The content of minds

Asifa Majid talks to Jon Sutton about language and thought

I've known you since we were postgrads, and I've always found you fascinating. You're now one of the most interesting and interested people I follow on Twitter. Would you say you're a curious person?
There is a lot to be curious about! I'm just glad I was born in the technological age where you can have the internet in your pocket.

I guess you were always going to end up taking an interdisciplinary approach to your research.
If you're interested in what makes people who they are, I don't think there is a way to avoid being interdisciplinary. We are a product of our biological inheritance and our particular socio-cultural upbringing, so engaging with the relevant literature from both perspectives is important to me. I'm grateful to have received my early university education in Scotland where I was able to study multiple disciplines in parallel. I think that certainly fostered my multidisciplinary thinking.

You're trying to understand to what extent there are shared aspects of word meaning across languages, and where similarities or differences come from, is that right?
I'm really interested in how the mind works and, in particular, what the units of thought are. This is a foundational issue in psychology because all our models of memory, reasoning, decision making, et cetera, rely on assumptions about the units of thought. If working memory has a limit of 7-plus-or-minus-2, then we'd better know what it is that we are counting.

This interest in the content of minds brought me to the study of words because many scholars assume that the general purpose, non-linguistic units of thought are things like *red*, *four* and *chair* – i.e. words. But if you look at different

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languages around the world you start to see that there is little one-to-one correspondence between words in one language and words in another. The more I started investigating cross-linguistic differences in meaning, the more I became interested in issue of linguistic variation in its own right.

At the same time, linguistic variation brings new questions to the fore. Do we really think in words? If so, speakers of different languages are thinking very differently from one another in their inner mentalese. Or do we think in some other unit of thought that is universal? If so, then what is it? And how do we map our thoughts into words when we want to communicate them to another person in the specific language we speak? These are the sorts of questions that preoccupy me.

I think it was Roger Brown and Eric Lenneberg who made a distinction between language as 'a cloak following the contours of thought', or individual languages as 'holds into which infant minds are poured'. Could you give me examples of language use to support either option?
Colour is a good example. Across the world, languages differ in how many basic colour words they have. For example, Umpila spoken in Cape York, Australia only has three colours words: *black*, *white*, and *red*; whereas English has a much larger repertoire of 11 basic colour words: *black*, *white*, *red*, *yellow*, *green*, *blue*, *orange*, *pink*, *purple*, *brown*, and *grey*. So, an Umpila-speaking child will have to learn a different set of distinctions to an English-speaking child.

Or take body parts. We make a distinction between our hand and our arm. But if you're a speaker of Indonesian you just refer to your *tangan* (which includes both hand and arm). And if you speak Jahai (in Malaysia) you have to specify further. You have to make explicit whether you mean your upper arm *bliŋ*, or your lower arm *prbɛr*. There is no general *arm*.

In English we can both *cut* a carrot with a knife and *cut* a piece of paper with scissors, but in Dutch you can only *snijden* the carrot and *knippen* the paper. English speakers *smoke* cigarettes but *drink* water; Punjabi speakers *pii* both.

I could go on. Diversity in word meanings is pervasive. But this diversity is not unbounded. When you start comparing languages systematically, you see some recurring themes and principles structuring the lexicon. For example, there is a regular order with which languages expand their colour vocabulary. If the Umpila language were to gain another colour word, we could predict with some certainty the next word would be either *green* or *yellow*, and not *purple* or *pink*. Similarly, although body part terms vary across languages, they seem to obey segmentation principles from vision. It is unusual in languages to find a term

which refers to the hand and just three quarters of the arm, for example.

So this is all intimately tied to perception itself? Languages differ markedly in their lexicons for smell, touch, sound, temperature, pain.

Yes, language is shaped to perception and cognition. But it is also shaped by cultural, environmental and historical factors. Take the colour example again. Colour words mirror our colour vision system. But they also fit contingent cultural factors. For example, languages with fewer basic colour words also have simpler colour-dying technologies. In modern Western societies we apply colours to all sorts of things: from our lips and hair, to our clothes and walls. And we have a wide palette to choose from when we do this. There have been centuries of innovations in dying technologies. Other communities do not apply colours in the same way. Objects come in their natural colour, so you do not need to single out colour as a property that distinguishes them.

Or take smell. We spend billions on the flavour and fragrance industry every year. Smell is important to us. But still we struggle with naming even familiar smells. But amongst the hunter-gatherer Jahai speakers, talking about smells is easy. The Jahai have a dozen or so dedicated verbs to talk about different qualities of smell. For example, the smell of petrol, smoke, bat droppings, millipede and leaf of gingerwort are *cŋɛs*, but the smells of mushroom, cabbage, some species of hornbill, and the fur of the pig-tailed macaque are all *pʔus*. It's hard for us to imagine some of these smells. You've probably not even experienced them. But the smell words in Jahai are not restricted to these sources. They apply even to novel smells Jahai speakers have not experienced before, as we found out when we tested people under experimental conditions.

So, we need to take into consideration socio-cultural factors, as well as perceptual-cognitive ones when thinking about meaning.

How vital is methodology here? Whenever there's a new article finding that some remote tribe only has three words in their number system, I just think 'really?' Or is it just that cultural and linguistic barriers inevitably make studying language problematic and unreliable?

You're right, methodology is very important. This is another reason why interdisciplinary work is crucial. If you have guerrilla researchers parachuting into a country, conducting experiments in a few weeks, then whisking off to write a paper about their 'discoveries', you would have every right to feel sceptical about their findings about what a language can and cannot do. But a lot of the important cross-cultural research is based on in-depth fieldwork, where researchers have spent years learning the local language and studying the indigenous culture. This background knowledge is critical to conducting systematic investigations within the community. Of course, there can still be misunderstandings; just as your average undergraduate can misconstrue the instructions an experimenter gives them in a lab. But a good study will never rely on just one source of data. There will be experiments, in-depth linguistic analysis, and ethnographic observation. The combination is critical.

"Each language lost is a loss of a worldview that could help us understand humanity better"

From my perspective I find the reactions of academics to new findings from other cultures as interesting as the cultural phenomena themselves. First, there is outraged scepticism: 'How could this possibly be?', followed by accusations of exoticisation. Then comes the: 'But this is not so different to what we have in our culture after all', where some parallel to the newly discovered phenomena (that was seconds ago impossible to believe) are paraded around. Only after this do people settle down to discussing what the implications are of the new facts for how we understand the human mind.

There are some really exciting studies being conducted right now that bring together psychological, linguistic, and anthropological perspectives, but it is still a challenge to foster cross-disciplinary dialogue.

In researching this area, presumably the diversity of the world's languages is a great help. Are you fighting a losing battle against time, as these languages die out?

According to Ethnologue around six languages per year are being lost at the moment. Over 30 per cent of the world's 7000 or so languages used today are threatened and severely endangered. This, of course, has huge repercussions.

In my research, I'm trying to find out both what the recurrent patterns are in languages, and what is unusual. The recurrent patterns can shed light onto shared cognition and experience. The unusual can shed light on the potential of human language; they help us see what is possible. Each language lost is a loss of a worldview that could help us understand humanity better.

But language loss is not inevitable. We can put language policies into place that help ensure children will continue to learn their ancestral mother tongues, if communities want that. Part of this can be done through bi- or multi-lingual schooling, for example. And language change and evolution is a never-ending process. New varieties appear, as we see with newly emerging village sign languages which occur when a high density of deaf individuals come together and evolve a new way to communicate with each other. So while there are people, there will be languages to study.

Are some experiences impossible to put into words?

Our experiences are particular, but words in language are generalisations. So when we express our experience using a specific word, it is only ever a rough guide to convey the experience we had. Say I saw a triangle and told you 'I saw a triangle'. From just the word *triangle*, you wouldn't know if what I saw was a scalene, isosceles or equilateral triangle. When you hear 'I saw a triangle', all you know for sure is: 'Asifa saw a closed figure with three straight sides and three angles'. You only get a rough guide to my experience.

For some sorts of experiences, even these approximations do not seem to work very well. Humans are incredible at face recognition. We can discriminate endless numbers of individuals. But it seems impossible to describe a face such that it individuates it from all other faces. If you had to say what sets apart Katy Perry's face from Zooey Deschanel's, or Will Smith's from Barack Obama's, you would struggle; never mind trying to produce a description that would uniquely identify Katy Perry or Barack Obama from the millions of other faces. Or, let's think about pain. When the doctor asks you to describe the pain in you have the back, what resources do you really have to express the exact pain? Or what about the time you were on holiday and tried an exotic fruit. Now try describing it to your friend so they can recreate the exact flavour experience you had. It's hard! But compare this to describing the location of the pain, or the colour of the fruit. In comparison that seems relatively easy to do.

These examples are interesting because they potentially tell us something

important about language, and what it really evolved to communicate; and how language interacts with other aspects of cognition. If some experiences are 'ineffable' – i.e. difficult or impossible to put into words – then this tells us about the limits of language, and our underlying cognitive architecture.
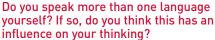
It turns out some examples of 'ineffability' are only weak ineffability. That is, they only hold for some languages, not all. Smell is an example of this. Since Plato and Aristotle, it has been widely-held that smells are impossible to describe. And this certainly seems true of English. However, as we saw earlier, Jahai has an elaborate vocabulary to talk about smells, and Jahai speakers find it as easy to talk about smells as they do to talk about colours. This suggests the inability to name smells might not be a necessary fact about the language faculty, and theories which try to explain odour-naming difficulties (amongst English speakers) by solely appealing to neuro- or cognitive-architectural constraints are not sufficient.

I love that idea of 'drinking' smoke, I think that's the same in Turkish. It really emphasises the cross-modal nature of perception.

People are creative. When they run up against a limit of their language they can coin new ways of expressing themselves. Metaphor is one way we can do this. When Robert Burns says in his poem: 'O my Luve's like a red, red rose, that's newly sprung in June', he coins a novel metaphor to try and convey the depth of his feelings. Aside from these literary metaphors, ordinary, everyday language

also abounds with conventionalised metaphor. People use terms from one domain to refer to something in another.

For example, in English *sweet* (taste) can also be used to describe people; i.e. a 'gentle, kind or friendly' person. But in Hebrew when sweet is used metaphorically it refers to 'inauthenticity'. A *spicy person* in English might be considered 'full of spirit', but a spicy person in Hebrew would be someone 'intellectually competent'. If a young man in Guhu Samane (Papua New Guinea) described a group of girls as sweet, the man could relate to them as sisters, and approach them. But if the girls were described as bitter, that would be because they are potential wife material (because they come from the appropriate clan), and so the young man should be cautious and keep his distance. These are all examples of how taste vocabulary can be used for traits and characteristics of people. Metaphor is pervasive in language.

Do you speak more than one language yourself? If so, do you think this has an influence on your thinking?

I grew up bilingual in Punjabi and English, and remember feeling very sorry for the people who could only understand one of the two languages. They were missing so much! I would be struck by the misalignments between the languages. For example, in English sounds have a *high* pitch, but in Punjabi when a sound is 'high' it means it is loud. High pitch sounds are described, instead, as being *breek* 'narrow'; and its opposite isn't a wide sound but a 'heavy' sound. Go figure.

Recently my colleagues and I had a chance to visit these different ways of talking about sound. English systematically uses a vertical spatial metaphor to talk about variation in pitch: sounds are *high* or *low*. But in Farsi people don't talk about high and low tones, instead they use a different spatial metaphor and talk about *thin* and *thick* tones. We asked whether these different ways of talking about sounds influenced the way people think about the sounds too. We asked Dutch speakers – who, like English speakers, use the high–low metaphor – and Farsi speakers to listen to some sounds and then sing them back. A very simple task. At the same time as they listened to the sounds, they also saw a visual stimulus. People either saw a line

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that varied in its vertical position – it appeared higher or lower on the screen; or they saw a line that varied in thickness. We found Dutch people sang the same note back higher in pitch when they saw a line higher on the screen (versus lower on the screen). The vertical height manipulation made no difference to the singing of the Farsi speakers. But Farsi speakers sang the same note back higher when they saw a thinner line (versus a thicker line); Dutch speakers were not affected by this manipulation. This shows for a Dutch (or English) speaking person, high sounds are really thought of as high in space, whereas for Farsi speakers the same sound is thought of as thin. The metaphors are cognitively real.

How does Dutch academia compare to the UK? Will we ever see you back here?

The Netherlands is a very vibrant place intellectually. I am lucky enough to receive generous funding from the Netherlands Organisation for Scientific Research, and have great support from my university. UK universities are some of the best world-wide, but looking at some of the proposed changes to science funding and university policies makes me worry about the future.

Still, the UK is home, despite having lived abroad for so many years. I miss proper mugs of strong tea, and British chocolate (sometimes Belgian chocolate doesn't quite hit the spot). Ultimately, as a researcher, I have to be in the place where my research is supported and funded.

reading

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