in spite of their transfers via tax payments to the common good, hardworking and skilled hunters benefit from their activities while at the time transferring significant quantities of meat to others. Good hunters *can* provide more food for their family *and* more public goods. There is no logical incongruity here. Good, hardworking hunters may be getting relatively smaller portions, but they keep them from quantities that are absolutely larger. As long as there is a positive relationship between individual income and work effort, skilled producers will be motivated to work harder in spite of the fact that they are giving much away – up to a point.

While this explains why high producers are motivated to produce in spite of losses to sharing, it still begs the question why hunters (and wealthy taxpayers) do not benefit even more and keep all of their wealth to themselves. The answer might be that they would *not* benefit more if they try to keep a larger proportion of their earnings. This makes sense if the transfers take place within a context of a generalized cooperative subsistence strategy.

This is the context found among the Lamalera whale hunters with whom I work in Indonesia. Resource acquisition in Lamalera is a classic example of coordination among not only the hunters but also a range of specialists without whom the hunt would be impossible (Alvard & Nolin 2002; see also Barnes 1996). The high returns that cooperating individuals receive from whale hunting are unattainable by solitary hunters. This is true for even the best and most highly skilled and hardest-working of the hunters, the harpooners.

Gurven does not seem convinced that good producers get paid back for their efforts (sect. 8.2). Individuals have a network of personal relationships defined by age, sex, and kinship. The networks are maintained across a variety of contexts focused around mating, parenting, subsistence, and group defense. At Lamalera, hunters maintain control over the primary shares that they bring to their households. Secondary sharing that happens after meat is brought to the household is significant. If they were to refuse to share their meat with others outside the nuclear family, one could imagine that a hunter's network of partners might withdraw cooperation and his productivity would decline to the point where his family is actually consuming *less* food.

Meat acquisition and meat transfers can be used by hunters in a variety of ways. One possibility is that productive hunters share their bounty widely because they could not be as productive without the network of personal relationships that widespread sharing maintains. The costs of not sharing would be prohibitive to a harpooner in Lamalera. Not only would he be less attractive as a partner in the political and reproductive arena, but his ability to provide resources to his family would surely be compromised (Alvard 2003; Alvard & Nolin 2002).

Gurven (sect. 8.2, para. 4) hints at this idea when he says that "norms of giving enforced by sanctions as a means of punishing stinginess can 'force' high producers to pay graduated income taxes." If ostracism of stingy hunters includes withdrawal of cooperation in a society where cooperation is an essential aspect of subsistence, good producers have more to lose by not sharing than poor producers. This may explain how they are "forced" to pay more.

One might argue that poor producers have much to lose too if they ostracize good producers who do not share. Assuming that it is stinginess on the part of the good producers that elicits punishing, at least some of the costs are already being paid. In the Lamalera case, however, it is more complex – especially when harpooners are involved. This is because hunts cannot occur without the skills of harpooners. Ostracize your harpooner, and the boat is grounded. As I have reported elsewhere, however, there is anecdotal evidence that Lamalerans are willing to punish others for norm transgressions even at significant costs to themselves (Alvard, 2004). A boat manager removed his boat's harpooner for assaulting his daughter. Not only was the harpooner punished, but so were the manager and the rest of crew, because the boat could not hunt without the harpooner.

Where's the beef? It's less about cooperation, more about conflict

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Abstract: Individuals give for two reasons. One is to get a benefit back. The other is to avoid a cost. "Cooperation" theories stress mutual benefits. "Conflict" theories stress costs. Hunters may give up part of their hunt because they get favors back, *or* because the recipients are stronger than they are and the hunting isn't as good anywhere else.

Twenty years ago, I spent 4 months in the Western Pacific on Ifaluk Atoll. Ifaluk is tiny – just 0.569 square miles in land area; and its population is small – just 446 in the summer of 1983. But some people on Ifaluk work harder than others; and other people live better.

Chiefs, in particular, work less. They spend almost twice as much time resting (Betzig 1988b; Betzig & Turke 1985) as other men of the same age. But chiefs' households take in more food, more often, from more distant kin (Betzig 1988b; Betzig & Turke 1986). Chiefs (and their successors) have more children (Betzig 1988b; Turke & Betzig 1985), and their children are better cared for. Chiefs spend more time with their children than other fathers (Betzig & Turke 1992); chiefs' wives spend more time with their children than other mothers (Betzig & Turke 1992); other people on Ifaluk spend more time with chiefs' children (Betzig et al. 1989); and chiefs (and their successors) adopt out more children than they adopt in (Betzig 1988a).

More than once, as I sat with a bad parasite in the Ifaluk lagoon, I wondered why the little people on Ifaluk put up with chiefs. And the answer was all around me. The nearest spit of land, another tiny atoll, was 30 miles to the west across the shark-infested Pacific. The nearest high island, Yap, was 300 more miles away. Dissatisfied anthropologists on Ifaluk had nowhere to go. Neither had dissatisfied subjects. Unhappy Ifalukese had two options. They could pay overbearing chiefs what they asked for, or they could set their outrigger sails to the wind and hope for the best.

Not so long before I first went to Ifaluk, in 1970, the American Museum of Natural History anthropologist Robert Carneiro published a paper in *Science* on the origin of the state (Carneiro 1970). He looked at state formations in Mesopotamia, Egypt, and Peru; and he concluded that they were all "circumscribed" zones. Poor men paid Sumerian/Babylonian/Assyrian emperors, Egypt's pharaohs, and Peru's Incas in tribute and labor *not* because emperors/pharaohs/Incas were good to them in return, but because the costs of leaving were high. The rich land between the Tigris and Euphrates, or around the Nile Delta, or in the Andes valleys was surrounded by hostile deserts and mountains. Dissatisfied subjects had two options. They could pay overlords what they asked for, or they could vote with their feet and hope for the best.

"Skew" theories take those two options into account. Studies of animal societies have looked for "social contracts" – the equal return of social benefits for social benefits. And they've looked for "social controls" – the biased return of social benefits to better fighters. Evidence of the first is relatively equivocal (e.g., Emlen et al. 1998). Evidence of the second is relatively clear (e.g., Clutton-Brock 1998). Better fighters do best where worse fighters are trapped: where the costs of running away to another good territory are high.

I think the whole of human history can be interpreted like that. The Sumerian word for "freedom," ama.ar,gi, also means "freedom to move" (e.g., Lemche 1979). Mobility makes equality; and inequality goes up where subjects can't get away. Around 5,000 years ago, in fertile river valleys bordered by mountains and deserts, subjects started to pay overlords labor and taxes. They stopped, as soon as they found a way out. In the wide open spaces of Africa and Asia, people had voted with their feet for millions of years. After 1095, they did it again in the Near East; and after

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1492, they did it on the vast empty tracts of the New World. People – and the goods they needed to live – were freer to move. "In the beginning all the World was *America,"* John Locke once wrote (Locke 1690/1980, vol. 49). In the end, it would be again. What brought an end to unpopular government? I think the short answer is: two empty continents.

The models Gurven ably reviews here – kin selection (KS), reciprocal altruism (RA), tolerated scrounging (TS), and costly signaling (CS) – all return social benefits for social benefits. They leave ecological costs out. There is no doubt that foragers occasionally give away food to get the attention of mates (CS), to avoid fighting with the hungry (TS), to anticipate paybacks from friends (RA), and to keep their relatives healthy (KS). But sometimes they give social benefits away to stay on a good territory. They give up part of the hunt/catch/crop because the hunting/fishing/gathering isn't as good anywhere else. It's a little ironic, to me, that so many of the new evolutionists – the "Darwinian" psychologists and anthropologists – focus so much on cooperation and so little on competition. Where's the Darwinism? Where's the *beef*?

In *Homo sapiens* societies, as in any other animal societies, mobility is an aid to equality. Foragers are notoriously "egalitarian," speaking relatively. But no society lacks unfairness completely. Strong egalitarian ethics, like "we refuse one who boasts, for someday his pride will make him kill somebody" (Lee 1979), or "sell all you have and distribute to the poor" (Luke 18:22), or "from each according to his ability, to each according to his needs!" (Marx 1875/1980) aren't repeated where cooperation is automatic. They get said, again and again, where individuals conflict, and where the winners take more than equal shares. *Why* do they get to take more? Sometimes, because the givers have nowhere better to go.

Tolerated scrounging in nonhuman primates

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Abstract: Gurven suggests that the tolerated scrounging model has limited relevance for explaining patterns of food transfers in human populations. However, this conclusion is based on a restricted interpretation of the tolerated scrounging model proposed originally by Blurton Jones (1987). Examples of food transfers in nonhuman primates illustrate that the assumptions of Gurven's tolerated scrounging model are open to question.

Gurven provides a comprehensive review of the patterns of food sharing within groups of hunter-gatherers and forager-agriculturists, and carefully evaluates the available data with respect to functional hypotheses. He concludes that the relevance of tolerated scrounging (TS) as a model of food sharing has been overstated and that the conditions required for widespread TS to occur are likely to be rare in human populations. Here I argue that these conclusions are based on an oversimplification of the tolerated scrounging model and that the assumptions used are not in keeping with the original model of TS. This argument is illustrated using data on food sharing in nonhuman primates.

In most species of nonhuman primates, the transfer of food items between adults is a relatively rare occurrence. Where food transfers do occur, the most common situation is one in which a higher-ranking individual takes a food item from a lower-ranking individual by using aggression or the threat of aggression. As Gurven notes, Blurton Jones (1987) suggested that when an individual is unable to maintain control of a resource without paying a substantial cost to defend the food, a food possessor should cede portions to other individuals if this price of defense is greater than the additional value that could be gained from consuming the food. In the situation described above, the costs of receiving aggression from a higher-ranking individual may outweigh the benefits of consuming the food item.

Interestingly, the opposite situation has also been reported to occur, with food items being transferred from higher-ranking to lower-ranking individuals. Following a hunt, adult male chimpanzees have been observed to allow lower-ranking individuals to take portions of their meat. Acquirers sometimes beg for a portion of meat by using specific vocalisations and by holding out a hand to the meat possessor, as well as by attempting to grab for pieces. Occasionally, the possessor will appear to actively hand out portions of the meat to begging individuals.

A number of adaptive hypotheses have been proposed to explain such patterns of meat transfer, including trade for sex, grooming, and enhanced alliances. These hypotheses have yet to gain strong backing. For example, although sexual interactions have been observed to occur shortly before or after meat is transferred from a male to a female, these instances are very rare, and captive studies of chimpanzees have found that meat transfer does not correlate with increased matings (Mitani & Watts 2001) or with an increased chance of siring an offspring (Hemelrijk et al. 1999). Studies of captive and free-ranging male chimpanzees have found significant correlations between the number of times that meat is transferred within a dyad and the number of times that these males engage in coalitionary support and grooming (de Waal 1989; 1997b; Mitani & Watts 2001; Nishida et al. 1992).

Although these data are consistent with the suggestion that meat is traded for other commodities, whether calculated reciprocity is the mechanism underlying these patterns remains to be established. A simpler mechanism by which the transfer of food items could occur from a higher-ranking to a lower-ranking individual would be that any costs of interacting with a begging individual, such as reduced feeding efficiency or attracting the attention of other group members, might result in the food possessor transferring a portion of food. Infant primates have also been observed to beg for solid food from older group members (e.g., Feistner & Price 1990), and the decision of the food possessor to relinquish food will depend upon the balance between the benefits of consuming the food and the costs of ignoring begging plus any kin selection benefits. These instances of food transfer could also be described as tolerated scrounging.

The TS model is based on the difference between the costs and benefits of defending a food item. In order to differentiate between this model and reciprocal altruism (RA), it is necessary to add that tolerated scrounging occurs when the food possessor relinquishes food without the expectation of receiving food or other commodities in the future. As Gurven notes, TS could occur where the cost of not relinquishing food is a punishment, such as ostracism or a verbal or cultural sanction, and that this could result in a situation in which individuals take turns at playing the role of acquirer and recipient. This would produce a pattern of food transfers very similar to that produced by reciprocal altruism. At present, the significant contingencies reported in Gurven's Table 2 could result from TS with punishment or from RA. Gurven states that computer simulations reveal that significant correlations between amounts given and amounts received as a result of TS will occur only in highly structured groups of few individuals, but he does not give further details of these computer simulations.

Gurven proposes a number of assumptions that he suggests form the basis of the TS model. For example, Gurven suggests that food will be transferred from those with lesser need to those with greater need, that TS will not occur where the producer can control who receives food and how much, and that only powerful individuals can avoid relinquishing shares to hungry individuals. These assumptions were not part of Blurton Jones's (1987) original TS model and may not be appropriate when one considers a less restricted view of TS. Gurven also suggests that, according to the TS model, any increased demand for food, such as during a time of food shortage, should increase the breadth and/or depth of sharing. However, in these circumstances, sharing may be less likely to be tolerated if the benefits of consuming the food outweigh the costs to the food possessor of defending the item.

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