

Échanges avec des mathématiciens américains 1997 – 2000

N'ayant aucun contact en France depuis les années 70 avec des mathématiciens partageant mes orientations, je suis entré en contact en 1997 avec des mathématiciens américains (*Paul Clopton, David Klein, Jim Milgram, Hung-Hsi Wu, Richard Askey* , puis plus tard *Ralph Raimi*). Ce sont eux qui, à ma demande, m'ont mis en contact avec *Dominique Foata* qui m'a finalement recommandé d'écrire à Jean-Pierre Demailly.

Mars 2003
Michel Delord

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Date: Thu, 30 Nov 1997 00:17
From: Michel DELORD <m-delord-*AT**-mail.dotcom.fr>¹
To: mathman-*AT**-compuserve.com²
Subject: New math in France

Sorry for my poor english

I'am a french mathematics teacher. In France, there are no organisations against new math (there are some specifics features of french history which are explaining that) but we are in the same situation, worst in one sense for me. In the 70's, we had the complete new math reform (called here "mathématiques modernes") with the "set theory" and a particular understanding of progress of knowledge : a child must understand something before he could do it (if the baby must understand how to walk before walking, he will be a disabled person; I think it is the same thing for calculus). Now, we no more teach set theory , but the remainings of this period is the same theory of knowledge which takes no part for instinct but a place for calculators . Consequences :a general fall of capacity in computing (hidden by the French educrats and the statistics of the French government which is refusing to take part in an european test).

One of the origin of this problem is the school book market. Searching always new methods to justify a new release, they forget old methods : one example of method of mental calculus used in 1890 and totally forgotten (you can't find it in any school book): to multiply two numbers between 10 and 19: 1) you get off the 1 of one of the two numbers 2) you add the two numbers and add a zero at the end 3)you multiply the unit digits 4)you add this product to the precedent number. Example : $14 \times 17 \rightarrow 4 + 17 = 21 \rightarrow 210; 4 \times 7 = 28; 210 + 28 = 238$ (with no knowledge of distributivity of $\times/+$; two or three years after , you can explain why , but first, we teach that). But the French math program looks like an advertising for pocket calculators. [...]

Michel Delord

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Posted-Date: Mon, 1 Dec 1997 00:23:52 +0100 (MET)
Date: Sun, 30 Nov 1997 15:21:35 -0800
To: delord-*AT**-quaternet.fr
From: pclopton-*AT**-ucsd.edu (Paul Clopton)
Subject: New math in France
Cc: "Dan Hart" <dhart-*AT**-lausd.k12.ca.us>, "David Klein" <d Klein-*AT**-csun2.csun.edu>, "Dennis Stanton" <D4816-*AT**-aol.com>, "Doug Lasken" <Dlasken514-*AT**-aol.com>, "Jerry Rosen" <jrosen-*AT**-csun2.csun.edu>, "Jim Stein" <jimstein-*AT**-csulb.edu>, "Kent Merryfield" <kmerry-*AT**-csulb.edu>, "Martha Schwartz" <MISCHWAR-*AT**-USC.EDU>, "Martha & Rick" <SCIIRS-*AT**-aol.com>, "Larry Gipson" <gipson-*AT**-cts.com>, "Mike McKeown" <mike_mckeown-*AT**-qm.salk.edu>, "Wayne Bishop" <wbishop-*AT**-calstatela.edu>, "Carol Gambill" <cgambill-*AT**-sewickley.org>, "Maggi Glasscoe" <mglassco-*AT**-earth.usc.edu>, "Karen Stern" <karen.stern-*AT**-csun1.csun.edu>, "Art Wayman" <awayman-*AT**-juno.com>, "Richard Askey" <caskey-*AT**-math.wisc.edu>, "Henry Alder" <h1alder-*AT**-ucdavis.edu>, "Frank Allen" <franka-*AT**-elmhcx9.elmhurst.edu>, "Deborah Haimo" <dhaimo-*AT**-euclid.ucsd.edu>, <ralph-*AT**-gauss.Stanford.EDU>, "Jim Milgram" <milgram-*AT**-klein.Stanford.EDU> :

Dear Michel DELORD,

Thank you for the most interesting post. I am sending it around to several people we communicate with in the hopes that we will have someone to translate for us. We will reply further at that time.

Thank you again.

Paul Clopton Mathematically Correct

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¹ @ est remplacé par -*AT**-

² Adresse courrier de *MathematicallyCorrect* $2+2=4$ <http://mathematicallycorrect.com/>

Date: 03 Dec 1997 07:25
From : Michel DELORD <m-delord-*AT*-mail.dotcom.fr>
To: Paul Clopton
Subject: More documents

I am translating for you a brief history of mathematics reforms since 1970. I'll send you tomorrow.

I am reading some texts linked on your site and, on many reports, France seemed to be considered as country of high level in mathematics for K-12: it's an old story. If you go to TIMMS site, you will see that there is no data for France for the 4th grade and Mr Fauroux, chairman of Saint Gobain, thinks that the French educators have something to hide. It should be interesting to know the reason given to TIMMS by the French government not to participate to the test: if you have a relationship in the USA who can know that, it should be very interesting.

[...]

A bientot Michel DELORD

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December 4th 1997

Brief history of the "Whole and New New Math" in France³

Difficulties:

This text is a translation of an appropriate text (written in June 1996) which is partial. I am writing a more general text. I give the same meaning to two couple of notions: a) "mathématiques modernes" and "Whole Math" and b) the avatars of present (from 1980) French reform and the New New Math in the USA: I'll hope there will be no misunderstandings. According to the accounts from French teachers who taught in the US in the mid 80's, the American average mathematics standard was lower than the French one, but it's difficult to use the term "average" for the USA as standards and curriculums are not centralized state's obligations as in France. About the problem of New Math, I only know one text in English by Rene THOM: "Modern mathematics: an educational and philosophical error?" American Scientist, 59,6 p 695. But there are other excellent texts from the 70's on the subject by the same in French: I'll try to translate, or, better, I'll scan them if you find a translator in the USA.

The pupils' math standards, which formed the Certificate of Primary School, are going down. Regarding the field into which we could interfere and which does not certainly depend on families which are not to blame - those teachers arguments against family's responsibility and against the previous grade teachers' skills are used to justify the servile attitude of the teaching staff in relation to its authority- this fall is essentially due to several factors: First, the constant change of the curriculum which, for instance, forbids generations to help each other (but increases the market for new books in schools, for home education products and remedial courses). Is a straight line the shortest distance between two points or "the set of the affine bijections from R to R"? For your information, in the 70's, the "set theory" and the bijection were necessary to "develop the mind" of the sixth grade pupils (and even pupils of the primary school) but nowadays they are only partly studied in the scientific 11th and 12th grades.

This only fact shows the inextricable situation of the French Education State Department: they simultaneously want to suppress important parts of the curriculum and show a rising of standard of education. In the same way, why is the rule of three forbidden in the 70's and why are the proportional tables imposed to deal with the same problems? Here I stop giving examples because I am not attending a thesis. I do not neglect the contribution of modern mathematics but, according to me, they seem to allow solving problem, which are to be found neither in primary school nor in junior high school. In one sense, acting with a good intention against the previous formalism, the central aim of modern mathematics introduction in school was hyper-rationalist philosophy: nobody can learn $2+2=4$ without understanding group theory and calculus in all bases; but "ratio" is against the instinct which is the basis of pedagogic intervention. We can find the same rationalistic approach in the New New Math where a pupil, in one sense, must find again by himself all the knowledge of the past.

Secondly, one of the main factors is the very content of those curriculums. We have gone from the period of "Whole Math" to the one of the 80's reform.

Whole Math (70's)

Roughly speaking, the contents of the "mathématiques modernes" period (1970 -80), with the formal and the structure put forward, was: - in arithmetic, the non-necessity to learn to calculate (it was before the pocket calculators). It was the basis era when we learnt that $3+2$ could be 10 or 11 before knowing how to give change and without knowing the

³ Posted as a comment on RockyMountainNews : <http://michel.delord.free.fr/1996.htm>

tables of operations by heart. From which mockery about arithmetic old fashion problems began: those problems have derisively been called “leaking tap problems” whereas they are essential because they allow learning the complexity of the basic mathematics tools in a simplified situation. . The latter is introduced as artificial (and not concrete) without noticing that the real situation presents “physics’ rubbings” which are not controllable in a training situation (try to calculate the volume of my “concrete” shoe!!). This non-necessity quickly transformed itself in a fall of calculus skills.... - in geometry : under the pretext that a straight line could not be straight (also true for other basic figures), the primary school has a bad knowledge of basic figures.. Also under the pretext of the discovery of the invariant elements in the geometric group theory, the teaching of what was a basis of learning of proof is eliminated and forbidden : I mean the “ 3 cas d’égalités des triangles” - in English, I think, SSS, SAS and ASA congruence postulates - which indeed is unperfected in the absolute but largely adequate and very efficient for a junior high School pupil. So this teaching is eliminated to be replaced by the use of transformations (symmetry, rotation) which is *per se* more difficult to use in many situations and that an 8th grade pupil is not able to control. They had better made friezes that teach as much for the invariant elements..

The reform of the reform (1980 up to ?)

Instead of adjusting one’s sights by explaining the errors that had been made - unthinkable- , the education authority which wrote the previous curriculum, takes half-measures in order to be adequate to the new low skill and so they reinforce a new fall in skills. In arithmetic, the possibility to use the pocket calculator helps to justify the drop in math standards. and last year, during an educational conference, an expert in education explained that asking a 6th grade pupil to divide 4374 by 532 or 2.37 by 0.564 , was a “virtuous exercise” which besides was forbidden. The present 6th grade curriculum requires the maximum skills to “ calculate the quotient and the remainder of a whole number by a two digits’ whole number..... In simple cases -???- , divide a decimal number by a whole number.... ” . That’s all : without any protest from any teachers unions, parents association or press article : in this case, silence is as demagogic as criminal. We could expect that the new 7th grade curriculum enable the pupils to divide 5.3 by 4.12: not at all and silence on this subject. The required standard is going down but Baudelot (a publicist) and the national department of statistics for education (DEP : Direction de l’Evaluation et de la Perspective”) will show , in spite of all, that the standard is going up and those who deny it are chilly and inflexible reactionaries who are afraid of change. The fall in math standards would no more allow to teach arithmetic (prime numbers) in the 7th grade (it was a part of curriculum for over a century). The educrat’s solution was simple : they suppressed it in the whole secondary school. In geometry, I will not come back to triangles congruence postulates but for instance, calculating the area of a circle is now part of the 7th grade curriculum when it was previously in the 5th grade . I think that , removing any reference to this item in comparison with older statistics series, the DEP will, one more time, show that the standard is going up. Who will stop the crazy machine? Generally speaking, the new reform, which is more demagogic, does not forbid expressly anymore the rule of three nor the triangles congruent postulates just because a great deal of the new teachers have not been taught and trained during their own Junior School cursus (only the teachers who are 40 and more know them and, after 25 years of various reforms, it is not possible to decide individually to teach them) but the ban remains on division because precisely all the teachers still know how to do a division.

An anecdote for the end

Yesterday, December 3rd 1997, I took part in a pedagogic conference and, hiding the cover of a booklet, I read the following text : “ *I consider that making mathematics is not to show calculations skills (algebraic or arithmetic), even if, up to the last days, those know how were indispensable for mathematics arguments. As calculus tools were not existing, we must use mental and hand calculus (with lost time, origins of errors, forgetting of the aim of the problem)During 20 seculars, it’s that manner which had prevailed (it is normal that it left indelible aftermath)..... I have no doubts about the fact that “mechanization” of calculus will become an habit*”. And I asked : “Who wrote that?”. The answer of the person in charge of the meeting was interesting . He knew that I tried to trap him and said : “*I know that you try to trap us but, perhaps an Education Secretary ...*” . The essential is that a pedagogic manager is not spontaneously able to distinguish a pedagogic text and an advertisement for the Casio pocket calculators. It’s funnier in France than in the USA : teachers - and in particular this manager - are politically left and their credo is to protect the state school – ‘*L’Ecole Laïque*’- against capitalism, market and economic liberalism. This shows the standard level of the pedagogic speech after 25 years of Whole and New New math.

Note on TIMMS

Mr. Roger Fauroux, chairman of Saint Gobain, says in the October 1997 issue of *Capital* : “ *Recently a mathematics test had shown that France was 13th, behind Singapore and the South Korea. The Senior Civil Servants of the DEP are not speaking about this result: in 1994, after they had accepted to take part in an OCDE international test, they silently left after having seen the first results*”. And if you look at the TIMMS results , you can see that there is no French results for the 4th grade test. Mr. Fauroux in the “ *Rapport Fauroux* ” proposed last year a reform which put forward the basic skills : for many reasons, saying that it is insufficient - the school needs first democracy” or culture”.... - all the French educrats and experts in pedagogy avoid the subject : it’s important to notice that in France all those experts are paid and

employed by French Department of Education and that Mr. Fauroux in his report asks for an independent and international control of the pupils skills.

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Date: Thu, 06 Jan 2000 22:20:56 +0100
From: MFree <michel.delord-**AT**-free.fr>
To: david.klein-**AT**-csun.edu
Subject: Could you help France: New and New New Math

First, sorry for my poor English.

I am French math teacher in a French College (from 11 years old to 15) and I'm writing a text about math reforms in France . There are here exactly the same silly - and jesuistic- theories about math learning. In the 70's, René Thom and Grothendieck fought against New math. Nowadays no more famous active research mathematicians , as you in America , are able to write an open letter to the French secretary of Education, to declare , for example: it is a stupidity to write " *Apprendre à faire une division est un travail formel qui n'éclaire pas le sens de cette opération*" (*Learning how to divide is a formal work which doesn't enlighten the meaning of this operation*) (Excerpt from the last 1999 standard for primary schools.)

I had read your open letter to Richard Riley on <http://www.mathematicallycorrectcom/riley.htm> and read the excerpt of the WJS on <http://www.mathematicallycorrectcom/wjs.htm>

I would like to ask you many things which could help me:

1) I can't find the complete January 4 th WSJ Editorial . could you mail it to me. Especially for the complete text where you say " *Underlying their programs is an assumption that minorities and women are too dumb to learn real mathematics*" . I think ,that, in France too, all the various new - and new new - theories head towards an "ebonics" about learning mathematics

2) Do you know French mathematicians sharing your ideas which I could contact ?

3) Do you know somebody reading French among your relationship? I could send my text which is about the origins of "cognitive sciences", in part from the 1948 Hixon meeting, which reduces intelligence to what is a computer is able to do (in 1948, Mac culloch said: "*human brains are a variety of computational machines*") and the influence of this conception first, on New Math and then on New New Math: Rene Thom had wrote a little bit about that, too.

4) I forward you a text I send to Paul Clopton and Frank Allen from UCSD two years ago : Brief history of the "Whole and New New Math" in France

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Date: Thu, 20 Jan 2000 05:18:16 -0800 (PST)
From: david klein <vcnth00m-**AT**-csun.edu>
To: Richard Askey <askey-**AT**-math.wisc.edu>, Jim Milgram <milgram-**AT**-gauss.stanford.edu>, Hung-Hsi Wu <wu-**AT**-math.berkeley.edu>
cc: MFree <michel.delord-**AT**-free.fr>
Subject: Could you help France: New and New New Math (fwd)

Dear Dick, Jim, and Wu,

Are you able to provide contacts in France to Michel Delord?

David

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Date: Thu, 20 Jan 2000 09:04:44 -0800 (PST)
From: david klein <vcnth00m-**AT**-csun.edu>
To: MFree <michel.delord-**AT**-free.fr>
Subject: Re: Could you help France: New and New New Math

Hello,
Jim Milgram suggested that you talk to Max Karoubi.
Best Regards,
David Klein

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Date: Wed, 26 Jan 2000 14:25:28 -0100
To: michel.delord-**AT**-free.fr
From: foata-**AT**-math.u-strasbg.fr (Dominique Foata)
Subject: votre lettre adressee a Askey

Cher Collegue,

Richard Askey m'a fait suivre votre lettre sur votre accablement de voir les new new new math venir triompher aussi en France. Je ne m'intéresse pas directement a ces questions. Cela demande une energie de tous les instants. Askey, par exemple, y consacre presque un plein-temps. Cependant, vous pourriez adresser votre lettre a la Societe' Mathematique de France smf-**AT**-dmi.ens.fr

Il y a eu un debat sur l'enseignement des mathematiques le 15 janvier 2000 avec Dacunha-Castelle, Jean-Pierre Kahane, Francois Dusson, Michele Artigue, Rober Balian, Michel Merle.

Essayez de trouver le mail de tous ces gens et envoyez leur votre lettre.

Sincerement,
Dominique Foata

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Date: Wed, 8 Mar 2000 17:33:22 -0100
To: Michel DELORD <michel.delord-**AT**-free.fr>
From: foata-**AT**-math.u-strasbg.fr (Dominique Foata)
Subject: une lettre de Demailly

Voici une lettre de Demailly, en poste, je crois a l'Université de Grenoble. Elle vous intéressera:

X-Sender: loday-**AT**-math.u-strasbg.fr
Date: Wed, 8 Mar 2000 11:37:50 +0100
To: clan
From: Jean-Pierre Demailly <Jean-Pierre.Demailly-**AT**-ujf-grenoble.fr> (by way of Jean-Louis Loday)
Subject: Cri d'alarme sur l'enseignement des maths et des sciences

Les orientations proposées par le MENRT pour l'enseignement des sciences au Lycée, et plus particulièrement l'enseignement des mathématiques, sont alarmantes: baisse des horaires d'enseignement, insuffisance de diversification des filières, programmes laissant peu de place au raisonnement et au recul conceptuel, morcellement des cours (ce reproche s'adresse aussi et surtout aux DEUGs), etc, etc...

[...]

<http://www-fourier.ujf-grenoble.fr/~demailly/programmes.html>

Si vous partagez ces points de vue -- au moins en partie -- je vous invite à diffuser ce texte autour de vous. Seule une protestation massive des enseignants en mathématiques (et des enseignants des autres sciences qui subiront le contre-coup de la dégradation de l'enseignement des maths) peut encore faire redresser la trajectoire. D'autres actions sont en cours (Académie des Sciences, SNES, APMEP, ...) mais le "niveau de bruit" n'est peut être pas encore suffisant!

Jean-Pierre Demailly

Professeur à l'Université de Grenoble I, Membre Correspondant de l'Académie des Sciences (section Math)

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Date: Wed, 8 Mar 2000 17:36:14 -0100
To: Michel DELORD <michel.delord-**AT**-free.fr>
From: foata-**AT**-math.u-strasbg.fr (Dominique Foata)
Subject: Re: Geometry

Prenez donc contact avec lui: Jean-Pierre Demailly <Jean-Pierre.Demailly-**AT**-ujf-grenoble.fr>

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From: Jean-Pierre Demailly <Jean-Pierre.Demailly-**AT**-ujf-grenoble.fr>
Subject: Re: Site archives
To: michel.delord-**AT**-free.fr (Michel DELORD)
Date: Fri, 31 Mar 2000 10:01:37 +0200 (MEST)
Cc: demailly-**AT**-rossini.ujf-grenoble.fr (Jean-Pierre Demailly)

Michel Delord

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Extrait de mail à T. Kakouridis

Je suis en train de faire une page pour presenter les traductions de textes et les textes importants (Math et pedagogie). Pour le moment, j'ai de disponible 7 textes:

3 textes de René Thom

1 texte de Laurent Schwartz de 81

celui que tu as traduit: Kline 62

la lettre a Riley (traduite par Bruno)

il faudrait revoir la traduction de l'edito du WSJ qui est mal traduite sur le site anti-allègre

Ca serait pas mal de faire des traductions en anglais et de se presenter comme un site international avec miroir . J'ai déjà deux ou trois sites qui acceptent d'être miroir.

Que pensez-vous de l'idée? Avez vous dans l'idée des textes de references importants qu'il faudrait y mettre?]

Effectivement, le départ d'Allègre laisse le champ ouvert à des tentatives de reconstruction. Il faut essayer de prendre les choses de "façon positive" (l'expérience montre qu'une négation trop grande de ce qui existe, même s'il y a beaucoup de défauts, mène en définitive au rejet). Je ne peux donc qu'encourager vivement tous ceux qui ont de l'expérience et des propositions constructives à les faire connaître largement.

Je n'aurai sans doute pas le temps de m'occuper de grand chose avant fin mai, car je pars en mission de recherche à l'étranger pour plus d'un mois.

Bon courage,

Jean-Pierre Demailly

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