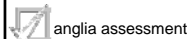


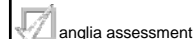
"Unified Admission Systems for HEIs: fundamental principles, examples from post-Socialist states, and potential lessons for the UK"

g.bethell@anglia-assessment.org
a.zabulionis@anglia-assessment.org



Why are admission systems needed?

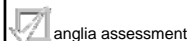
- Historically, restrictive admissions systems were not needed.
- In education, in Europe, *numerus clausus* was introduced to impose religious/racial quotas.
- In modern European countries, *numerus clausus* is about a mismatch between supply and demand.
- This raises the question of merit - assessment of 'merit' and selection by 'merit'.



Admission system in Soviet times

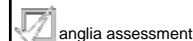


- Each university had its own 'door'.
- Each university controlled entry through its own exams.
- Applicants formed a 'queue' at each door with only the best admitted.
- But... how many queues can you stand in at the same time?



Post-Socialist Reforms

- Firstly, centralised exams were introduced: 'measure of merit' is unified, burden on student less, etc.
- But - universities still control their own 'doors'.
- Since the late 80's early 90's centralised exams and national 'exam centres' established in the vast majority of post-socialist states.



What is an Admissions System's function ?

- To allocate the *right* students to the *right* study programmes (courses) at the *right* universities.
- But what does "*right*" mean, and from whose point of view?

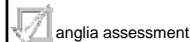
Student?



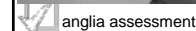
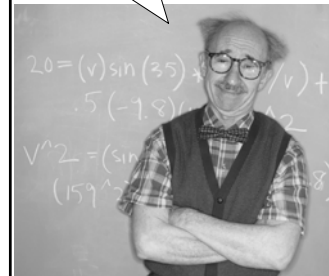
University?



Society?



The right students are the ones that will do best on *my* course at *my* university...

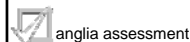


The right course for me is the one *I* want to study at *my* preferred university...



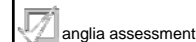
Two alternative views. Firstly...

- The student decides where and what he/she wants to study and submits an application through University Entrance Commission (or in UK via UCAS).
- The university concerned sets requirements for applicants (exam results, aptitude tests, school record, work experience...)
- Based on this information, all students applying to this course are ranked and an ordered list is prepared. The 'top' students from this 'queue' are invited - as many as there are places available on this course.
- Selected students are invited to formally accept the university's 'invitation to study'.




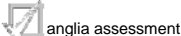
Two alternative views. Secondly...

- The student decides where and what he/she wants to study and submits an application through a Centralised Admissions System (NOT like UCAS).
- Universities may set requirements for applicants (subject profile, exam results, 'performance tests', etc.)
- Based on this information, all students are allocated to courses according to their wishes and their proficiency (and, of course, the number of places available) - centrally, by the CAS.
- Selected students are invited to formally accept an 'invitation to study' on a particular course.



Situation in the UK

- Universities control admissions - UCAS is (just) an administrative convenience.
- The current process takes so long that student choices must be severely restricted.
- The bulk of the admissions process takes place before exam results are known. Hence offers are conditional.
- This leads to perverse outcomes...

UCAS - 'choices'


Choices

You can choose up to **five choices** and there's **no preference order**.

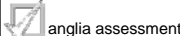
Why not?

Why '5'?

Your application will be sent to all chosen universities and colleges at the same time. Each university and college will only see details of their course or courses that you've applied to. They won't see your other choices until you've received your final decision.



I'm passionate about Computer Science. I don't care *where* I study! At least 180 institutions offer courses in this subject. UEA on its own offers 7 courses with Computer Science in the title!

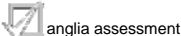


UCAS - 'choices'

Course combinations that you can have

- A maximum of four courses in any one of medicine/dentistry/veterinary medicine/veterinary science.

There are at least 14 institutions in the UK that offer Dentistry. Why am I limited to just four courses?



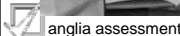
UCAS - 'choices'

- Universities of Oxford and Cambridge:

2013 entry: one course at either the University of Oxford or the University of Cambridge.

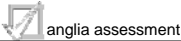
I am a brilliant student of Physics. Why can't I apply to Cambridge and Oxford?

Perhaps if I had to go to Oxford as my second choice it would raise the quality of Physics graduates there?



Conditional offers - part 1 Offers and decisions of applicants

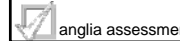
		ANN	OFFERS	BOB
In order of preference	Uni. 1	✓	AAA	✓
	Uni. 2	✗	ABB	✓
	Uni. 3		—	
	Uni. 4		—	
	Uni. 5	✓	CCC	✗





Conditional offers - part 2 Exam results are released

		ANN	OFFERS	BOB
In order of preference	Uni. 1	✓	AAA	✓
	Uni. 2	✗	ABB	✓
	Uni. 3		—	
	Uni. 4		—	
	Uni. 5	✓	CCC	✗

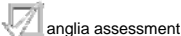
A*AB Results ABB ←




Conditional offers - part 3 Outcomes - Who's happy? Who's not?

		ANN	OFFERS	BOB
In order of preference	Uni. 1	✓	AAA	✓
	Uni. 2	✗	ABB	✓ 
	Uni. 3		—	
	Uni. 4		—	
	Uni. 5	✓ 	CCC	✗

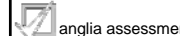
A*AB Results ABB



An alternative system next door...



Central Applications Office
An LárOifig Iontrála



Choices

Level 8

Pref.	Course Code
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

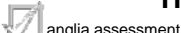
Hons.

Level 7 & Level 6

Pref.	Course Code
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Ord. + Higher Cert.

10



Choices: caveat for applicants

Level 8

Pref.	Course Code
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Hons.

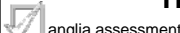
Level 7 & Level 6

Pref.	Course Code
1	
2	
3	
4	
5	
6	
7	
8	
9	
10	

Ord. + Higher Cert.

It is **MOST IMPORTANT** that you state your course choices in view of genuine preference and/or career plans.

IT IS A MISTAKE to base your choices only on your present expectation of examination performance or the points levels of previous years.




Scores

Irish Leaving Certificate Exam

Six best scores in one sitting

L.C. Grade	Higher Level	Ordinary Level	Maths Foundation #
A1	100	60	20
A2	90	50	15
B1	85	45	10
B2	80	40	5
B3	75	35	
C1	70	30	
C2	65	25	
C3	60	20	
D1	55	15	
D2	50	10	
D3	45	5	
LCVP Grade	Points		
Distinction	70		
Merit	50		
Pass	30		

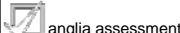


Example

An applicant has the following seven results in 2013:

Subject	Level	Grade	Score
Irish	Higher	C2	65
English	Ordinary	A1	60
Maths	Higher	D2	50+25 = 75
French	Higher	B2	80
Biology	Higher	C1	70
Geography	Ordinary	A1	60
History	Higher	B3	75
Add the best six scores, shown in bold .			Points = 425

(Bonus for Higher Level Maths)

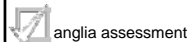


To select the applicants who will be offered places, the HEIs operate rating schemes. Most HEIs base their ratings on examination results by allocating a certain number of 'points' to various results.

When the ratings for all the qualified applicants (i.e. applicants who have met **minimum entry requirements**) have been calculated, a list of applicants for every course is drawn up **in order of merit**.

Within each course list, the fact that an applicant has put that particular course as her first choice or her tenth choice is irrelevant; **only** her rating will determine her position in the order of merit list for each course.

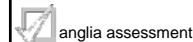
She will be offered **the highest preference to which her rating entitles her.**



So the Irish do use a CAS but...

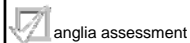
- the student carries his/her 'fixed' score into the competitions for each of their chosen courses*.
- As this is not the most sophisticated model available, we call this 'CAS Lite'.

*There are a few exceptions to this general rule.

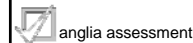


Can we adapt to incorporate university course profiles?







- A student takes A-levels in Maths, Physics and Biology and applies for different courses.
- Perhaps 'Astrophysics' would like to 'weight' these scores: $(2M+2P+1B)/5$
- Perhaps 'Maths' would like to 'weight' them differently: $(3M+1P+1B)/5$
- Now the same exam results give the student different scores for different courses!

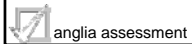


What are the possible consequences for applicants and universities?









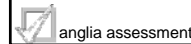
Example 2a: Selection on score

	 University of Leeds	 University of Manchester
Alan 	1 st wish / 64 score	2 nd wish /  56 score
Brigit 	2 nd wish /  66 score	1 st wish / 54 score









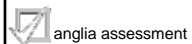
Example 2b: Selection on 'wish'

	 University of Leeds	 University of Manchester
Alan 	1 st wish /  64 score	2 nd wish / 56 score
Brigit 	2 nd wish / 66 score	1 st wish /  54 score






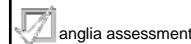
Example 3a: The 3-applicant case

	University of Leeds	University of Manchester	University of Nottingham
Alan 	1 st /65	3 rd /59 	2 nd /45
Brigit 	2 nd /61	1 st /55	3 rd /49 
Charlie 	3 rd /69 	2 nd /51	1 st /41



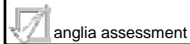
Example 3b: What happens if Charlie removes his *third* wish?

	University of Leeds	University of Manchester	University of Nottingham
Alan	1 st /65	3 rd /59 	2 nd /45
Brigit	2 nd /61	1 st /55	3 rd /49 
Charlie	3rd/69 	2 nd /51	1 st /41



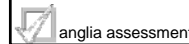
Example 3c: the new outcome - everyone moves because Charlie removed his last wish! Strange...

	University of Leeds	University of Manchester	University of Nottingham
Alan 😊	1 st /65 📖	3 rd /59	2 nd /45
Brigitte 😊	2 nd /61	1 st /55 📖	3 rd /49
Charlie 😊	3rd/65	2 nd /51	1 st /41 📖

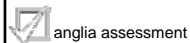
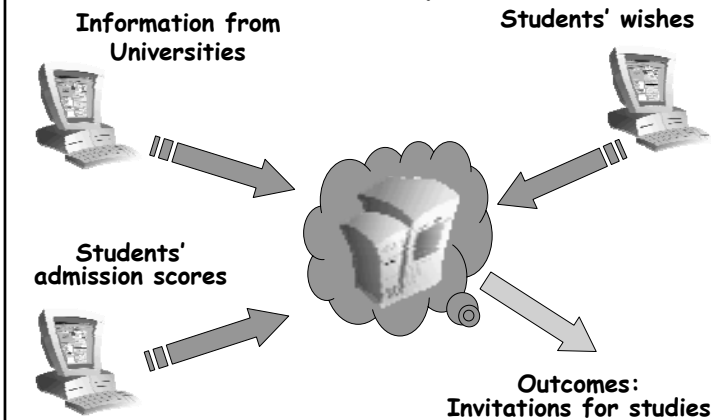


Example 3d: for universities?

	University of Leeds	University of Manchester	University of Nottingham
Alan 😊	1 st /65 📖	3 rd /59	2 nd /45
Brigitte 😊	2 nd /61	1 st /55 📖	3 rd /49
Charlie 😊	3rd/65	2 nd /51	1 st /41 📖

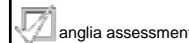


Common Admissions System



Main technical principles

- Fairness - every applicant must be given proof that all his/her 'rejected' higher wishes are impossible (given his/her existing admission scores).
- Uniqueness - must always lead to the same solution e.g. outcome doesn't depend on which course or university gets 'first pick'.
- Finiteness - must finish (and in a reasonable time 😊)!

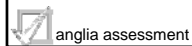


Technical principles are OK, but what about the underlying "philosophy"? Priorities?

- How does the technical solution chosen resolve that strange case with two students?

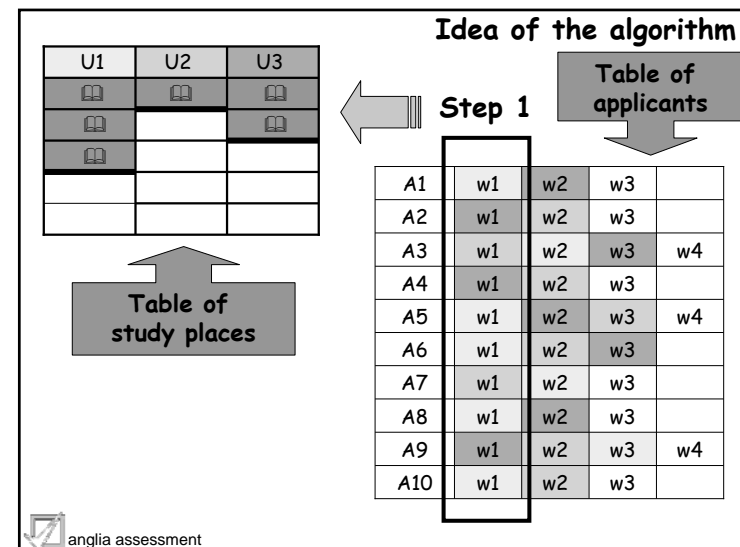
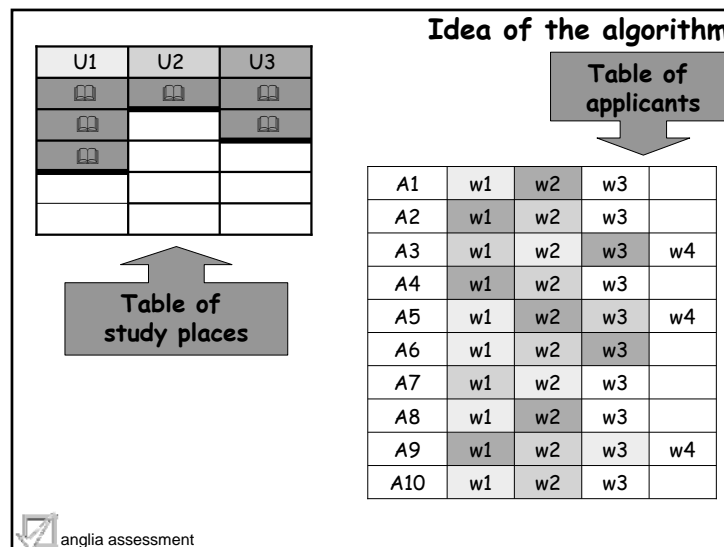
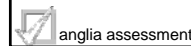
	University of Leeds	University of Manchester
Alan	1 st wish / 64 score	2 nd wish / 56 score
Brigit	2 nd wish / 66 score	1 st wish / 54 score

i.e. is this CAS system "applicant-centered" or "leaning towards the side of universities"?



There are technical algorithms (supported by well developed mathematical theories) that are able to solve the common admission problem in both ways - university-centred v. applicant-centred.

We would like to show here a simplified example of such a solution with the clear priority on the applicant's side.



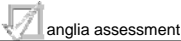
Idea of the algorithm

U1	U2	U3
A6	A7	A4
A5	A3	A2
A8		A9
A1		
A10		

Outcome of Step 1

Step 1

A1		w2	w3	
A2	w1	w2	w3	
A3		w2	w3	w4
A4	w1	w2	w3	
A5	w1	w2	w3	w4
A6	w1	w2	w3	
A7	w1	w2	w3	
A8	w1	w2	w3	
A9		w2	w3	w4
A10		w2	w3	



Idea of the algorithm

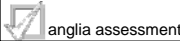
U1	U2	U3

Table emptied

Step 2

A1		w2	w3	
A2	w1	w2	w3	
A3		w2	w3	w4
A4	w1	w2	w3	
A5	w1	w2	w3	w4
A6	w1	w2	w3	
A7	w1	w2	w3	
A8	w1	w2	w3	
A9		w2	w3	w4
A10		w2	w3	

Wishes 'promoted for 'unplaced students''



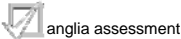
Idea of the algorithm

U1	U2	U3

Fill table again

Step 2

A1	w2	w3		
A2	w1	w2	w3	
A3	w2	w3	w4	
A4	w1	w2	w3	
A5	w1	w2	w3	w4
A6	w1	w2	w3	
A7	w1	w2	w3	
A8	w1	w2	w3	
A9	w2	w3	w4	
A10	w2	w3		

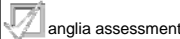


Idea of the algorithm

U1	U2	U3
A6	A7	A4
A3	A9	A1
A5	A10	A2
A8		

Step 2

A1	w2	w3		
A2	w1	w2	w3	
A3	w2	w3	w4	
A4	w1	w2	w3	
A5	w1	w2	w3	w4
A6	w1	w2	w3	
A7	w1	w2	w3	
A8	w1	w2	w3	
A9	w2	w3	w4	
A10	w2	w3		



Idea of the algorithm

U1	U2	U3

Step 3

A1	w2	w3		
A2	w1	w2	w3	
A3	w2	w3	w4	
A4	w1	w2	w3	
A5	w1	w2	w3	w4
A6	w1	w2	w3	
A7	w1	w2	w3	
A8	w1	w2	w3	
A9	w2	w3	w4	
A10	w2	w3		

Step 4
Step 5
...
Step N

STOP

This is not just a theory or a nice, untested idea. Similar CAS systems already operate in...

- Lithuania (run by the Association of Universities)
- Georgia (run by the National Assessment & Examination Centre)
- Tajikistan (in progress, supported by WB and Soros foundation)
- More will follow shortly 😊

Conclusions

- We need to ask fundamental questions about the philosophy and principles underpinning the practices used to admit applicants to courses in HE.
- We must be clear as to the purposes of the admissions system. What, as a society, do we want to achieve? What are our priorities?
- To an outsider (and to many insiders) the UK system is cumbersome and idiosyncratic. Perhaps the Irish have found the way forward (even if they have stopped a little bit short)?
- What if, say, the Russell Group moved unilaterally to such a system? What, if anything, would be lost? What would be gained - by applicants, by universities, by society?

The critical question: Who selects?

- *Student selects* desired (and available) study programme at a university of her/his choice.

OR

- *University selects*, for its own study programme, the best students from applicants.



The screenshot shows the Anglia Assessment website. At the top is a logo consisting of a square with a checkmark inside, and the text 'anglia assessment' below it. Underneath the logo is the text 'Educational Measurement and Assessment Services'. There are four navigation buttons: 'About Us', 'Services', 'Projects', and 'Contact Us'. Below these buttons is the address: 'Address: Stone Croft, Valley Road, Stowmarket, Suffolk IP14 2HK, UK'. There is also a phone number: 'Phone: +44 (0) 7920142590' and an email address: 'E-mail: g.bethell@anglia-assessment.org'. At the bottom left, there is a small logo for 'anglia assessment' and the website URL 'www.anglia-assessment.org'. There is also a small logo for 'RI Research Trust' and the text 'Anglia Assessment supports the Uganda Humanist Schools Trust'.

Resources:

- Bethell, G. and Zabulionis, A. 'The evolution of high-stakes testing at the school-university interface in the former republics of the USSR' Assessment in Education, 2012, Vol. 1-19
- Podcast and presentation available at: <http://www.canetwork.org.uk/events/event/high-stakes-testing-at-the-schooluniversity-interface/>
- UCAS website www.ucas.ac.uk
- Central Applications Office, RI www.cao.ie



The box contains the text 'Thank You' in a large, bold, italicized font. At the bottom left corner, there is a small logo for 'anglia assessment'.