KELLY ROE (AUDITING): ASSIGNMENT SIX

Is human language unique among the social communication abilities of other species?

In order to assess whether human language is unique among the social communication abilities of other species we need to begin by characterizing the essential features of human language (or, more plausibly, a few central features). Then we can assess how many of those features are met, to which extent, by which other species. If we are interested in the uniqueness of human language in particular, then we would also need to characterize the essential features of other species communications (or, more plausibly, a few central features of each other species communications). Then we could assess how many of those features are met, to which extent, by which other species. We would then be in the position to see whether human language is an outlier and if so to what extent. Of course we haven't got anything approximating this at present.

In attempting a taxonomy of species on the basis of morphological features there is a problem in picking out what morphological features are relevant for the taxonomy. Whether two species are 'closer' than two other species is highly sensitive to the morphological features that are chosen for the purposes of the analysis[1]. Evolution by natural selection was thought to help distinguish the relevant from irrelevant features for the development of a classification scheme[2]. In linguistics Chomsky's poverty of the stimulus arguments persuaded many that there was a gap between the learning history of human beings and the linguistic competence that they attained. There also seemed to be an obvious gap in the sense that even if we raise a member of another species such that it has a comparable linguistic learning history as a human the animal will fail to achieve the linguistic competency achieved by almost all human beings[3]. The obvious solution was to say that what was in the gap was innate and uniquely human. Chomsky's thought was that that was the content of the innate language acquisition device (LAD).

The LAD hypothesis provided a useful framework assumption / paradigm for linguists who could get on with the business of generating and testing more specific hypotheses as to the contents of the LAD. While this served to organize linguistics for a time eventually the field became dissatisfied with their progress and started to grumble that the LAD hypothesis was immune to support or disconfirmation and they moved on to other things. Despite this, there are two features of human linguistic capacity that have inspired much interest with respect to their seeming centrality for what carves human linguistic and cognitive capacity off from the linguistic and cognitive capacity of other species. Those features are systematicity and productivity[4]. Systematicity refers to the feature whereby we can combine and recombine meaningful units in different systematic ways (so 'the cat is on the mat' and 'the mat is on the cat' share meaningful units). Productivity refers to the feature whereby even when we hold the vocabulary / meaningful

[1]A similar problem comes up when there are basically three different measures of bio-diversity such that it is jolly hard for us to figure out what it is that we are supposed to be maximising. Basically... Whatever measure gives us biggish mammals or things that are, were, or might be cute. Which measure we want seems to vary depending on which outcome we are interested in. I have a similar suspicion regarding which features of language / communication we take to be relevant.

[2]Though even here lineage trees vary considerably depending on assumptions regarding the rate of change and which kind of data you prefer when they conflict etc.

[3]Insofar as it is possible to raise a member of another species comperably to a member of our own which I suspect it is not given other functional differences and differences in normal infant / caretaker relations between species.

[4]Other features have been cited besides, but I'll focus on these. I think it is fair to say that these are the best candidates for categorical uniqueness. I'm also shifting slightly from language to thought. I want to say that the reason we care about the linguistic abilities of other species is because we think it indicates something about their cognitive capacities. Trouble is that some others want to say that the reason we care about their cognitive capacities is because they think it indicates (sometimes by way of consciousness sometimes not) something about the appropriate moral attitude we should take towards them. I guess it depends on what you are interested in.

units fixed, we can still generate an indefinite number of meaningfully different sentences / thoughts and also understand novel sentences / thoughts of others (e.g., 'I have 1 kumquat', 'I have 4,837,432,494 kumquats' etc). If we take this to be the best (or one of the best) candidates for what is distinctive about human language then the question becomes to what degree (if any) these features are present in the communications of other species[5].

One thing that we should be concerned about is that we seem to need a good account of the semantics that are employed by other species so that we can figure out the rules of arranging those (a syntax). I'm not sure that we do have anything like a complete account of the semantics that are employed by other species, however. I'm not even sure that we have anything like a complete account of the semantics of our own. While we understand some features of honeybee dances, vervet calls, and birdsong, it is unclear to me whether we know all, most, some, or next to nothing of the semantics they employ. This issue is complicated by other species using forms of communication that are difficult for us to assess, and sometimes even difficult for us to think to assess (e.g., utilizing frequencies that are hard for us to detect or using chemical trails or echolocation(?) etc). It wouldn't even be so very surprising if they were making semantic discriminations that we aren't picking up on because they are different from us with respect to what is salient to their interests in the niche that they find themselves in. If this is the case then we wouldn't have much of an idea what (if any) syntactic rules govern their semantics. One way around this issue is to see if we can find evidence of their being trained to distinguish recursive from non-recursive syntax in tasks that we set. Since syntax is meant to be (fairly) independent of content it might be thought that in order to have syntactic recursion a species would need to be able to identify recursive syntactic patterns even if the semantics is meaningless to them.

I am a little concerned about Hauser's study insofar as the stimulus consisted in human speech sounds rather than monkey vocalizations, however. It seems that the song birds were at an advantage in having a stimulus that was a song bird vocalization. While syntax is often thought to be completely independent of content I'm not terribly sure about this. Logic is also thought to be independent of semantic content even though the paradigmatically syntactic boolean connectives are given semantic truth tables[6]. People tend to do better at detecting valid inferences when they have the form with the content removed. Conversely, people have been found to perform better on socially relevant tasks than they have been found to perform on what is effectively the same task stated abstractly. It might similarly be the case that recursion is easier to identify when the semantics that the recursion is operating over are meaningful (or familiar) to the subject. It might also be the case that species perform best when we set them tasks that make sense to them given their ecological niche. It is a little like how some indigenous people wouldn't perform modus ponens because they refused to speculate about something they had not seen. This didn't indicate that they *couldn't* speculate or think hypothetically, however. Rather it indicates that we need to be careful in how we ask them to think hypothetically. A similar thing arose with dominance hierarchies affecting what tasks monkeys would perform in the theory of mind literature. Similarly, it it unclear to me what the experiments show us (if anything) about syntactic abilities. I'm not sure how pattern recognition of sounds counts as syntax (maybe it is just that songbirds are more musical). It might well be that I simply don't understand what syntax is supposed to be, however...

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[5] I do worry about whether they count as three different features or two different features or one different feature. I suppose that will make a difference for just how unique human language is going to turn out to be.

[6] Mathematical functions might be a better candidate for being a contentless purely formal / structural property, but I'm not sure about this.