a circular huddle.

Finally, a message's content can affect the extent to which common knowledge is generated. Stanley Tambiah (1985, 128) finds that rituals use 'multiple media by which the participants experience the event intensely'; hence, a person in a ritual has a strong presumption that other people are experiencing it also. In the spirit of information theory, repetition of the same phrase can be understood as providing redundancy. But as Tambiah (1985, 138) notes, information theory is not directly applicable because rituals are more about 'interpersonal orchestration and ... social integration and continuity' than transmitting information. In our interpretation, repetition is not just about making sure that everyone gets a message, but also making that repetition evident to each person, so that each person knows that everyone else gets the message; this is the entire point of the communication, and the message itself need not carry any new information. Audience participation is another way of creating common knowledge: each person can see from the gestures or speech of others that they are in fact paying attention. Tambiah (1985, 123) quotes A.R. Radcliffe-Brown's interpretation of dance as enabling 'a number of persons to join in the same actions and perform them as a body'. Under our interpretation, group dancing 'as a body' is an ideal way of creating common knowledge: if any person loses interest, then this is immediately evident to everyone because the pattern of movement is disrupted. Repetition, call and response, and dance forms are usually considered part of a ritual's content or form. But they might be just as important in creating common knowledge as those aspects that are more obviously about publicity, such as having a large audience.

Michael Fried characterizes some modern sculpture as 'public' or 'theatrical' on various grounds including size and 'objecthood'. A large sculpture 'distances the beholder'; if it is too large, however, Fried quotes Robert Morris as saying that 'the object can overwhelm and the gigantic scale becomes the loaded term.' Fried ([1967] 1977, 446, 447) interprets this in terms of anthropomorphism; for example Tony Smith's

Die, a six-foot cube, is a 'kind of *statue*'. If 'public' and 'theatrical' are understood in terms of common knowledge, then when you see a large sculpture, you are more likely to believe that others will not overlook it; if the piece is too large to be seen in a single glance, you are not sure that when others look at it they see the same thing you do. Theatrical sculpture emphasizes 'wholeness, singleness and indivisibility ... a work's being, as nearly as possible, ''one thing'', a single ''Specific Object''' (Fried 1977, 440, 453). Thus, the sculpture of Anthony Caro resists theatricality because of its 'mutual and naked *juxtaposition* of the I-beams, girders, cylinders, lengths of piping, sheet metal and grill which it comprises rather than in the compound *object* which they compose'. Perhaps unitary objects are theatrical because each observer expects that others will see it in a similar way; an observer looking at a sculpture with many interacting elements expects that others will more likely see and understand it differently.

These considerations only scratch the surface. My understanding of how you understand a given communication depends on our shared symbol system and world view: Hayam Wuruk's royal progress would not be understood as such by Elizabeth Tudor's audience, and vice versa. As Clark and Marshall (1992) point out, community membership is an important basis for common knowledge (of course, a person is a member of many different communities, each to various degrees). As David Laitin (1986) explains, in Nigeria in 1976, the issue of establishing a Federal Sharia Court of Appeal based on Islamic law threatened all-out religious conflict, even war. The Yoruba states in the western region of Nigeria, with population evenly divided between Christian and Muslim, were swing regions in this debate; however, Yoruba delegates took moderate positions and laid the grounds for national compromise. Laitin explains this in terms of hegemony: for Yorubas, it is common sense that the ancestral city, not religion, is the basis for political mobilization and conflict. A Yoruba Christian did not feel threatened by the Sharia issue because she knew that Yoruba Muslims would not understand it as a religious call to arms, and vice versa. The point here is that the publicity of a communication alone does not determine common knowledge; also crucial is how each person understands or interprets how other people understand or interpret a communication.

Concluding Remarks

Claude Lévi-Strauss saw game theory as allowing the 'increasing consolidation of social anthropology, economics, and linguistics into one

great field, that of communication' (1963, 298). A more timid claim would be that some oppositions cannot be so obviously sustained. For example, James Carey (1988, 15, 18–20) writes that the 'transmission view of communication ... defined by terms such as "imparting," "sending," "transmitting," or "giving information to others"' has dominated the 'ritual view of communication ... linked to terms such as "sharing," "participation," "association," "fellowship," and "the possession of a common faith"'. This is because of 'our obsessive individualism ... [and] ... disdain for the significance of human activity that is not practical'. But transcending the 'transmission' view and including the 'ritual' view is exactly what is required when considering the decisions of individuals facing real, practical problems of coordination. The idea of individual rationality, historically associated with atomistic market societies, can help in understanding cultural practices that seem to create social unity. Cultural studies have long considered social and economic contexts; by pursuing the logical consequences of economics' defining assumption of rationality, game theory finds culture.

APPENDIX
Description of the Data

Based on a nationwide sample of households, Nielsen Media Research estimates demographic characteristics of the audience of virtually every network television program. These demographic characteristics, including total audience ('ratings'), age, sex, geographical location, and household income, are published in the monthly *National Audience Demographics*. For its estimates of the costs of commercial slots on a given program, published in *Household & Persons Cost Per Thousand*, Nielsen relies on reports given by the television networks, not on actual transactions. Actually a slot on a given program usually does not have 'its own' price; slots are often bought and sold and bargained over in blocks (Poltrack 1983). One consolation about this cost data, the only such available, is that it is used by the advertisers and television networks themselves. Nielsen publishes on which programs a given brand appears in a given month in *Brand Cumulative Audiences* (for a description see Webster and Lichty 1991, 222). This publication does not attempt to include everything: only those brands which Nielsen clients contract for are included, and this varies in time. It ceased publication in 1991, and appears only for the months October, February, and July.

It is natural to focus on these three months, selected by Nielsen to be representative of the television year. It is necessary to consider all three because of significant seasonality, in consumption (beer is consumed more in the summer), television viewing (people watch less during the summer), and in the market for slots (cost per thousands are generally higher during the summer). Of

the two years (1988–89, 1989–90) for which the three mentioned publications on these three representative months still exist in the warehouse storage of Nielsen's Schaumburg, Illinois office, I chose 1988–89 because brand data for that year included more 'social' goods, especially beer. I selected only those brands which appeared in *Brand Cumulative Audiences* for all three representative months of 1988–89.

Although Nielsen's reports are 'published,' Nielsen makes them available only to those clients, and each client is contractually bound to not release them to any third party. Hence they are not easily accessible; I am grateful to the Nielsen Media Research offices in Schaumburg, Illinois for access to their data and expertise.

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