Dick Hudson and Neil Sheldon discuss the Babel myth and a very modern answer to it...

Analysing the languages of the stars

Babel celebrates the multiplicity of languages – about 7,000, so we're told. Whenever a language dies, we're sad, and 'language preservation' ranks along with 'species preservation' as a noble campaign for this century.

But there's another view, also linked with the name Babel: the diversity of languages is a divine punishment for human ambition. Babel is another name for Babylon, and (according to the book of Genesis in the Old Testament) the Tower of Babel shown in the picture on the cover of Babel No1 was planned by the king of Babylon to reach as far as heaven. God objected strongly, and scuppered the plan by an early version of cyberwarfare: he prevented communication among the builders by giving them all different languages. So here we are today, still paying for that tower.

An interesting twist to the story is that Babylon is also known to be where grammar was first studied, about 4,000 years ago (so more than 1,000 years before Genesis was written). The picture below shows part of the rather battered remains of a clay tablet written at some point between 1900 and 1600 BC, which the experts tell us is a list of corresponding word forms in Akkadian (the language of the scribes) and Sumerian (a high-prestige but dying language that they had to learn to use). Grammatical analysis was seen as a solution to the downside of diversity, the communication problems created by multiple languages. So here we are today, still using language analysis to cope with diversity.

In fact, we're more than 'coping' – we're enjoying the diversity because it shows how flexible the human mind is. One way into linguistic diversity is the Linguistics Olympiad, which you may have taken part in. It's a competition for school students where the challenge is to analyse some language data: how possession is marked in Ulwa, how to convert the Georgian alphabet into Armenian, or how to count in Irish. Over forty countries now have national competitions which feed into an annual international tournament to find the world champions.

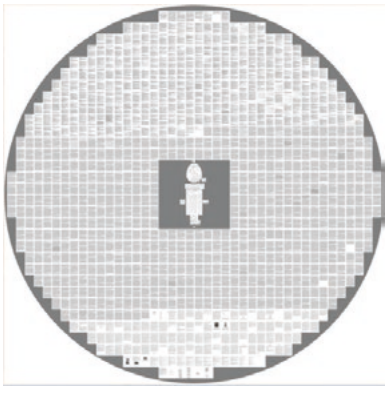
The International Linguistics Olympiad (IOL) awards gold, silver and bronze medals to the best individual competitors in a gruelling six-hour test. Then a special trophy is awarded to the country whose team of four achieve the highest aggregate score. The USA have won that trophy more times than any other country, and in 2016 they were given it to keep on the understanding that they provided a replacement. So, in the 2017 IOL, the top team – from the UK – were the first recipients of a new trophy, the truly remarkable Rosetta Wearable Disk.

The Rosetta Wearable Disk is the brainchild of the Rosetta Project which aims to build a publicly accessible digital library of human languages. A key idea in that library is parallel texts. The original Rosetta Stone (written more than a thousand years after the Babylonian clay tablet) carried the same message (a decree by Ptolemy V) in three different scripts: Egyptian hieroglyphics, Demotic Egyptian and Greek. Those parallel texts made the deciphering of

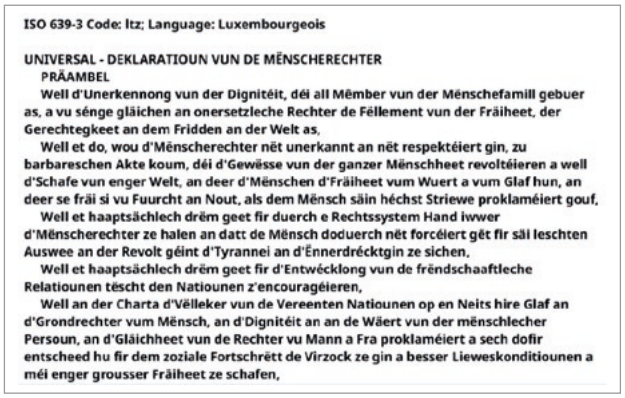
Egyptian hieroglyphs possible for the first time. The Rosetta Wearable Disk carries a parallel text, the United Nations Declaration of Human Rights, in 327 languages, and a parallel vocabulary list in 719 languages. And all on a disk slightly smaller than a £1, €1 or a US nickel. Just admire how far the human race has come in a mere 4,000 years since that clay tablet from Babylon!

The front of the disk has a message, spiralling inwards and getting steadily smaller, in 8 languages. In English it reads "Languages of the world: This is an archive of over 1,000 human languages assembled in the year 02016 C.E. Magnify 100 times to find over 1,000 pages of language documentation". On the back of the disk there are over 1,000 microscopic pages of text formed on a nickel base, all readable with just optical magnification. The hope is that there are enough clues on the disk to suggest to any future archaeologist that there is a wealth of information to be found with just a magnifying glass.

To get a sense for yourself of what it would be like to explore the Rosetta Disk, go to the Rosetta Project's interactive page (see 'Find out more' below). Here you can zoom in and move around freely to see all the pages on the disk. At lowest magnification you will see something like this:



But zoom in enough and you will see this sort of thing:



ISO 639-3 Code: ltz; Language: Luxembourgeois

UNIVERSAL - DEKLARATIOUN VUN DE MËNSCHERECHTER

PRÄAMBEL

Well d'Unerkennong vun der Dignitéit, déi all Member vun der Mënschefamill gebuer as, a vu sénge gläichen an onersetzleche Rechter de Fëllement vun der Fräiheet, der Gerechtegkeet an dem Fridden an der Welt as,

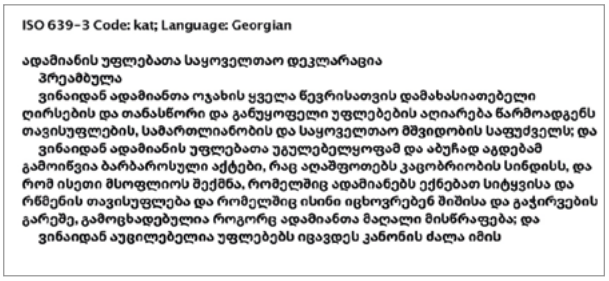
Well et do, wou d'Mënscherechter nët unerkannt an nët respektéiert gin, zu barbareschen Akte koum, déi d'Gewësse vun der ganzer Mënschheet revoltéieren a well d'Schafe vun enger Welt, an deer d'Mënschen d'Fräiheet vum Wuert a vum Glaf hun, an deer se fräi si vu Fuurcht an Nout, als dem Mënsch säin héchst Striewe proklaméiert gouf,

Well et haaptsächlech drëm geet fir duerch e Rechtssystem Hand iwwer d'Mënscherechter ze halen an datt de Mënsch doduerch nët forcéiert gët fir säi leschten Auswee an der Revolt géint d'Tyrannei an d'Ënnerdrécktgin ze sichen,

Well et haaptsächlech drëm geet fir d'Entwécklong vun de frëndschaaftleche Relatiounen tëscht den Natiounen z'encouragéieren,

Well an der Charta d'Vëlleker vun de Vereenten Natiounen op en Neits hire Glaf an d'Grondrechter vum Mënsch, an d'Dignitéit an an de Wäert vun der mënschlecher Persoun, an d'Gläichheet vun de Rechter vu Mann a Fra proklaméiert a sech dofir entscheed hu fir dem soziale Fortschrëtt de Virzock ze gin a besser Lieweskonditiounen a méi enger grousser Fräiheet ze schafen,

Or this



ISO 639-3 Code: kat; Language: Georgian

ადამიანის უფლებათა საყოველთაო დეკლარაცია

პრეამბულა

ვინაიდან ადამიანთა ოჯახის ყველა წევრისათვის დამახასიათებელი ღირსების და თანასწორი და განუყოფელი უფლებების აღიარება წარმოადგენს თავისუფლების, სამართლიანობის და საყოველთაო მშვიდობის საფუძველს; და

ვინაიდან ადამიანის უფლებათა უგულებელყოფამ და აბუჩად აგდებამ გამოიწვია ბარბაროსული აქტები, რაც აღაშფოთებს კაცობრიობის სინდისს, და რომ ისეთი მსოფლიოს შექმნა, რომელშიც ადამიანებს ექნებათ სიტყვისა და რწმენის თავისუფლება და რომელშიც ისინი იცხოვრებენ შიშისა და გაჭირვების გარეშე, გამოცხადებულია როგორც ადამიანთა მაღალი მისწრაფება; და

ვინაიდან აუცილებელია უფლებებს იცავდეს კანონის ძალა იმის

Try it, and see what languages you can find.

A larger version of the Rosetta Disk was carried on board the European Space Agency's Rosetta spacecraft on its mission to land on comet 67P. Perhaps one day 67P will escape from this solar system, and perhaps the Rosetta Disk will be found by some intelligent life elsewhere. Perhaps it will be found by a civilisation that has a single language, either because all the others have died out or because that civilisation escaped the wrath of its gods. If so, the Rosetta Disk will introduce them to the fascination of languages and show them what they have been missing...

International Linguistics Olympiad puzzles

Here are some puzzles that have been included in the UK Linguistics Olympiad. You'll see that they test your ability to analyse language data – to crack the language's code, as it were. They're challenging, 'but in a good way' (as one of our competitors said).

Possession in Ulwa: how do you say 'your fish'?

Ulwa is spoken in Mexico, and (as you'll see) it's very different from English (though it has borrowed some English words). Here are some Ulwa words from a larger problem from which you can work out how to express meanings such as 'their' and 'your'. You don't have enough data here, but what you have may be enough to whet your appetite for the larger problem that you can find by searching for 'Ulwa' in uklo.org/past-problems. ¶

Ulwa	English
diimuih	snake
diikanamuih	their snake
diimamuih	your snake
bilamkana	their fish
?	your fish

Georgian and Armenian

Listed below are the labels on two boxes of files in an imaginary accountant's office; the yellow box is for Georgian files and the green one for Armenian. Almost every Georgian label translates an Armenian one, and vice versa, but unfortunately, one label in each box is a fake. What do the labels mean?

	Yellow		Green
1	ივნისი	A	Հունիս
2	აპრილი	B	Նոյեմբեր
3	ოქტომბერი	C	Մարտ
4	იანვარი	D	Սեպտեմբեր
5	მარტი	E	Հոկտեմբեր
6	ნოემბერი	F	Օգոստոս
7	აგვისტო	G	Փետր
8	სექტემბერი	H	Փետրվար
9	მაისი	I	Դեկտեմբեր
10	თებერვალი	J	Ապրիլ
11	დეკემბერი	K	Մայիս
12	ივლისი	L	Հուլիս
13	აგტისლისი	M	Հունվար

For the answer, check 'Putting the books in order' at uklo.org/past-problems.

How to count in Irish

Here's some evidence for how Irish counting works:

How would you say '38 walls' in Irish? For the answer (and a few more questions), check 'Counting in Irish' at uklo.org/past-problems.

garra amháin	1 garden
gasúr déag	11 boys
ocht mballa is dhá fichid	48 walls
dhá gharra déag is ceithre fichid	92 gardens
trí bhád	3 boats
seacht ndoras déag	17 doors
seacht mbád déag is dhá fichid	57 boats
naoi nduine déag is fiche	39 people
ceithre fichid doras	80 doors
cúig bhalla	5 walls
sé ghasúr is trí fichid	66 boys
deich mbád	10 boats
sé dhuine	6 people
trí dhoras is dhá fichid	43 doors
garra is ceithre fichid	81 gardens

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Dick Hudson is Emeritus Professor of Linguistics at UCL and Chair of UKLO. **Neil Sheldon** is a former teacher. He is Vice-Chair of UKLO and has taken the UK team to the IOL each year since 2010.

Find out more

Online

The International Linguistics Olympiad can be found at ioling.org/, and the UK Linguistics Olympiad can be found at uklo.org

Visit the Rosetta Project's interactive page at rosettaproject.org/disk/wearable

Find images of and information about the Babylonian clay tablet at tinyurl.com/babylon-grammar

Find more images of the Rosetta Wearable Disk at rosettaproject.org/disk/wearable