

Primate mating systems and the evolution of language (Seminar)

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Cheap signals, such as language, can only emerge from an alliance where trust has already been built. The coalition that enabled the evolution of language in modern humans was built to deal with the problem of some males trying to get the benefits of mating without the costs of provisioning.

In this talk Kit Opi draws on research on mating systems across primates to investigate the details of the problem that early modern human females faced and suggest that a coalition was their only way to solve it. The coalition that females built had a ratchet effect of supporting the males who cooperated, while undermining the males who cheated.

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<https://www.youtube.com/watch?v=0-q1jV0wvlg>

Good evening, everybody. Thank you very much for coming to this, our second last talk of the term, which might be second last of the, the whole year actually.

It's enormous pleasure to be introducing Kit Opi, who's the senior electorate evolutionary anthropology at the Bristol.

It's Nan the Archeology. Oh, I'm so sorry.

I'm so sorry. I always get modelled about that.

but Kit has a, a, a long history of doing mathematical modeling in terms of with, with, with trade, with trade union movement with Gordon Brown, not less, was it Gordon Brown? Yes. Yes. As well as then coming to deciding to spend his life in anthropology, and picking up a lot of, the arguments that we've been making, on Sex Strike Theory and really developing those with, with, mathematical rigor, which we're gonna be hearing about today.

This is, a major interesting question about how did your homo sapiens, how did humanity really arrive, emerge out of the type of sexual conflict, which was, coming out of, of very large brained hominin mating systems and that's what, kit's gonna be talking about today.

Just like to say, I've, I had the pleasure of co-authoring with Kit, from his work with, Leslie Aiello, who's my PhD supervisor and supervised Kits masters at that time.

we did a article of Grandmothering and female coalitions with a lot of kits modeling on the sort of energy provisioning, that we could expect might have happened amongst erectus and different homo species.

And, so, so this will be work that's really building on, on that background, particularly, thinking about grandmothers in relation to the evolution of language.

So I'm gonna hand over to Kit now and keep an eye that he stays in. Okay. Am I in the right Spot? Yeah, I'm sure you are. Let's make sure it's totally, that's Fine. Great. thank you very much Camilla, for, for that introduction.

I'd, I'd like to start with a, a little story, if I may.

it was the summer of, 1999.

I was sick. I had flu. summer flu is awful.

I was sat in bed, in my place in Stoke Newington reading, Chris Stringers, African Exodus, fantastic book.

I suggest, that you, you, read it at some point.

and I was getting right up to the human, modern human bit, homo sapiens.

and then suddenly they were there.

and I was, hang on a minute.

That was, that was way too quick.

I wanted, I wanted you to like, discuss this for a long, how, how did we get here? You know, what was it that ended up with, with us here? And then he talked about the Exodus, obviously, the name of the book and how, humans then spread around the world and I thought that that is just, that's no good.

I, I, I need more.

What, what could I possibly, how could I possibly find out more about this? So, in those days, there used to be a sort of booklet, called Floodlight, and it used to have all the evening classes across London.

and we happened to have a, a copy of, of that year's, floodlight.

so I went and got it and started looking through the, the various evening course, evening classes thinking, I, I don't really know what is the subject that we'll deal with this.

I thought maybe it's archeology. I'm not sure.

I didn't, I didn't know what anthropology was, so that didn't really help and I was going, none of them seemed to kind of do it for me and then suddenly, as I, I, I think the, the book booklet just sort of opened on a page and there was a full page advert for the radical anthropology group with questions like are you interested in stone circles? And why, why they are there? Are you interested in understanding myth? do you want to know more about, how humans got here, and all of this? And I went, oh my God, yes. That is exactly what I'm after.

and, so I, signed up.

Well, I don't think you need to sign up to you.

I, I went along, um probably about a month later, to the first, rag of the, of the, of the season.

it was then in, the Marks Memorial Library.

and, I'd sort of turned up and there, there was Chris, telling all this stuff.

and I thought, wow I, I have found it.

I have found it. So, so basically two Chrises, the first Chris, got me, into the, evening class of the second Chris, and then launched me into, kind of anthropology.

I mean, it took this Chris, I don't know, probably, yeah, about four years to convince me that I should go and do, a master's at UCL.

and, um and here we are back at the, UCL.

So that's how, that's how I got into this and realized that actually, yes, anthropology or evolutionary anthropology in particular is where I wanted to be.

but, what's, what's amazing is that this was the summer of, or by then the autumn of 99, and we are now a quarter of a century later and there hasn't been any credible explanation as to how language came about in humans, apart from Chris's there there just, there wasn't any then and there still is nothing that can explain the very important nature of language and the important nature of language is that it's completely and utterly untrustworthy.

I mean, I could be spouting absolute nonsense now, and you wouldn't know, apart from the fact that you need to build the trust first once you have the trust.

See, brag has the, has the trust.

You turn up, you trust you are part of this.

So how was the trust built? And Chris goes into detail about how that, that coalition of trust, was built in the first place.

I've, I've steered clear, but for 25 years I've steered clear of this.

I kind of thought Hey Chris, Chris does evolution of language.

That's, that's absolutely fine.

Camilla, Ian, have come up with, theories about the female cosmetic coalition, using evidence from, archeology, and so on, Jerome, whose office is, down the, down the corridor, also helping with, hunter gatherers experience from hunter gatherers now to kind of come up with that and I suppose I sort of got to the point, okay, it's, it's been 25 years.

Um perhaps I should like actually start thinking about, about this problem.

and really it was, it was actually from giving lectures in Bristol that kind of spurred me to this.

I had to, I had to explain Kris's theory, and I had to lead up to Kris's theory, and kind of set out the problem and this is really, I think what, what I'm trying to contribute sort of, following in, in, Camilla and, and Ian's, shoes what was the problem that needed a solution? how, how, how, how did, how did Humanity Commons get to that stage? They needed this solution that Chris has, has talked about, so eloquently and for so long and the only one I think, who has actually, got, got a handle on it.

So, let's, let's kind of start at not quite the beginning, but, let's, let's, let's go back, and then try and get to, to, my, my view of what the problem is.

I'm going to be talking about strategies.

Now when, when I talk about it, it may sound a bit like someone's kind of, or some primate or whatever is, is sat there kind of thinking through, what are they gonna do in this particular situation? And that, that's, that's not what I mean by strategy.

What I mean is, evolved behaviors that lead to, evolution by natural selection because of reproductive success.

so, so these are strategies that are the result of, of, natural selection.

and, let's just be clear for, for tonight, about the, the very basic rules across mammals.

Okay? so, we mammals have, sexual reproduction, which probably evolved about 2 billion years ago.

But mammals have, have, had that, female gestation.

When I talk about gestation, that means pregnancy, and female lactation and I mean, by, by that I mean, breastfeeding.

so I might kind of use the terms, interchangeably, as far as that's concerned.

let's go back, about, 75 million years.

Should we start there? I mean, it seems like a, a reasonable, a reasonable comment to, I, I'll be fairly quick for, so don't, don't worry about it.

this is, this is actually a present day, Bush baby.

it's, it's nocturnal.

It's pretty small. it's solitary and when, when I talk about solitary, what I, what I'm, I'm meaning is that males and females don't have anything to do with each other except to mate, apart, apart from that, they they don't hang out, they don't, walk around the rainforest together or any of, any of that kind of stuff.

They just, they, they simply mate and then the females do everything else.

You know, like standard kind of mammals.

They do the gestation, which is costly.

They do the lactation, which is even more costly.

they wean, when I say wean, I mean finish the period, the, the period of lactation and then they probably have some, responsibility for their offspring, after that.

and then they'll go through the cycle again.

And it goes, it goes kind of, round and round like that.

So that's primates, that's where primates came from, 75 million years ago.

and what I'm interested in, as Camilla was saying, is I'm interested in trying to trace the changes over time in the social and mating systems of, of pri.

So here, here is a family tree of the, of, of the primate order, as we call it.

so 75 million years ago is, is kind of here.

I'm not too good on color, but I think, I think that that may be purple.

Is it? If it purple? Okay. Okay. It's purple, right? So that, that is solitary, solitary, a solitary social system like the, like the bush babies are now and what you can see is the ancestral state was that and then across this side, side of the, of the tree, lots of them have stayed like that.

But across this side of the tree, there, there have been changes and in particular is this change here, which is the change from solitary and nocturnal and small, and all of those kinds of things that we associate with bush babies.

Suddenly there was a, this massive change, major transition, perhaps we could call it anyway, major change into multi male, multi female groups where they were sociable.

they were, they stuck together as a group.

And, my work, with my, my collaborators here suggests that what happened was that bush baby type primates started to get bigger, and being nocturnal was started to get quite difficult because, not for during the night, but during the day, how could they hide from the predators during the day when they were starting to get large? And so there was a switch.

They decided, now here is my first time, not, not in their head, right? The strategy switched.

and they became diurnal by living, um being active, during the day and becoming, getting into large groups and we are suggesting that those two things, happen together and if you are, if you are daytime living, in the rainforest, there are lots of predators around, and you, you want to be in a group.

I mean if you wanna survive, you are gonna be in a group.

and so that's, that's how they went.

And, and we can see that, right, the arrow in, yeah, arrow.

So, so, that is, that is humans up there and so you can see our, ancestral line here from let's say 50 million years ago, our ancestral line through all of that time has been multi male, multi female groups.

Okay? So when you hear a Tory politician say something like the family is the basis of society, no, completely and utterly wrong.

If anything, you could say that society is the basis of the family.

And, but I'll get to that. Okay? So that's, that sort of sets the, sets the kind of scene, as, as far as I'm concerned, because, what's happening here is that we are getting, our, our first potential problem arising, when you live in solitary, nocturnal kind of setup like that bush baby.

I mean squirrels kind or nocturnal squirrels would do the same teeny weeny little brains that, squirrels have.

They're very skilled.

They they can bury, acorns and pick them up when they need them, and all that kind of stuff.

Absolutely fine. They can do those kinds of things.

But teeny brain, if you, so navigating the, the physical environment is a dead cinch, basically.

There's, there's, there's nothing difficult about it at all.

Mm-hmm. The thing that is so complex and so complicated to navigate are other individuals like you.

That's the difficulty and what you need in order to navigate those large groups, is you need a large brain to help you do it so you can work out, hmm, what are they up to? Are they are they friends with them? why am I not friends with them? what are they gonna do to me behind my back? You know, all those kinds of things.

That's why we as primates, as social primates need a large brain.

and this raises a real problem because how do females, females have all the responsibility, as I said, for lactation, how do they deal with that? You know, how do they

grow or help ensure that their infant grows this large brain? Well, the solution to that problem, from a strategy point of view is extend the lactation period, and then you can grow that large brain over, over a long, longer period.

and then, you wean, kind of later on, and, and, and, and that, that's the trick, except that actually kind of raises a problem for the males, because there used to be a kind of really fairly quick turnaround for the males and I mean, the males are interested in mating, right? so fairly quick turnaround, you mate with the, sorry, do I No, no, I've just realized, you, you mate with the female, and you, then you go off and you try and find another female that is, is receptive, to mating and, and, and that kind of thing and then, then the, the female that you first mated with, has the, has the offspring great and then you can mate again, um and you just keep this, this kind of process up and this is, this is what males do.

Then we have this real problem.

Females are extending that lactation period, and they are doing what is called lactational amenorrhea.

Now, this is not a suggested form of contraception, let me just say, but it does mean that it's unlikely that that female, will, will, mate at all and even if they do, they're, very unlikely to conceive because the female does not want to be trying to, have grow that very large brain in, in their infant, and then have to gestate, another infant and possibly have to lactate that one as well.

I mean, just a kind of absolute nightmare.

So the, the female sort of makes it not happen.

so the males are confronted with this like, really awful problem.

Well you, what you mean? No mating for all that time you joking? that's, that's what we're here for, right? You know, give us a break.

so, so the males come up with a, a solution.

If, if that the offspring is not yours, then what you can do is you can kill that offspring, and then the female will return to fertility much quicker.

and if it's not yours, it doesn't have any detrimental effect on your reproductive success.

and then the female comes back into fertility, and you get a chance to, to mate with that, that female problem solved and this is called the sexual selection.

In infant side hypothesis.

Sarah heard the fantastic, evolutionary anthropologists, primatologists, came up with this, explanation for, for infanticide that basically it's, it's this lactational amenorrhea, that forces males into, into doing this infanticide.

and this is what we call a male reproductive strategy, okay? So it's solving a, a problem for the males.

they have to know that it's not their offspring otherwise they're gonna be doing crazy unless they're killing their own offspring and then trying to increase their reproductive success by, mating.

Again that strategy is not going to, not going to survive.

but of course, males going down this particular route, what it means is there is a huge problem for females.

You know, there is actually, um there is actually a problem for the male who was the father of that offspring.

But anyway, but females are particularly they're the ones who are putting all this, investment in, what, what can they possibly do, about this to ensure that, that they have some kind of reproductive success.

Otherwise, it's just like this constant investment with no, with no outcome.

from that. So now we are moving on from the last time I showed you this, family tree.

We were looking at the social systems.

Now this is, now we're looking at the mating systems and in some primates, that's a different thing.

Uh take humans.

we have a multi male, multi female, society.

Take us here tonight.

and yet we have a different mating system.

We'll get to exactly what we might call that mating system.

But I mean, basically monogamy.

So we have a different mating system to the social system that we have and some other, primates also have different mating systems to their social forehead.

So this is, this is a tree then of, the mating systems and what we've got here in, I think, red, is, promiscuous mating.

So this is the females mate with all the males that are around, and the males mate with all the, the females that are around and you can see the, that bush baby type thing back 75 million years ago did that kind of thing.

and for quite a long time, that was what happened and then what you see is these changes into, I think, yellow, yellow, yellow, thank you.

great. And pink.

so pink is, of monogamy, monogamy, yellow, I was gonna say orange, but quite close, are of politically and so mating systems started to shift.

In particular, what is happening here is that, females are trying to respond to this appalling threat of infanticide.

and, this is a baboon females response.

it's called res advertisement and what she's doing is she's advertising the fact that she is fertile, because what she wants is for all the males within the group to meet with her, or for her to meet with them, whichever you wanna say and then all the males have a a bit of an idea that, that the subsequent offspring might be theirs and so they, they're not going to harm it.

It's called paternity confusion and basically that is a way of protection, and it's, and it's seriously good.

I mean, in the, in the, mating systems that work like this, infanticide rates are really kept, pretty low, pretty good.

yes. And so we call this sexual swelling again.

Sarah Hurdy came up with this, argument that the, the sexual swelling is a product of the kind of mating system that, that requires, multi male, multi female, mating to take place, promis security to take place.

and we can see that, we've got here, closing in on, on humans, here, actually, humans have both monogamy and polygeny.

There are societies that are polygenists, but we won't get into that.

that, that kind of, that kind of comes later.

and then I'll, I'll talk about, the others.

The other strategy across primates, this is, is, is to go for monogamy.

this is also a very good strategy for dealing with infanticide, but it's, it's kind of the opposite.

so you are, it's paternity certainty.

Now, the male is absolutely in, in common, sure that the offspring pretty much is theirs.

and they are willing to look out for that, that offspring.

in some primate species, the males actually do get off their arss and do something, and help out.

and, in, t***y monkeys, for example, the males actually carry the infants around, and occasionally they have twins.

And, they, they actually put the effort in, and that kind of thing, but not in, not in all, not in all species.

so that kind of, that kind of works well and so this is, this is what happens across primates.

Infanticide causes a real problem for females, and females go down these, these two different routes as a way of solving, that particular problem.

okay, apes, right.

So the first, the first ape that, that kind of split off the, our line, if you like, were the Gibbons, and the Gibbons.

Um all apes are kind of large, large bodied, very large brain compared to their body, and so on and the gibbons just went very, very clearly down the monogamy route.

they, what, their monogamy is different to the monogamy that we might, we might think of.

because what, what what happens is, I mean, they live in Southeast Asia, in the rainforest there, the number of predators is pretty low.

they're quite large anyway, and they they don't really worry about that and so what they do is they have, they have large ranges where the male and the female and the offspring live.

So they, it, it's called discreet.

discreet is a sort of, nice way of saying they keep everybody else out.

So everybody meaning other givens.

So the, the females are not so concerned about keeping, others out.

They don't really want other females to, to come into their, into their area.

but the males are really concerned.

They do not want, another male, coming into the, into their area.

So they keep these kind of discreet, patches where they bring up their offspring and so on.

this, by the way, doesn't induce the, male, gibbons to get off their proverbial, at all. so they, they protect the infant for sure.

but what, raise a finger and like, help? No, no, no, don't go there.

so, so infanticide is pretty low, amongst Gibbons.

what happens is really if a male was to, to leave for whatever reason, get injured or whatever, then you would see, in infanticide taking place.

But it's, it's a, like, it's a reasonable strategy.

great apes, okay.

We have a, a, a further problem for the females in these, in these species, particularly well, the, the, the largest of the, species of great ape, the orangutans and the gorillas really, really like pretty tough.

so the males solve their problem here, by trying to get a group of females together, in what we call, we call, and so the male, orangutans, who are, who have the, the group of females with them, although they're pretty spread out, and they probably, they're, they're going extinct in 10 years.

So, but, but so the, the orangutans, the male grows larger and gets these kind of flanges on their cheeks.

I mean, you can tell that that is the what we might call the alpha male they are, they are clearly in charge and what's interesting, and I think often gets kind of left outta the discussion is the males who don't, who, who are not large and don't have the, the phalanges kind of roving males of, orangutans, they're adults and so on, but they're much smaller than the, than than the alpha.

and actually, orangutans not terribly nice.

the males actually, rape the females.

IE the females are not keen to mate with the smaller males.

You know, what, what's the advantage likely that their offspring will, will be killed? so they're kind of not wanting to do that.

and of course, those other males definitely do, kind of want to do it.

so infanticide is, is relatively high amongst, orangutans and what we have, because they have large friends, because of being, of being great eights.

We've, we've got lactation periods of up to eight years.

I mean, it's absolutely I mean, any, women here, you, yeah, it's, it's a long time, right? It's a long time to lactate a, a single offspring.

The other large, great tape, of the, of the gorillas.

I mean, gorillas are off the scale when it comes to infanticide.

It's just appalling.

I think it's something like 85% of infant deaths are infanticide.

so what happens is the male mates with all the females, the infants get born, lactation takes place, and then that male will get booted out by one of the roving males in the area.

You know, as that, as that gorilla gets kind of older and, less able, to, to hold his weight, the, the new male comes in, kills all the infants that have not been weaned and kind of starts again and like it's the male has like a real problem.

You know, it's not, I mean, he is not doing this out of, of spite or anything like that.

He has a real problem 'cause he's gonna get booted out as well.

So he needs to mate with those, females as soon as possible and if they have, that kind of length of, of lactation I mean, he could, he could be waiting there for decades before he actually gets a chance to mate.

So really, really, again, terrible, kind of infanticide, problems and it's in both of those cases, it's these roving males, and we'll come back to them.

The other, the other two, kind of species of, of great apes that are closest to us, are the chimpanzees and the bonobos.

They've gone down the different route, so they've gone down the paternity confusion route.

so the females meet with all the males, within those groups and infanticide rates are really low, a good, a good strategy.

it works.

and it's probably the case 6 million years ago.

the, the common ancestor of humans, Bonobos and chimpanzees, probably from, I've tried to do some reconstruction of those, of those apes, and they probably had a similar kind of setup to the way that, chimpanzees and, and bonos do it now.

but there was a problem.

and again, this problem doesn't get aired at all, by paleo anthropologists and, and so on.

but this is a picture of a female, chimpanzee with res advertisement.

So she is, she is fertile at the moment.

and this is the way that she is telling all the males within the group, or the adult males within the group, that she is fertile and she wants to meet with them all in order to confuse the paternity of the subsequent offspring.

Well, bipedalism, no, doesn't, doesn't work.

that is, that is not a possibility that if the ancestral, the pan pan homo as it's called the last Common ancestors, so humans, chimps, and Bonobos, if, if they were like that and became bipedal, then obviously they couldn't carry on with that strategy, it's probably the case.

I I, I would argue, Sarah Hery has, made similar kinds of, suggestions to that.

There was a switch in the female strategy at that point.

So females, instead of res advertisement of actually advertising the fact that she was, ovulating or in in that time, was ovulating, switched to a, concealed ovulation.

and the, that strategy had the same effect effectively of paternity confusion.

It still wasn't possible for the males to know whether they were the father of the, of the subsequent offspring.

and she could have continued then to have been m meeting with all the, all the males within, within the group.

Okay, jump forward.

I'm, I'm, I'm moving quite, quite fast here.

Austral Arius Ramus, we're straight through all of those.

and we get to, what I think is my favorite hominin, homoerectus.

Now, homoerectus came onto the scene evolved, about 2 million years ago, 1.85 million years ago or something like that and as a result, it is argued of, climate change. so there were huge changes in the climate across the world.

There was a, a reduction in, in temperatures, a drying, of the world.

and in particular in Sub-Saharan Africa, the beginning of seasonality and so you get, um rainy periods and, and dry periods and this had a devastating effect on Sub-Saharan African, forests.

So the whole area had been forested before.

and suddenly those, those forests, um started to fall, fall to bits, woodland clumps and, that kind of thing, but huge areas of savanna and it's probably the case that Homoerectus was able to make, benefit from that huge change how exactly it worked.

It's not entirely clear, but what happened was that, they, they grew larger, both males and females grew larger, but females in particular.

so, so what, what we call dimorphism, the difference between males and females in this case in terms of size or height or whatever, reduced.

So the males and females were not similar size as in givens, but getting, much closer and the brain grew.

So we've now got twice the size brain, as, as the early hominins or chimpanzees and Bon Nobel a real problem.

okay, so Hominins had kind of managed, probably with shorter, lactation periods than, than, gorillas and, orangutans, probably something around about chimpanzees and bonobos, which is like four to five years.

I mean, it's still it's a long lactation period, but it kind of, it's okay, but if you double the size of the brain, you, I mean I mean, the lactation would would go off the scale.

I mean, it would just be impossible.

It it, you could a an individual female could possibly have one infant, possibly two, and then you have like attrition and infanticide or or, or just purely kind of dying off.

The likelihood is, I mean, the, the species that have gone extinct in no time at all and what we know from homo erectus, actually, they were the first, probably the first

species of hominins that actually spread outta Sub-Saharan Africa into Europe and, and into Asia.

So they were really successful.

So they clearly dealt with this problem.

the females dealt with this problem of how do you, how do you grow this very large brain twice the size of a chimpanzee without extending your, lactation, through the roof menopause.

I, I'm kind of getting to the, the view this might be the most important change that has taken place in human evolution, such that we would not be here if there hadn't been the evolution of menopause.

So what menopause is often characterized, I, I sort of hear sort of on the fringes as some somehow, stopping females, stopping their reproductive span early, in order, and then we'll get onto why, why particular they did it.

I, I actually think it's the other way round.

I think that human females have the same reproductive span as the ancestral, the, an the 6 million year old ancestor, the same reproductive span as chimpanzees and bonobos, and then extended their life beyond that and so the, the reproductive span has stayed about the same, but rather than the females kind of getting quite old and so on.

And I mean, if it, if it's difficult for the homo erectus females to lactate and, and grow this like very large brain for their infant, older females are gonna have a really hard time because the chances that they're actually gonna survive until that infant is weaned, ? No way. So a complete switch of strategy amongst females is you grow, you, you, you grow your lifespan.

You, you, you, you continue to live for longer and invest in your daughter's offspring.

That's how, is a very good way of helping your reproductive success.

IE that strategy then is likely to, um be passed down to your daughters and your granddaughters and, and so on.

So it's g it's going to be very successful from that point of view, and it's going to solve the problem of the fe that the females find themselves in, of how do you provision your offspring? You, the only way, and this is Camilla and I, wrote this, paper suggesting that the only way that you could do it is that grandmothers and mothers are provisioning the offspring and therefore, they can grow that brain more quickly, extend beyond lactation and the grandmothers are kind of, doing the extra work and so on.

and, and, our suggestion is that, and this isn't, we're not alone in this, Leslie Aiello and Kathy Key and others have, have suggested this was the, the strategy played out by Homoerectus major change.

What about the males? it was all very well, when we had the group size of, chimpanzees and Bonobos, fine, probably group size of about 50, let's say split equal between infants, juveniles, and then, and then adults.

So 25 of each, half of those, males, half of those are females.

So the female had to mate with let's say 12, 13 males amongst quite a lot.

But hey, you've gotta do what you've gotta do, right? to confuse paternity.

great Homer Homoerectus has a brain twice the size, and we know from Robin Dunbar that they have that brain twice the size in order to navigate the larger groups that they're now in.

They're out on the savanna, they're having to protect themselves from all the predators that are out there.

They need this large group, but hey, how many adult males are there out there? that the female has to confuse the paternity of, it's starting to like the, the size of the, of the Homoerectus brain suggests group sizes of about 110, mm-hmm.

Half juvenile half, half adult, we're talking 55, half male, half female.

That is, that is quite a confusion job, to have to do and what Camilla and I, thought was starting to kind of be a problem was actually the female production would have to be, this is, this is grandmothers and mothers.

The, the, the production would have to be getting on for the, the best production amongst, modern day hunter-gatherers, of, of modern humans and that's quite, that's quite tough.

Um maybe they were able to do that and have like, numbers of offspring, yet maybe they were able to do that.

The question is how were the females say preventing infanticide, um amongst their, for, for their infants.

and we didn't, we didn't address that at the time.

and I guess I'm now back in the position of, hmm, I think we need to, I think we need to come up with, at least by the time we get to like later, hominin species, so now we're talking kind of heidelbergensis, and so on in, still in Africa.

I mean, they're, they're starting to get brains the size of ours.

I mean, like serious, this is, this is a real difficulty because a brain, the size of ours, it, what we're talking about is group sizes.

Well, if in modern humans, group sizes, according to, Robin Dunbar of about 150, so, half of a hundred fifty, seventy five, half of 75, no, that is, you cannot confuse paternity in that situation.

So at some point, don't quite know where in this process, but some point from 2 million years ago, up until 200,000 years ago, there had to be ways in which females were protecting their offspring from infanticidal males.

If you go down the monogamy route, we are not talking gibbon monogamy here.

We're not talking male and female spreading out in the nice, rainforest keeping, keeping the other individuals away from them.

Uhuh, you are part of a large group.

If you, if you go down the monogamy route, then you are you are likely to be in trouble because the other males will know that they are not the father of that infant.

Now, the males are going to be attracted to the females.

His, his a, a mother-in-law joke coming up.

The, the males are going to be attracted to the females with grand, with their mothers still around.

So the males are actually probably not even looking at the, at the female themselves.

What they're really interested in is, is their mother's still there, because that is the, that's the real attraction.

If their mother is there, then it's really going to pay them to, to work with this female to have offspring, to to look after those offspring because the mothers are around and is going to be provisioning them.

And, and it's going to be a, a, a good job, done there.

But of course, the males at the same time, they're, they're in this position of, well they need to help out because the brain has now got even bigger.

They need to do their bit and so on.

Fine, they need to protect the offspring.

obviously the grandmothers are gonna be around, but the grandmothers are likely to have other daughters too and so her input is gonna be spread over a kind of a number.

So, yeah, so there may be males that are attracted to the other daughters of that matriarch.

Can we call her, fine. Okay.

So now we're getting kind of a, a change in the kind of social structure that is happening within these hom, let's call them hominins.

I don't know whether it's how far it's gone, but what about the other males? What about those roving males that are no way are they gonna do any help out? You know, as far as they're concerned, being a male is sat down, beer in hand, feet up, watching the football I mean, that looked like that's what being a male is, and there's no way that they're gonna do any helping out, of the offspring.

They all, they all they're interested in is finding the females.

Probably the females without the grandmothers who are not being, helped, are not being, kind of protected, are not part of that, that, matriarchy or matri locality or, or, or whatever is going on.

These, these roving males are gonna be such a problem because they, yeah, those other females, I mean they've basically had it.

If, if you don't, if you don't have your mother around, then, there's pretty much no way that you are actually going to successfully have, offspring, and you're gonna have all these roving males that going around wanting to mate with you and so on, even though the whole of that strategy.

So leaving the, the, the matriarchy strategy on the one side, all the rest of the strategy is going to be really, unsuccessful.

It's not going to, to, lead to, offspring being, born and lactated and brought up and, and all the rest of it.

So we have a problem.

We have a really big problem here, I think, I mean, there is a real confusion about where modern humans actually arose from did they come, did they evolve from Heidelberg against it? What was Heidelberg against it? Really a a species, it's not really clear.

there, there is a real problem here, I think, as to what could possibly have the mating strategy, in ar around that time in particular.

I, I would say, I mean the, the man, the hunter kind of approach that has been, around for such a long time.

How, how could the males go hunting? I mean what? And leave and leave their infant, behind and what go off for a day or two and hunt when there are these roving males, around, um they are just going to, they, they they, they are infanticidal males.

They will just kill the, the unweaned on infants, and the male will come back from hunting and and, and their infant is gone and their reproductive success is down the pan.

So that really restricts their ability to actually go hunting.

Now you can imagine that within the matriarchy there is some possibilities.

I mean, I'm not, I'm not kind of ruling things out.

So within there's a grandmother with her daughters, bringing up, offspring.

There are a number of males around who are associated with those, with those females they could come to some kind of arrangement, couldn't they? Like two males at a time go off and do the hunting while the other, well, while two other males stick around, they've got the grandmother, they've got the, the auntie the other aunties are around there, what's happening? We got more slides.

Okay, grandmas, we missing, I've got the grandma's side here.

Okay? It's gone backwards and it's going, and now, now We've got the, roving nails.

you, I mean, you can, you can sort of hypothesize that there are possibilities around here, and what I'd really like to do is to do some agent based modeling.

So if there, if there are any agent based modelers here, I've used net logo, which I think is okay, but I think there are like, like better, ones now.

But if, if we could put these various strategies into an agent-based model and try and work out what, what exactly in a, in a group size of 110 for, erectus 150 from, for modern humans, and probably hypo againsts too, because they have large brains how exactly, how exactly can you, how can you do it? But there are, there are some, grains of hope, I think, some kind of possibilities because the males now, the males who've gone down the monogamy route, if you like, who've, who've sought out the females with the very attractive, mothers, they are in the same position now as the females.

So there's, there's a kind of you are kind of bringing, the male and the female strategy, kind of together that they want, they want a solution that fits that, that fits both of them.

Now, you could hypothesize, I don't know how much longer I have, should I stop that? Keep going, soon, another Few minutes. Okay.

Just, okay. You could hypothesize that the males would come up with some kind of clever strategy, where a couple of the males go and have a right old go at the, at the roving males so the monogamous males have a go at the roving males, keep them at bay, while another group of males goes and does some, some hunting and brings them back.

Yeah, I mean, that, that's the kind of discussion you have in the pub, right? I mean, how how, how do you build that kind of strategy? No. Okay. No, of course you don't.

So there's, it's very unlikely that the males are going to come up with some kind of strategy in this, because I mean, they're, basically, it's the, the, they're the two, the two male strategies are completely at odds.

Let's look on the female side.

So those females with, who have their, have their mothers, still around, um are in a great position.

they've their mothers are helping them out, and they are they have males who are very attracted, to them not actually looking at them, but looking at their mothers.

But anyway, hey, they're willing to go along with that.

The other females are in an absolutely appalling situation, um from, from the onset of men key, amongst those, those females, they with no mother around, they are just their life is going to be an absolute complete and utter misery.

they, they are not going to have reproductive success.

They won't be able to bring up their, their offspring.

They're gonna have these, roving males who are not gonna put any input whatsoever into it.

and anyway, even if they were successful in, in having an offspring, it's likely that those roving males are gonna end up, committing infanticide on it.

So it's like, completely, completely no good.

Right. Okay. I'll, I'll finish in a minute then.

what, what, who, and who is going to come up with the strategy that is gonna solve this huge problem? A huge problem. I might add that the genetics suggests that modern human population size dipped to about 10,000.

I mean, our species nearly went extinct.

Um it was, it was a close thing.

so it, I am to, I argue this is a really big problem that needs to be solved and who on earth is in the best position to have a look over the group of 150 and see how can you possibly deal with all these problems of roving males of females that don't have mothers, with input, even those males that are contributing, how do they go out and, and actually get the provisioning and bring it back, and so on.

Who are the females? No, sorry, I'm giving it away.

Who are the individuals who can possibly come up with a strategy? Yes, gris who, yes, grandma, of course, because their strategy is about re reproductive success of their daughters and what they can see across.

And Camilla and I arguing, and other people obviously do as well, that what we're looking at, at least with modern humans, is a matriarchal system insofar as females have to stick with, stick with their mothers.

I mean, otherwise game over humans would be extinct.

So human, human females are with their mother, and those mothers are, those grandmas are looking over and realizing that the current strategy doesn't work.

What's the best way of not only dealing with the problems on the female side, but also the problems on the male side? What do you need to do as soon as, and, and if it's, if it is macro locality by the females staying with their mothers kind of thing, then, then a lot of these females are actually going to be related to each other.

what do you do if, a female doesn't have their, their mother around? Bring them in, bring them in, bring them over it's like, don't, don't leave them.

Don't leave them on the outside.

Bring them in, and you can, you can provide some help.

You know, they, they may be, they're not your daughter, okay, but maybe they're your, your niece or, maybe your cousin or something or other like that.

So I'm arguing, I'm hope I'm fitting in now with, the arguments that are put forward and have been for so many years within RAG that the grandmothers ensure that all the females are brought into this female cosmetic coalition.

They're all brought into this, coalition and the, the point at which they need to be brought in, obviously is menke.

That's before that they can be girls and run around with the boys, and who cares? Doesn't matter as soon as they hit menke, no, they need to be within this coalition.

But the best thing about it is it's not only a protection for those females, it now lets the males off the hook.

Because if you've got a pro, a protection, a coalition protecting all these females, then the males don't have to be concerned anymore.

They can then go out and do the hunting knowing that all the females that they leave behind are going to be protected within this coalition.

Effectively, a coalition that had in the past been used to protect against predators is now going to be the coalition that protects against the roving males and I I, I think we, this could be the, the way that this, this awful situation that modern, early modern humans or, Heidelberg against or whatever found themselves in, was to come up with this solution.

I would love to do some agent-based modeling and to see how exactly this works out and if, is there any other solution? I can't think of any other solution to that problem.

The, the males most definitely couldn't come up with a solution.

I think the, the females who were doing, who are who are having kids and lactate, I mean God, any, any female here who's had babies knows you are totally, caught up in doing that.

The only people are the grandmas who can see across and see what is the, what is the problem, and bring, bring all the females at Nano key into the coalition.

and then, then you are also protecting the males and the roving males, really it's not a strategy anymore.

It's, it's, it's pretty useless.

I mean I think that maybe the gene for sitting on your ass, smoking a fag, having a beer and watching TV managed to carry on, I'm not saying, I'm not saying that it, it it completely went, went away, but within that situation, it doesn't pay anymore.

So you are better off actually having the chance of a, of, of reproductive success and it may not be your, your own grandma, but within the coalition you are being helped out.

Now, I just want like one last thing. Is that possible? Okay, go on. The return of the roving mail, and this is, this is what I'm, I'm hoping to, to kind of start this project.

so I, I, I I support Chris's view that basically for 190,000 years, there was this, this coalition, that outta the coalition came language and culture and all these kinds of things with the, basically the grandmas were in control.

I, I would say that, but the whole, at that time, they were the ones that amazing, woman in the picture before, were, were running the show and they were keeping it all like that and about 10,000 years ago, I think they started to lose, lose their position.

things started to go wrong.

I'm not exactly sure how things started to go wrong, but I think we then saw bit by bit the return of the roving males and this turned into basically kind of protection rackets, mafia style.

I mean now they give it the grand title of the state, but these are basically roving males who have, Who have, Who have taken over and look at them, look at them now across, across the other side of the pond.

Don't they exactly look like this lot here? And that's what they are, and if only they think It's eugenics, Well, it's, don't they it's, it's the mate.

Yeah. It's a reproductive strategy. It is and, it's because effectively the grandmas lost, lost their control.

I mean, they had it for 190,000 years.

I mean give them their due pretty amazing.

they just need to get it back.

Look better than that. sounds as though Chris is, has his hand up first.

Let me know.

Hand off hearing All the time that I was talking.

I felt It always is.

Just the way you presented it is so fantastic.

obviously you can't say everything when, now and a bit, was it that long? Sorry. So in a way it's the same.

Weren't able to say anything about language, oh, I know it's true.

Well, yeah, that was very, I understand. I mean, really, I serious, it's not a criticism I'm more interested in, in pointing out one or two things.

I mean, first of all, you, I mean, obviously you must know this, but it's just like, it's quite a lot infanticide among, long Beach of, for example, quite often by females.

So when the female moves away, she's the, the resident female doesn't want anywhere near her, and then she gets hassled and fight violent, so her baby will be killed with all that stuff going on, for sure.

Yeah. So, but that's a cost of him to move out in the first place.

So one of the points which, and again, it's just obvious you can't say everything, but you often talk about the males, roving males, male, blah, blah, blah and of course there's a huge difference between males, your brothers or sons and males are out from males to any group of females.

Yes. Whereas, and I'm not, I'm not, I'm sort of partly talking to the, I'm not saying obviously about clearly, but what I'm more aware of, increasing music in order for that fantastic transition to occur.

Definitely. Just say all the, all the people that talk about these things in linguistics li so they all we humans are great age.

Everyone knows that. Great apes are male to the packages therefore human treat, human males must, we must be male to the packages, male to the female males who love the country, male statehood, forcing the females to move out.

It's huge costs for females having to move away.

But a among, especially most those babies, another month, mom there with her to give her advice of breastfeeding or the problem of having a baby and Sarah Hurdy pointed out that nothing becomes a, even a ze female more than finding a way not to move out, stick with mum and then the Kay family.

All these things that they typically have the most number of offering was one, we managed to find a way of staying, staying at home on coming of age instead of having to move out and of course, you can't stay at home. I mean, alright.

The reason why female aids move out, of course, is to avoid being hassled by their brothers, or perhaps their fathers still escaped innocent.

Yes. So, saying you can't, females couldn't move to sticking with mum, staying at home without dealing with their male relatives and making them move out Yeah.

Instead of them having to move out. For sure.

So that's already, because it would have to be Cally.

You couldn't make your brothers and fathers move away, but then you have your mother with you.

Yes. You need a coalition of people to even make the males move away instead of you having to move away.

So you've already got the beginning of female coalitions there, and you've also got the distinction between brothers and out and out group and it's just such an important thing to realize actually, that I think that keep you are, I mean, I'm not just reading what you are saying about grandmothers being with these things that you wouldn't even have green grandmothers until you switched the, the residential, because only

once you switch the residential that you as a young female are with your mom and your mom is now now an effective grandmother. Yes.

Now, I mean, I'm perfectly well aware kid that and we can everything. That's what it is.

Yeah. Yeah. Well, I think, I think that's absolutely right.

Can I just ask Zoom people, did you hear what Chris said about the role of brothers? and how imp and how the question of how did you switch from females moving away from the risk of incestuous meetings to females staying with their mothers, and that the role of brothers was a significant role as against just robing that. Yeah and then, and then, okay. And then sort the next step finally is for males and females.

Females with their son and brothers To start ritual coalitions. Yeah.

Yeah. And now you're gonna, you're gonna bring your brothers into your coalition. So brothers and sons doing the coalition in some respect.

Yeah. That, that is the critical bit.

Does do Jerome.

Well, I think, I think you're absolutely right.

And, and I think Camilla and I sort of made that argument that, that at least by, by Homoerectus time for sure.

That that is the that is the basis of the solution, which ends up with menopause.

That you, you, you stick as a female, you stick with your mother.

You can't possibly do it Now. I agree.

You know, people like Richard rang them. Yeah.

and, all, all of that kind of lot, they look at chimpanzees where the males stay within the group and the females have to leave and they look at some groups of, of modern humans now where it's patriarchal, but it's the patri locality.

It's the males staying in their natal groups and the females coming in and they say, oh, well, it's obviously obviously it's the same.

So we must have stuck with the same kind of setup.

No, I think it's, it, it is completely obvious that it was absolutely essential in order to grow this large brain that females had to stick with their mothers.

They, they, they didn't have a choice about it. Mm-hmm.

obviously it's a lot safer for females to stay within their natal group than having to wander off and try and find another group that will take them in.

yeah, yeah, yeah. For sure.

it's better, it's better that way round.

I mean in terms of, brothers and so on. Yes.

I mean, I think, I think you are right.

the question is, I mean, we do have, inbreeding avoidance, um across all primates, across probably most animals.

and, it's probably the case that if you, if the females are going to stick with their mothers, then the, the brothers are likely to be leaving and going to find females elsewhere.

They do not want to, mate with the females that they grew up with, basically is the, the Western mark, effect.

they want to go and, and find, others to do language.

I'm sorry. I'm sorry. Yes.

I mean, but I I, I just, I completely leave language to you.

all language is a cheap signal that can only be used and can only develop if you have trust within the coalition.

you can't, you can't get there any other way and that's where all, I mean, I just I mean, I'm not, I'm not a specialist on language evolution, but anything you ever hear, um even the great Robin Dunbar does not deal with this problem.

Mm-hmm. It's the problem that it's a cheap signal, and frankly it, it, it's a cheap signal and we have exactly the same issue now.

You know, all this stuff, about social media and you can't trust it and of course you can't cheap because the, the information system itself is entirely untrustworthy.

Of course. You can't trust it.

So, I mean, I know journalists get, very hot under the collar about this, don't they, Hannah? And, they want they want the facts.

And that's the only thing that, that that kind of matters.

It's got to be the truth and so on.

But the, the information system itself is not gonna give you that.

So whether it's language, whether it's writing, then change somewhat with printing, or whether it's computer technology doesn't make any difference.

The, the information system itself is completely untrustworthy in all of those cases and it's only if you have built trust that you can possibly have that.

So it would be absolutely impossible, for language to evolve in a, in a species that didn't, hadn't built that trust.

It's not that chimpanzees are thick. Mm-hmm.

You know, chimpanzees caught to the size of our brain. Okay.

So that may be the case, but they're not stupid and it probably is not a, a great idea.

But, um some humans have brought up chimpanzees and bonobos, from, from, from birth, and kept them within their kind of family and brought them up.

Guess what? They can do? Silence metaverse.

Yeah. They can, they they can have kind of, touch pads and have, sign, sign language and be talking mainly about food, of course, because, that's what chimpanzees and humans are interested in.

but as you say, other, other things as well.

So it's not that they're stupid, but when those, when those chimpanzees who can perfectly easily do sign language, go back to other chimpanzees, of course they're not gonna, they're not gonna use it because there is no trust.

In fact, chimpanzees have probably the most basic of, of communication across primates.

Yeah. It's, it's so basic.

It's it's, I mean, they hit trees and they go, oh, oh, oh, and that, and that's about it.

Why? Because they can't trust.

So there is no point in them having smaller brained, vervet monkeys can have a call for an eagle and a call for a snake and a call for a leopard and so on.

Chimpanzees can, because they can't trust that the individual who is giving that call is actually, They can do some snake alarms for their mates, but they don't have the same level of predators that verts do.

That means sure of People for sure, but they have to stick with a very basic level because they can't trust any.

No. And the smarter they are, as chimpanzees are very smart.

The smarter they are, the more likely they're gonna be able to see through any of the cheating and the lying.

And, and so To your clever words is what Chris said.

It is. Exactly right. Exactly and we've got a question from Jerome here, Jerome, great to See. Yeah. Thank you so much, kit. That was absolutely wonderful.

not many people, I suspect will appreciate the elegance of the, the talk we've just heard, but, really thank you so much for com pressing so much, information into such an elegant story.

I really enjoyed that, and, and I do apologize I couldn't make it.

I've just had a, a very hectic day.

but, what, what, well, there are a couple of things I wanted to add, which just, for people in the audience maybe who aren't familiar with James Woodland's work on immediate return and delayed return, I think provides exactly the explanation for why the roving mail has returned.

And, as you, move into more seasonal environments, you have to start doing things like storage in order to survive those difficult periods and it's in those moments that brute force becomes an asset to protect those resources and then the right to distribute those resources suddenly gives those brute, authority and power to influence other people's behavior and you can certainly see along the northwest coast of Canada and, and the Pacific, where you have these salmon rivers, if you don't have control over the Salmon river, you quickly get, well, you die because you starve during the winter.

So you can even, people even go and beg to become slaves, in those hunter gatherer communities just so they can get access to the salmon if they haven't got, control of a river.

So, the, the there are clearly reasons why, what's shocking and surprising perhaps, is just how widespread this roving male strategy and effective it's become in recent years.

And, and as you quite rightly point out, is very, distressing at our current, juncture.

what, what, I just wanted to, I have a question, which will come in a sec, but I just wanted to you, you put a lot of weight on grandmothers and, and I'm, I'm all for that.

I do love grandmas. but why not music too? it's you, if you really want to attract people in, there's got to be some joy involved.

And, and, and I think that music and, and, and that's where these female coalitions of beautiful women dancing and singing, really becomes very attractive to even roving males and they start to acquiesce and do things nicely because, they want to have access to those beauties.

and it is quite interesting that, across, at least in Sub-Saharan Africa, among egalitarian hunter gatherers, is very often women who dominate the singing and, and the music scene and men come in as sort of additional dancers or maskers, to accompany them.

But, but the women are the ones who really hold the music together.

And, and I think that that's probably part of that grandma strategy, that, that you are referring to.

But my real question, is about, hunting and I was slightly surprised that you sort of talk about, the, the female coalitions as enabling men to go hunting.

But from my understanding, men went hunting long before, coalitions or, or are you proposing, or at least long before homo sapiens.

So how do you fit that sort of prior to homo sapiens hunting strategies, working and, and operating? Or is it, something that these women's coalitions were already developing well before, homo sapiens, you are, I presume, talking about erectus.

so when abouts is it that these coalitions starting to develop, and why did it take so long for them to be so successful that they could release encephalization to homo sapien proportions? Thanks. Thanks, Jerome.

I did, I did come round the corner and knock on your door just in case you were in, sorry.

Before we started, hoping you might be around, wow.

Yes. singing, for for sure.

I mean, I I, I mean, I'm, I'm kind of, I'm doing it from your, from your paper.

Uh the exactly that, yes, the strategy that was, there in order to, to deal with the predators, at night.

you then reverse that strategy, or you use that strategy then on the, on the internal predators, the, the roving males, you, you use exactly those things, the choral singing, the, the, all of that kind of stuff.

and, I mean, I'm sure I'm sure it's the, the females who are doing that, I've been part of a choir and always, always felt that the male kind of basis.

It's it's, it's really an add-on really, isn't it, to, to the, to the actual voices that, that are out there.

and, and I just, I just think the grandma would be the conductor.

she would be the one who would be the, the center of it, deciding when it was going to happen, noticing when it was necessary.

Um the one who could see, what was happening to the moon and what was happening to the, to the blood, and what was happening to the, the hunt, being brought in.

And and when, young females were approaching menke and all of those things, it was the grandmas that could see that it was the, it was the me the females beyond menopause who were not completely, spending all their time worrying about their particular infants and how they were growing and would they be able to get enough food, and all of those kinds of things.

It was the, it was the fe it was the older females who could look, who could look out, beyond that, you talk about the, the hunting strategy.

Okay, yeah. There must have been some way that meet, I mean, using Leslie Aiello and Kathy Key's, view on this, it was only possible to grow a brain, probably as big as, as Homoerectus, but certainly as big as, huddled against this.

And, and then, humans, if you have meat, I mean, let's, let's be absolutely playing about this.

Um you can't, you can't grow those, tho those size brains, without, without having need.

Now Leslie Aiello comes up with some interesting, stuff, suggesting that scavenging is not the, the most awful thing in the world scavenging is actually pretty hard.

Lions do it. leopards do it.

eagles do it hyenas do it it's, it's, it's really, it's a really difficult thing to do.

And, homoerectus, societies would've had, shuan hand axes, which would've enabled them to get at the brains, at the spinal cord, at marrow, all really, really good food for growing, large brains.

but scavenging, now it's possible.

Uh I, i, I mean, I mean, this is where, I guess kind of agent-based modeling maybe I'm putting too much, hope out there.

but possibly you could start sort of seeing, well, what's another way of doing hunting when the, the males know that if they leave the female who is certainly, or in Inver, certainly bringing up their infant, is going to be safe while the male goes off to do some hunting.

Is is there some kind of strategy that is possible? And I, I dare say there was, I mean, I'm not saying, I'm not saying there wasn't, a possible strategy and maybe maybe we can, help out a few, Tory politicians at this point.

maybe that was the beginning of the family.

Maybe you have movement of maybe a grandmother, a number of daughters with their, with their infants, a number of the males who were associated there, even a brother or two, and so on and maybe this is a kind of a roving, band that could have engaged in some kind of hunting while at the same time protecting the long lactating infants from, the Infanticidal males.

I dunno. I I mean, I think, I think, that's something that we, perhaps we can work on, and try and work out, because Homoerectus must have had a strategy, and I think

it, it was only modern humans that had the strategy that then fitted in with Chris's, theory.

I don't, I don't think it was a, a previous species.

It was, it was modern humans that hit this.

so the coalition, strategy, if you like, was, was the one that ended or enabled, the coalition of trust and therefore a cheap signal to come out of it and culture and, and, and all the rest of it.

But maybe there was other kinds of strategies before that that just didn't, didn't cut it any longer with the very large brain that modern humans have.

thank you. Thanks, Jerome.

We'll have you go and then I'll like to go, Chris, that, because you mentioned eating brain matter, I, I often ask myself, why is it Vincent, for instance, homo sapiens? There is this fairly constant, population of frequency of being males and females.

Once you have that question in your mind, you can then ask a very obvious question, which is, in very strong matriarch, why don't mothers kill a lot of their male children? And that way they handle all such a good question, pat.

I mean, this is such an obvious thing to do, I'm sorry, Apple symbol systems, or which language you could just kill males and so that makes sense.

It makes sense now, but there are, there are two questions there.

One, what is it about, 23rd pair XY sex determination systems that seems to churn out this 50 50 split? That's a very interesting question.

But secondly, I mean, ancestors need to understand that they could just kill sufficient numbers of males to solve all the problems that your model has presumed now.

So when you, so when you file these hypotheses, you look them in three ways, why wasn't this actually done? Or maybe it was done just the, the data people turned a blind eye, typical patriarchy.

Secondly, in trying to fill in gaps, wants to do it again, fill, fill, fill in, filling in the gaps in the fossil record.

Well, the, the, this theory generates the kind of data we want to go looking for.

but much more interesting because I my radical famous marketist, if we want to use our anthropology to answer our political problems today, and what is it that stops women just deciding, well, we're all gonna kill most of our male s being nothing unlawful about that yet and you, but hold point, you can use sophisticated biochemistry to prevent, 23rd XY zygotic formation.

So you, you can use perfectly legitimate systems now to turn down the nasty problem we have now.

So now you've got this problem in your mind.

What's the answer? Well, I think Camilla wants to say something about this.

Let's go on something about this, that is putting me right in mind of Richard Ham's Goodness paradox, whole idea in relation to domestication.

and the idea that we reduce what happened in the course of homo evolution from erectus to Heidelberg, and to all those who were descended from at Nean-

derthals de Owens ourselves, was a certain level of reduction of aggression, reduction of instinctive aggression being, particularly in the homo sapiens lineage being selected for to some extent.

and Richard ran, them's got the idea.

There was men who did it all, men who did the selecting by, if anybody got out of hand with out of order behavior, they would be killed off.

So men were doing the killing to enable only men who could.

So the, the, the only violence that was enabled or selected for was planned Cary violence by men and of course, this idea is profoundly stupid because it's leaving out the grandmas.

So why on earth would grandmas be doing the same thing there that Rick should ra ran is proposing to kill off males? Well, let, lemme as a whole, can I finish course? Excuse me.

So there is a simple way that grandmas plus all their sisters, plus their daughters plus their can kill any misbehaving male is say, no, sorry, not you.

No Sex, no sex. We like them, not you.

We like them and they express it as Jerome says, by singing, dancing beautifully, singing beautiful songs, but saying, oh, these old men, their balls are broken.

We're penises useless. We have the c**s have power.

So yeah, they're singing very rude words whilst being so beautiful and so enjoyable and everything.

It's gonna be a, a for, I mean, Richard Ham's idea that men were doing the selecting against violent men instead of the idea that women don't need to kill anyone.

They just get together and decide which males they like, and the males that behave that way get the rewards of sex infants who survive and it, it begins to feed back and it begins to roll quite clearly.

Sarah Hardy's cooperative breeding model must be, I mean, grandmas are wrapped up in that, which makes it not only grandma alone, but goes kind of spreads around.

So hunter-gatherer camps are collective childcare machines where, who's actually grandma of who doesn't matter that much.

Yeah. Actually now, today, people wouldn't in Africa on to gather camps.

and Kristen and Hawke's team, the, the grandmother team, they noted in their key paper on the emergence of grandmother's strategy on the, on the, hardworking, what was the all, oh, I can't remember the title off the top of my head now.

notice that every single mother breastfeeding had a post-menopausal woman helping who wasn't necessarily an actual grandma, as you say, she could be like a great aunt, she could be like even great grandmother.

There were even some on the father's side possible, but mostly on the mother's side.

but it had got to a stage where almost all of, almost any possibility would work, by, by that, by that stage, but quite clearly in the beginning and with Sarah, her's cooperative breeding idea, just the very fact that a woman could hand over a baby to another female, which really doesn't happen with great apes at all.

and that had to be mother daughter in the, in the beginnings, really had to be.

and that's explaining why great apes just can't go down this route really with a, with a patch locality.

Yeah. so yeah, I, I just think the idea women would be killing off ha or grandmas would be killing off some of the offspring of their daughters to me, because there are just lots of other ways.

and the cooperative breeding part of it would generate behaviors of the kind like the mua jo behaviors that Jerome's taught us so much about the ridiculous behaviors and teasing behaviors that could incorporate the first males incorporated that would be the brothers of that, that would be quite close in, in age to sisters as well.

so I think that's an important aspect to integrate, For sure. Yeah. Well, I think, I mean, I think once, once the, once the coalition is put together, then of course all those things are possible.

I mean, it's no longer necessary that the matriarchal line is, is the only way in which infants are looked after if one, once they're in Yeah, once they're in, they're in and, you hold onto that.

I think that the, the thing about the males is that the, the roving male strategy is actually useless.

That's the problem. That is the problem. Yeah.

It it because that the roving males are, What are you gonna win, Are managing to mate with females who are at that time outside of the, or the coalition is not, is not across the whole of the society, and therefore those roving males are able to mate with those females, but there's not gonna be any reproductive success outta it and the reproductive success is going to be within the coalition or within the groups or so if Homoerectus has these matriarchal as we were suggesting, matriarchal kind of, setups, then that's where the males are gonna have their reproductive success.

Yeah. And so of course they, the male, the best male strategy is going to be that way, and therefore, yes, it's going to be the males who are willing to do that, who are going to be part of it.

Just ma males may not have a, a, a whole life strategy.

Can I put it that way? Females are not going to have a whole, not necessarily whole, have a whole life strategy.

They may change between in, in a pre coalition, setup.

It may be that the male kind of starts off being very, um collaborative working with the, with the female, it's their offspring on what have you and then, and then kind of goes off and does maybe the, the grandmother dies, and the, the female, um is unlikely and, and he goes and does something else.

But I'm not saying that it's like every male is either like that or is like that it, these, these are strategies we have very complex minds and we respond, I think to the, to the structures that we are living.

If we, if if we get, if we grow up in a hunter-gatherer group where there is singing and dancing and cooperative, childcare and all of that kind of thing that will speak to, will encourage, will take us down a particular route at some point.

Yes, I agree with you, Jerome, that it's, it probably is some underlying effectively economic change that is going to undermine the grandmother's coalition.

I just, I'm a bit, I dunno, I, I just want to dig a bit more, because I'm not entirely satisfied with that idea.

and want to want to sort of, pull it apart a bit.

it, it's a bit, it's, I guess for me anyway, it's a bit too simple, that we suddenly, we, we have storage and the, the strategy that lasted 190,000 years suddenly doesn't work anymore and I just want, I, I'd like to kind of have a bit of a, but, but at some point, yes, the, the coalition did fall apart for some reason, which allows for those roving males to go off and set up the mafia protection rackets, which have ruled, ruled the planet ever since.

and until not we, it's not about getting rid of those males.

I mean, yes. Um I it's, it's a, it's a real problem about integrating that, that a couple of people with, with rifles weren't very good shots, this summer.

You know? that's, but that's not the solution that is not the solution to, to these problems.

It's not about grandmas, killing their, their reproductive success.

You know, that doesn't, that doesn't happen and it's not the solution.

What you want is to find the next coalition, basically we need, we need to find the next coalition and who, who is, who's going to be in the vanguard and, the SWP might have one particular, view on that and others might have a, a different one and perhaps perhaps the vanguard are the grandmothers.

I, I, I'll just leave it out there.

We'll go, we'll go to that. Right. I, I'm gonna ask Kevin now because you've had a talk.

I just have a really quick comment.

cause the question I think was asked, why is the sex ratio one to one? And we do have an answer to that, and it was worked out by Ron Smith and people like that and it's fun. It's not even because we've got X and Y chromosomes, but quite really why we have x and Y chromosomes is because that produces a one-to-one sex ratio and the reason we have a one-to-one sex ratio is cause every individual who's born in the human or most animal population as one father and one mother and once you have that system, once you experiment eggs and one father and one mother, then the evolutionary stable strategy is basically to the one-to-one sex ratio.

Every, even a female who wants to have lots of offspring once the males are rare, the female wants a male offspring, Extra males. However, If I can play the devil's advocate that, that humans, that people can't have social superseding of what you might call biological necessity now I don't. But It is the reason why we have a one-to-one sex

ratio in, in the human population and why people have, and why females in the past who have left descendants haven't killed all their male hospital.

I think that's guiding the question.

Just a personal point. So why shouldn't women have attempted to supersede what you described as a biological necessity? There's two different questions. Okay. This, so, So there is a way around it, which is to have, a sexual reproduction and there are obviously lots of species that have a sexual reproduction, but the ones that are sexual that reproduce sexually, they have one-to-one sex ratio in general and then the, the exceptions are haplo diploid species where you have some, where you have males that have only mothers and, and, emails like the mother and the father and that was all worked out. I bill have you Use social what and bees, et cetera, For the sake of it.

But like your, I think your explanation of why the organism would decide to is, is great.

Like, I think you're really clear.

I think it does answer in some ways the question you asked, although then you're asking a second question.

It's like, okay, the organism maybe decides one thing, but then why wouldn't, couldn't people coalitions just decide to do something else? The way states there, there have been gender selected infanticide in states in China because of social reasons and it is technically possible that women, even though it's not what we want or what we see in the historical record or what to tell us we must do, it is technically possible that women could get together and decide, what? But that's a very scary idea, which is why you're getting a lot of flattery.

I like it. Well, you like it, but a lot, but, but you, but it is, it's terrifying to people that women would decide to do the kinds of things that, that men do.

And, and so it's scary would not Be evolutionarily stable strategy, having any descendants That, That, that requires true.

There Must start with basic ology.

You want do astronomy, at least something about mutant and Einstein where you get moving on more sophisticated.

There are plenty of myths about, yeah, women killing their offspring, Amazon style myths, and Jerome, of course, the, the, the evangel stories about women with regional owners of AGI and the, they don't have the, the, the agi, they produce the children, which are girl children, or is that, is that right? Or So I mean, there are many stories of that kind, but they all used Justice to repress women Like the picture or stories Women in order to kill and repress women.

So of course what you're raising is just a very scary, like set of ideas, right? Yeah. But, but, but it's, men are not the problem. Yes. They're no, They're not, not necessarily the problem.

They're not in hunter egalitarian, hunter gatherer societies the problem, they're part of the solution.

No, the problem now it's the strategy that's The problem.

Certain manner of problems, The theory of the whole theory of evolution that in a way, I don't want to simplify, but it is a lot of the, the stuff behind what you're saying presumes a kind of male individualism presumes that you actually are kind of, oh, the man because the man, the male great ape, the, the male in this scenario we're presuming that he wants to only cares about reproduction of the self.

That's why he kills the kids of other things, right? There's an idea that the male has got this interest in self reproduction and the self, and it's very individualist and that's the premise on which a lot of the other arguments and stuff is based and that's fine, but it does suggest that, well, if men if women are inherently or something inherently about women's bodies leads us to then be collectivists in general, there's something about the theory that that suggests that men are individualist in general, and that's why women have to be collectivists and in this, in some ways defends your point, like I can see where you come with the Well then why aren't we? What what's, well, I think it's a look good question.

I think it's a complicated question I do take to to, to female in I to precisely counter that idea.

Females can be fantasized against rival females among many chimps where, where the resources are scarce and the females have to don't mess with each other.

They keep separate then a female doesn't want an immigrant female coming into a patch and will kill a baby.

It's quite you a lot of lived trauma.

There is, and there's even some cases now, in Bonobo, there's some suggestion with vol about Bonobos being such co actually competitive mother spit tiger mother.

In fact, they can be breastfeeding for long periods with two offspring actually, which is something new, right? And also the, the, from the male point of view, the males are not, are not killing rivals.

Yeah. That's not what they're doing.

So if they were killing rivals Yeah, they would kill them at any age.

Yeah. All the way up until they started to get to be a bit of a threat.

So kind of approaching adulthood.

No, they are simply trying to get more reproductive possibilities.

That's, that's what they're after.

So it's, it's, it's a reproductive strategy.

You know, Sarah Hurdy laid it out completely, clearly they, it's not competition, it is not, it's about them having reproductive success and if they can't find any fertile females, then the best way that they can get a fertile female is to kill the offspring of that female in order that they can mate.

It's not about killing a rivals offspring.

So when the, when the gorilla takes over of a a group, it's not that he's killing off all his rivals offspring, it's that he's scared to death, that he's gonna be booted out before his off offspring can, can get beyond weaning.

That's, that's the problem. So We have to, is scared to death.

I mean, we have to realize he, we without thinking no, Not thinking, they're Not strategy. No, It's, this is Strategy.

Bodies don't get their data into the future. They're not Around then. They're not around Anymore and they won't Around.

So it's, it's the strategies that are the problem.

It's not to put to say it's male, it's a male problem.

No, I it's not, well it's not an evolutionary approach and you are a philosopher, so fine take, take that, take that a approach.

But we are evolutionary anthropologists, so we are using evolution as our way of looking at it and it's the strategy that's the problem. Let me Make one reminder, A good, helpful male or is a root.

Yeah, it sure is. There is a difference. Yeah. And that's what females are very happy to have males around that, um are, are contributing and so on and, within monogamous pairs the, the main the main difficulties is the female kind of keeping, keeping the male on the ticket.

Um and not putting their feet up and, and drinking the beer and watching the football and Her mother helps an enormous amount with that to make sure the bride service gets done.

Of course. And all the mother, and you talked about the, grandmothers being this very attractive older ladies, but of course there's a big ma mother-in-law avoidance, so all that stuff about mother-in-law and sons-in-law and yeah.

Yeah, because it, I think it's, it's flipped.

It's flipped since certainly Has, rang Always Has that is big star.

That is deep, deep Needs to be untouchable Because yeah, it's most important For her, me otherwise You're, it's most important for her to have so much authority that she can she can call her.

She's like the line manager for her or the union rep for her daughter caught her out on sex, right? Which is what happens with her has a cap so if the guy is not doing his job right.

You've had enough of my daughter now for sure.

yeah, every, everybody pleased.

That was a pretty stunning, amazing talk getting, getting us going.

Thank you so much With that, I think we'll be carrying on long into the night in the pub with further discussion for anybody who wants to come, which we are going to the Tavistock Hotel.

are you able to come, are you or have you got to take your dress? Yeah, come for a shirt quickly, at least down, at the bottom end of Tavistock Square.

Yeah. And we are also likely to be, we, we are working, the grandmothers are working on coalitions and more to come and which is are back.

and we are generating menstrual huts at the dark moon and we are likely to do an event where have all the menstrual huts gone, which may also go to a nice pub space to have a sort of circle event rather than an in academic forum event.

so we'll probably do that sometime in May before the May dark moon.

So they, we'll put up these events, watch our space on social media and so forth, and they'll be there.

but yeah, so goodbye to everybody on Zoom and the rest of us are going down the pub or else going home if we have to have to go and feed the cat.

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