



Going for gold with languages

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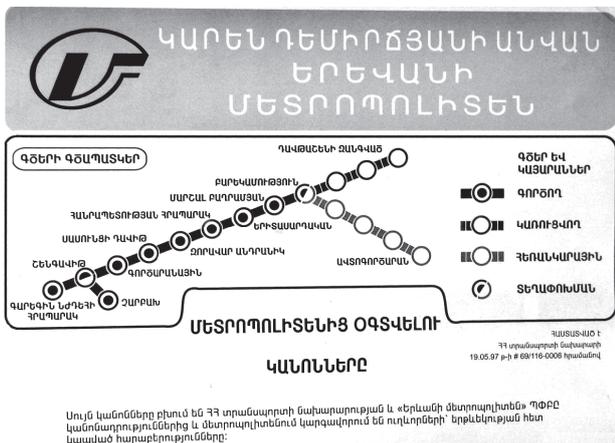
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Too many teenagers find languages boring; and yet those very same teenagers get hooked by brain-teasers – sudoku, who-dunnit films, and mind-stretching computer games. They even flock in droves to the Maths Challenge, to the extent of 600,000 per year. This article explains how the new Linguistics Olympiad builds on this teenage enthusiasm for mental gymnastics, and suggests how it might help with French.

WHAT IS A LINGUISTICS OLYMPIAD?

A linguistics olympiad is a competition for school students, just like the Maths Challenge, except that all the problems are concerned with language. The challenge is to work out the system behind some new data, rather than to test what they already know.

Here’s a relatively simple example from a recent competition, a photograph of an underground map from Yerevan (the capital of Armenia):



The challenge is to crack the code of Armenian script on the basis of clues hidden in this text:

Millie has got lost in Yerevan, the capital of Armenia. She is at the station named Shengavit but her friends are waiting for her at the station named Barekamoutyun. Some other stations are called Gortsaranain, Zoravar Andranik, Charbakh and Garegin Njdehi Hraparak. Your answers on the question sheet, based on the metro map on the next page, can help Millie meet up with her friends. [a series of specific questions then follows]

As readers will see, there is just enough information in the instructions to identify one station, and from that start we can work out the English equivalent of every Armenian character. One thing leads to another, in a very satisfying way, and the problem is solved.

This is not only a fun way to pass time, but a valuable part of language education. On the way to the solution, the detectives have experienced two important general truths: that languages can be wildly, and excitingly, different; and (equally important) that even the most outlandish language system can be mastered.

A typical problem is built on data from a very unfamiliar language, and part of the excitement is the knowledge that the data are real, that someone out there actually uses this language. Exotic writing systems offer interesting datasets such as the Armenian one, but Olympiad problems range over the whole of language – its forms, its structures and its meanings.

Mwabma is spoken by 8,000 people on a Pacific island, and provides the next example:

1. Mwamni sileng.	He drinks water.
2. Nutsu mwatbo mwamni sileng.	The child keeps drinking water.
3. Nutsu mwegau.	The child grows.
4. Nutsu mwatbo mwegalgal.	The child keeps crawling.
5. Mworob mwabma.	He runs here.
6. Mwerava Mabontare mwisib.	He pulls Mabontare down.
7. Mabontare mwisib.	Mabontare goes down.
8. Mweselkani tela mwesak.	He carries the axe up.
9. Mwelehte sileng mwabma.	He brings water.
10. Mabontare mworob mwesak.	Mabontare runs up.
11. Sileng mworob.	The water runs.

Here the challenge is to work out the meaning of each Mwabma word. This is quite a complex intellectual operation, just as with the Armenian script, because we have to take account of several different facts at the same time. For example, looking at the first row tells us that either *mwamni* or *sileng* means 'water', but it's only when we look at later examples (such as sentence 11) that we can be sure that it's *sileng*.

Once again, the exercise brings out some important general facts about language (in National Curriculum terminology, 'knowledge about language'). Mwabma and English have different rules of syntax: Mwabma has no separate subject pronouns (so *mworob* in 5 means 'he runs') and allows verbs such as *mwisib*, meaning 'go down' (see 7), to combine with other verbs, such as *mwerava*, 'pulls', as in 6. Moreover, words in one language do not necessarily translate simply into single words in another language. For instance, 'bring' is translated in 9 by two Mwabma words, *mwelebe* and *mwabma*; we know that the latter means 'here', so we assume that the former means 'carry'.

Both these examples are at the easy end of the Olympiad scale. At the other end we have a Vietnamese problem consisting of a six-line poem written in two different non-English scripts. One is western, but with added accents:

1. Trái qua một cuộc bể dâu,
2. Trăm năm, trong cõi người ta,
3. Trời xanh quen thói má hồng đánh ghen.
4. Những điều trông thấy mà đau đớn lòng;
5. Chữ tài, chữ mệnh, khéo là ghét nhau.
6. Lại gì bỉ sắc, tư phong,

The other version of the same poem is based on the Chinese writing system:

a. 孳才孳命窳羅怙饒

b. 羅之彼嗇私豐

c. 歪青慣退 膈紅打慳

d. 仍調醜僿罵忉痘悉

e. 駛戈沒局液攪

f. 冪辭醜埃馱嗟

The snag is that the order of the lines is jumbled, so we don't know which of the lines numbered 1-6 corresponds to, say, line 'a' in the Chinese version. Worse still, although the data-set also includes an English translation of each line, these too are in jumbled order. The challenge is to work out how the three series of lines correspond – for example, which of a-f corresponds to line 1, and what that line means. Quite a headache.

OUTCOMES AND AWARDS

The main outcome is that – so we are told by teachers – children love these challenges. One teacher wrote:

The Olympiad went really well this morning. In the end we had 41 boys who took part and 'battled' in earnest for two hours! Will have to bring chocolates in tomorrow, I think. Thanks for giving us the opportunity. I feel it is another way of encouraging languages as a whole, and especially in a boys' school.

And another:

Our younger students are all entering Foundation level as a group – and it is really the first time that I've seen students actually get so involved in working out how languages work. It really is brilliant!! Thank you very much.

These teachers are both language specialists, which makes their comments on the novelty and potential of the approach particularly encouraging.

The clearest evidence that we have for the popularity of the Olympiad is the increase in our numbers, from 600 pupils in 2010 (our first year) to 1200 in 2011. As the Olympiad is a non-curriculum activity, the competitors are mostly volunteers, some of whom even volunteer for extra 'linguistics clubs' in lunch hours. We are both surprised and impressed by the number of teachers who take on this extra burden, and we take the teachers' enthusiasm as further evidence of the enthusiasm of their pupils.

What kinds of pupil take the Olympiad? Boys are very much in evidence, with almost as many competitors (48%) as girls. Given the tendency for boys to avoid languages, this is striking evidence that boys are as interested as girls in the mechanics and patterning of language structure.

As far as age is concerned, competitors range from the predictable years 12 and 13 down to the much less expected year 7. Youngsters can solve problems such as the Armenian metro map and Abma, and enjoy them; but of course they can't even start to solve problems like the Vietnamese one that are designed to stretch sixth-formers. To encourage younger competitors, we offer the tests at different levels, with a 'Foundation' level for beginners as well as the

'Advanced' level for high-fliers. As from next year we shall increase the number of levels to three, with even easier problems at Foundation level as well as a new 'Intermediate' level. We are very keen to build up our younger clientele.

As you may have noticed in a teacher comment above, one interesting development among younger competitors is a tendency for team work. The Advanced level is entirely for individuals, who are competing for places in the second round (explained below); but at lower levels this doesn't apply, so we're relaxed about exam conditions. If pupils prefer to compete in teams, they can – and many do.

The quality of answers varies, as you might expect. Some pupils hardly make any progress at all, and would benefit a great deal from training. At the other end, some pupils are astonishingly able. Not only can they see patterns and clues that most of us miss, but they do so amazingly quickly. (For instance, the Vietnamese problem was just one of five problems to be solved within three hours.)

As a measure of achievement, at Advanced level we provide a named certificate for every competitor, including gold, silver or bronze certificates for about a third of competitors; and at lower levels we provide schools with a template for their own certificates. In addition, for the real high-fliers there is the possibility of selection for the second round, or even a place in the UK team (as explained below).

EDUCATIONAL BENEFITS

Teenagers enjoy Olympiad work, but is it good for them? How does it mesh with the various goals that schools have?

Starting with the National Curriculum, the Olympiads fit the spirit of the general introduction to the curriculum for Foreign Languages:

Pupils also learn about the basic structures of language. They explore the similarities and differences between the foreign language they are learning and English or another language, and learn how language can be manipulated and applied in different ways. Their listening, reading and memory skills improve, and their speaking and writing become more accurate. The development of these skills, together with pupils' knowledge and understanding of the structure of language, lay the foundations for future study of other languages.

Each Olympiad problem extends pupils' understanding of 'the basic structures of language' (which in the KS2 Framework is a separate strand called 'knowledge about language', although not recognised as such at KS3). It allows pupils to 'explore the similarities and differences between' languages, including much greater differences

than they would be likely to meet in the normal range of language teaching. Each problem increases their 'knowledge and understanding of the structure of language' and, by showing how even the hardest codes can be cracked, 'lays the foundations for future study of other languages'.

At least in spirit, the National Curriculum accommodates activities such as Olympiad problems, so it is easy to justify the time needed for the Olympiad test as strictly 'relevant'. But it is much more than relevant. In that two- or three-hour slot, the pupils are intensely and emotionally involved with the subject-matter in a way that rarely happens in conventional language lessons. Ask any competitor to name a language they met in the Olympiad, and, even months later, they'll remember at least one, and maybe even some facts about it. We are told that, for days after the test, pupils pester teachers for the correct answers.

But the National Curriculum is not the only thing that counts. Education is all about training minds, and traditionally the great mind-training subjects were the classics – Latin and Greek, including detailed study of the structures of these very exotic languages. The Linguistics Olympiad claims to reach much the same parts of the mind as the classics did before they died in most schools.

Olympiad work requires and develops some very important mental characteristics. Most obviously, it requires skill in formal analysis. Every problem involves some kind of pattern-spotting applied to language, in which patterns in one example have to be matched against patterns in other examples in order to identify higher-level patterns, and a solution often lies at the end of a very long chain of reasoning. In short, Olympiad problems are an exercise in analytical thinking, very similar to the thinking required for mathematics. The similarity to maths is especially striking among the most able competitors, many of whom turn out to be specialising in maths (often in combination with a language).

But Olympiads are not just about cold mathematical reasoning. Faced by an apparently insoluble problem, a competitor needs many other mental qualities. One is persistence, the dogged determination that goes on trying when others are giving up. But persistence has to be combined with the ability to see alternatives to the current dead end – lateral thinking, creativity, thinking outside the box, call it what you want. At higher levels of difficulty, the answers are never obvious and crucial clues are often buried innocently in the instructions. It is real detective work.

Another helpful pair of mental skills are the complementary abilities of attending to detail and thinking globally. As any language teacher knows, language is full of very fine

detail that sets native speakers off from novices, and Olympiad problems often turn on matters of such detail. For instance, a recent problem involved Turkish vowels, which include two kinds of 'i', one with and one without a dot. For English speakers, this is a tiny typographical detail which we happily ignore, but for Turkish speakers, and the Olympiad markers, it is crucial.

But while paying attention to fine detail, an Olympiad competitor also has to think globally about the entire system as it emerges from individual examples. For example, problems often involve a coding system that pairs letters with some other kind of symbol, so the main challenge is to work out how individual letters are coded in the data so as to recode some new test words that use those letters. But, hard though it may be, that is not all. Some of the new words may include letters that are nowhere to be seen in the data – and you can be sure that these words score double or treble points. The only way to reach a perfect answer is to work out the general principles behind the code, and then to apply those general principles to the missing letters.

The similarities and relevance to language learning are obvious. When learning a language we have to pay attention to the fine detail of individual words – thousands of them – but we also need to understand the general principles of grammar so that we can produce new combinations that we have never heard before. The difference between an ordinary language learner and an Olympiad competitor is that the Olympiad forces competitors to work it all out for themselves on the basis of a bare minimum of raw data.

In short, Olympiad problems need analytical thinking, creativity, persistence, attention to detail and global thinking. But perhaps the most important mental quality for the Olympiads is confidence. If you're competing in the Olympiad, you need to believe in yourself. The problems come with a guarantee of solubility, so you can be sure that there is a solution, if only you can find it. Whether or not you succeed depends on your mind-set at the start. If you assume you're only capable of solving easy problems, then after staring at the data for two minutes and finding no easy solution, you give up. But if you believe in yourself, you know that hard problems will be hard, but (probably) soluble given enough effort. Some competitors panic and guess blindly; others just walk out of the room in despair. None need give up, because a breakthrough, minor or major, may well be just round the corner. This is why we are pleased that younger competitors work in groups, as a way of building confidence.

All of these skills are domain-general, applying as much to the study of languages as to mathematics and the physical sciences. And, far from being fixed at birth, all of them can be developed during the school years, with the teacher as both guide and goad. Languages are actually a particularly

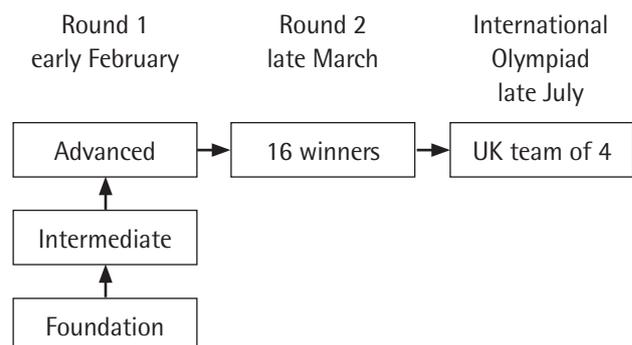
good domain for stretching those mental muscles, because most pupils can relate to a language system much more immediately than to, say, a mathematical or physical system. For one thing, they all speak at least one language expertly, so they already have some idea, albeit an implicit one, of how languages work; and for another, this unarticulated idea creates expectations which make exotic alternatives interesting.

HISTORY AND ORGANISATION

Linguistics olympiads for school children were invented in Moscow in 1965. They were the brainchild of a small group of university linguists, specialists in the analysis of language structures. They were immediately successful, partly perhaps because Russian language education (as in much of Eastern Europe) has a strong focus on structure, starting with the structure of the native language in the primary school and building on this for foreign languages in later years.

Having become a regular annual event in both Moscow and St Petersburg, the idea was adopted in Bulgaria and other Eastern European countries, giving rise in 2003 to an annual International Linguistics Olympiad (abbreviated, confusingly, to 'IOL'). The 2010 IOL, in Stockholm, attracted entries from eighteen countries: Australia, Bulgaria, Estonia, Germany, India, Ireland, Latvia, Norway, Poland, Russia, Serbia, Singapore, Slovenia, South Korea, Sweden, the Netherlands, UK, and the USA.

The IOL is the peak of a growing number of national Olympiads, to which the UK Linguistics Olympiad (UKLO) is a relatively recent addition. (We sent our first team in 2009 without a proper national Olympiad of our own, with a handful of schools competing as guests of the Irish Olympiad.) Each national Olympiad is organised to suit its local circumstances, so UKLO is fitted to the needs of the UK – a relatively small country (compared, say, with the USA or Australia) where funding for such things comes from sponsorship rather than from an all-providing Ministry of Education, and where the national language is English. UKLO has a website, www.uklo.org, which gives a great deal of information about history, structure and organisation. The structure of the competition is summarised in the diagram below:



As the diagram shows, the UKLO competition involves two rounds, both of which are completely free. Round 1 is open to all and (as explained earlier) can be taken at different levels of difficulty: Foundation, Intermediate and Advanced; the arrows are intended to indicate progression, in this case progression for a young competitor from year to year. (The test papers for different levels overlap, so that easier tests include a taste of the next level up; so a total of nine questions provides 1-5 for the Foundation level, 3-7 for Intermediate and 5-9 for Advanced.) UKLO distributes the test papers electronically to contact teachers, who print them and arrange the test locally, to suit their local needs, within a time-frame of a few days in early February. All tests are done on paper, rather than using computers (in contrast with the USA, where some test centres provide computers).

UKLO marks Advanced papers centrally (using a panel of volunteer markers recruited from UK universities), but Foundation and Intermediate scripts are marked locally by contact teachers, using a mark scheme provided by UKLO. All marked scripts, including Advanced level, are eventually returned to the pupils concerned, who can compare their marks with a published national profile of marks by age; so every competitor can see how they compare with the national average, even if they don't manage to win a Gold, Silver or Bronze certificate. The feedback process is completed when we put the test material, together with correct answers and the marking scheme, on the internet.

One outcome of Round 1 is the selection of sixteen high-fliers to take part in Round 2, which is a residential weekend in late March at a UK university. Round 2 includes a whole day of training by three tutors in problem-solving at the international level, and a great deal of team-building and camaraderie. It culminates in another test to select the best four as the UK team for the IOL in late July.

The standard at Round 2 is astonishingly high and the UK can be very proud of the teams it sends, which have already won several awards at the international level. However, the main focus of UKLO is not on the few high-fliers, but on the many who take part and enjoy it, however successful or unsuccessful they are.

As mentioned earlier, the competition is entirely free to schools and pupils at all levels, including Round 2 and the international event, so one of the tasks of the UKLO committee is fund-raising, alongside administration, recruitment, publicity, training and problem-setting (where we collaborate with the other English-speaking Linguistics Olympiads). Any school that is considering taking part in the next year's competition is advised to check the information at www.uklo.org and to register following the instructions given there.

FRENCH

The Olympiad does not just rely on exotic languages and even familiar languages like French can provide a challenge for pupils. A simple example is a problem set at Foundation Level in 2010, which requires pupils to think logically about an aspect of French that they are unlikely to have considered, even if they have studied it at school. The problem is called 'Sorry we have no red cucumbers', and starts like this:

If you buy red onions and peppers, what colour are your purchases? The onions are red, but what about the peppers? Now consider the following French phrases and their translations:

oignons rouges	red onions
poivrons rouges	red peppers
oignons et poivrons	onions and peppers

N.B. You don't have to know French to answer this question, and even if you do know French, it won't be much of an advantage to you!

As you can see, competitors have to think about the ambiguities that arise when two nouns are coordinated (by means of 'and'), and a single adjective is attached to one of them. Does this adjective also apply to the other noun? And of course what makes French interestingly different from English is the reverse ordering of noun and adjective, which means that an adjective attached to the second noun in French has the same effect as one attached to the first noun in English. For instance, one of the questions asks for a translation of 'red peppers and onions' which maintains the ambiguity in the English; and competitors must work out that this effect can only be achieved by attaching *rouges* after *oignons*.

At the other end of the scale of difficulty, we find a French question that appeared in the 2003 International competition. Here the challenge is to work out when to use *re* or *ré* before different verbs. The answer is based on a mixture of phonology and semantics (meaning) and is given at the end of this article. When this question was used as part of the training for round 2 of the 2010 UKLO competition, pupils were really engaged in spite of the familiarity of the language.



The table below contains French verbs with prefixes and the corresponding verbs without prefixes, along with the English translations of all. The shaded cells mean that there is a prefixed verb there with no prefixless counterpart. In some verbs the prefixes have been left out.

<i>réagir</i>	react		
<i>__assortir</i>	pick again	<i>assortir</i>	pick
<i>recommencer</i>	recommence	<i>commencer</i>	begin
<i>recomposer</i>	compose anew	<i>composer</i>	compose
<i>réconcilier</i>	reconcile	<i>concilier</i>	reconcile
<i>réconforter</i>	comfort	<i>conforter</i>	comfort
<i>recréer</i>	recreate	<i>créer</i>	create
<i>récréer</i>	amuse		
<i>__curer</i>	clean	<i>curer</i>	clean
<i>rédire</i>	say again	<i>dire</i>	say
<i>réduire</i>	reduce		
<i>rééditer</i>	publish again	<i>éditer</i>	publish
<i>refaire</i>	redo, remake	<i>faire</i>	do, make
<i>__jormer</i>	reform		
<i>__jormer</i>	form again	<i>former</i>	form
<i>__juter</i>	refute		
<i>réincarner</i>	reincarnate	<i>incarner</i>	incarnate
<i>rejouer</i>	resume playing	<i>jouer</i>	play
<i>__lancer</i>	throw again	<i>lancer</i>	throw
<i>__munérer</i>	remunerate		
<i>renover</i>	renovate		
<i>réopérer</i>	operate again	<i>opérer</i>	operate
<i>repartir</i>	depart once more	<i>partir</i>	depart
<i>__partir</i>	distribute		
<i>répéter</i>	repeat		
<i>résonner</i>	sound	<i>sonner</i>	sound
<i>révéler</i>	reveal		

Assignment. Fill in the gaps using information from the table. Explain your solution.
(Boris Iomdin)

The Olympiad experience suggests that the dominant methodology of task-based learning used in many modern language classrooms may be missing a vital opportunity to engage pupils in working with language. A similar message comes from recent developments in focus on form and data driven language learning, which have encouraged pupils to work out rules for themselves. Admittedly this is not always easy to achieve in a real classroom environment but, if students enjoy the challenge as much as they do in the Olympiad, it may be more successful than other approaches to teaching the structure of French.

However, the main benefit of the Olympiads themselves is not as a method for teaching the structure of French as such. After all, most Olympiad questions are not about French, and it is quite time-consuming to set good questions along Olympiad lines. If the aim of teaching a foreign language is (as stated in the KS3 Framework) 'to create language learners' so that pupils 'should ... be well placed to learn other languages later', it is hard to imagine a better use of a couple of hours than an intense tussle with exotic facts from four or five different languages.

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APPENDIX

Solution to French question (by Boris Iomdin)

<i>réassortir</i>	pick again	<i>assortir</i>	pick
<i>récurer</i>	clean	<i>curer</i>	clean
<i>réformer</i>	reform		
<i>reformer</i>	form again	<i>former</i>	form
<i>réfuter</i>	refute		
<i>relancer</i>	throw again	<i>lancer</i>	throw
<i>rémunérer</i>	remunerate		
<i>répartir</i>	distribute		

The table features verbs with two different prefixes: *re-* and *ré-*. All verbs with *re-* indicate a repetition or a renewal of the action named by the verb without a prefix. Contrariwise, if the prefix is *ré-*, then the corresponding prefixless verb either doesn't exist or means the same thing as the prefixed one does. The verbs whose stems begin with vowels are an exception: the prefix they take is *ré-* regardless of the existence and the meaning of a corresponding prefixless verb. There are other exceptions from this rule in French, but on the whole it is fairly reliable.

Note: The vowel in the prefix *ré-* is not unlike the first vowel in *raider*, whereas the one in the prefix *re-* bears a certain similarity to the second, and needs to be fortified when it finds itself next to another vowel.