Supplementary Electronic Materials for

Pre-Hunt Communication Provides Context for the Evolution of Early Human Language

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Online Appendix 1: Power Scavenging

One recently favored alternative to hunting for early hominids is "power" or "confrontational" scavenging (O'Conell et al. 2002). This hypothesis assumes that the increased frequency of meat in the hominid diet was a result of hominids actively chasing away predators from their kills. There are several problems with this idea. First, even proponents of the confrontational scavenging model admit that it is a dangerous exercise, probably a lot more dangerous than hunting (O'Conell et al. 2002). Even today's humans like Hazda use weapons to subdue lions and hyenas. O'Conell et al. (2002) observe that without relatively modern weapons (such as bows and arrows) confrontational scavenging was even more dangerous and probably less efficient. Given that the Plio-Pleistocene carnivore guild consisted of even larger felids than that of today (Lewis 1997), it is highly unlikely that early hominids would have actively searched for such encounters (given high risk, low gain). In parallel with this argument there is no account of chimpanzees actively seeking out leopard kills and/or chasing away leopards from their kills (which would be roughly

today's equivalent of the aggressive scavenging model); in fact, chimps tend to ignore scavenging opportunities (Watts 2008).

Second, the aggressive scavenging model assumes a niche that is non-existent in nature. There is no mammalian species that would (1) be omnivore, (2) excel or at least be reasonably good in aggressive scavenging, and yet (3) be a very poor hunter (as the proponents of the aggressive scavenging model wish to exclude hunting as a way of meat acquisition; O'Conell et al. 2002). As Tooby (1987: 400; emphasis in original) argues: "It is not hunting with supplementary scavenging but *preponderant scavenging without hunting* that is the burdensome hypothesis." Lions and hyenas are both excellent hunters and confrontational scavengers; bears are excellent hunters too. There are mammals that are excellent hunters but very poor confrontational scavengers, like the cheetah, which sacrificed strength for speed and agility (i.e., sacrificed efficiency in confrontational scavenging for hunting efficiency). But there is not a single mammalian species that is a decent confrontational scavenger, yet a very poor hunter. If anything comes close, it is the male lion. Male lions are viewed as not as good hunters as females; however, they are excellent power scavengers. Male lions are arguably specialized for confrontational scavenging; not even a pack of hyenas can chase them away. They can "afford to be" not as good hunters as females exactly for this reason. Arguably, early hominids were nowhere nearly as specialized and adapted to confrontational scavenging as male lions; in this sense, early hominids could not afford to be poor hunters. In other words, to be a good power scavenger one has to beat the best power scavengers—hyenas and male lions—at their game. However, to be a good hunter one only has to beat the prey at their game (as the cheetah beats the gazelle—it needs to run faster), and need not compete with lions or hyenas. As Geist (1987: 396; emphasis in original) puts it:

> An alternative to scavenging from predator kills is hunting as an *evolving* skill within the ecological constraints faced by early hominids.… This has roots in known chimpanzee behavior, is linked to human adaptations and archaeological remains, avoids excessive contact with predators, and minimizes danger to the hunter.

Arguably, early hominids were better pre-adapted to be good hunters than to be good power scavengers. Observations on chimpanzee hunting behavior can show us why: mostly because chimpanzees, as discussed before, are actually good hunters. Given that they do have the numbers, chimpanzees are highly efficient hunters of small prey. Chimpanzees also hunt duikers (Mitani and Watts 1999; Watts and Mitani 2002). It is not unreasonable to assume that early hominids could have done the same in the tropical forest environment. Thus, as noted in the main article, hunting small- or medium-sized antelopes in their new environment would have been a natural continuation of an already existing behavioral strategy. On the other hand, scavenging is very rare in chimpanzees and they decline even most of the rare opportunities (Watts 2008). Power scavenging against stronger, potentially dangerous opponents is not observed (Watts 2008), perhaps because of the lack of opportunities, or perhaps because chimpanzees are not too keen to confront even medium-sized predators like leopards. Either way, power scavenging would have been a new adaptation and would have required confronting new and powerful enemies, such as lions and hyenas, which hominids never confronted before.

Finally, some argue that confrontational scavenging was undertaken as a display of strength to gain prestige and position rather than as a foraging exercise (O'Connell et al. 2002). They forget, though, that prestige and position can be gained only by the possession of something valuable. If the possession of a carcass can lead to a gain in position then it shows that the carcass is valuable to the group, and indeed meat is a highly valued resource in chimpanzees, as even O'Connell et al. note.

Alternatively, as the proponents of the "display theory" argue, it is not the possession of the carcass but the bravado of the males that gains prestige and position, very much like the famous "rain dance" of chimpanzees. However, there are two problems with this line of argument. First, as the chimpanzee example shows, there is no need to encounter dangerous predators to show bravado. Second, if indeed only bravado gains position, then why not just seek out predators and beat them up? No males of any primate species (except humans with weapons, like Masai) are known to seek out dangerous predators and beat them only for bravado. Obviously a situation like confrontational scavenging would indeed create an excellent opportunity to show bravado, but the situation would have been created for a different reason in the first place, namely, to gain an important resource—meat.

All in all, power scavenging is an unlikely alternative to hunting. It is not just that chimpanzees are actually good hunters; they also hunt small duikers (Mitani and Watts 1999; Watts and Mitani, 2002). Assuming that early hominids lived in an environment similar to that of chimpanzees and showed similar behaviors, hunting of small antelopes could have been part of their behavioral repertoire. Thus, after the habitat change, hunting of small antelopes in their new habitat would have been a continuation of an already existing behavior. In contrast, power scavenging would have been a new adaptation, as it is not observed in any primate species. It would have required actively seeking confrontation with dangerous predators that all known primates prefer to avoid; and it would have put the hominid group in a situation of high risk (e.g., male lions kill hyenas with ease in such confrontations; Goodall and van Lawick, 1971), where risks of losing a member of the group are definitely much higher than on hunting expeditions.

References

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