The Bayesian Songbook

edited by

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Abstract

At the quadrennial international meetings on Bayesian statistics in Valencia, Spain, one of the most popular features (after the sun and the free wine) is the "cabaret" performance, which traditionally takes place on the last night following the conference dinner. Acts over the years have included jugglers, magicians, jokesters, and even the occasional male striptease (the now-infamous "Full Monty Carlo"). Still, the cornerstone of the cabaret has always been the singing of new and often humorous Bayes-related lyrics to popular songs, a practice dating to the landmark work of Box (1979; reprinted herein). This collection presents many (though certainly not all) of the songs that have been performed at Bayesian cabarets over the years, as well as the original scripts of the popular skits by O'Hagan et al. (1987, 1991, 1994, 1998). We hope it inspires future generations of Bayesian singers, songwriters, actors, and, yes, even male strippers.

Contents

The Songs

The Skits

All Were Turning Green

Words: J. Mortera, R. Cowell, and B. Carlin
Music: Lennon/McCartney ("Yellow Submarine")
First performance: Valencia 5

V1: On the boat to Tabarca – how we wished we'd gone by car!
Sky of grey and sea of brown – Jose promised we'd not drown.
Many puking in the foam – how they wished they'd stayed at home,
Nozer called, "Get me a drink – I've fixed the cracks so we won't sink!"

Chorus 1: On the boat everyone was turning green,
All were turning green – turning very green.
All the bathrooms looking quite obscene,
Looking quite obscene – you know what I mean.

V2: Luis and Tony took the bus – they had problems to discuss,
"Intrinsic Bayes!" the first one said – "No, use Fractional!" the second pled,"
But Luis did not reply – he just stared up into the sky,
Took the drink that Christian mixed – to toast the problem that can't be fixed.

(Chorus 1 – repeat)

V3: Gathering data for Raftery – as we swam around in the sea,
With sea urchins all around – scrotal swelling did abound,
On the island, Steve and Phil – asked, "Who was it that did kill?"
Spiegelhalter soon replied – "All the BUGS by my bedside."

Chorus 2: On the boat everyone was turning green,
All were turning green – turning very green.
All the bathrooms looking quite obscene,
Looking quite obscene – you know what I mean.
Thanks Jim, Phil, Adrian and Jose,
We'll be back someday – we'll be back someday.
Thanks Jim, Phil, Adrian and Jose,
We'll be back someday – we'll be back someday!

Altea

Words: S. Bayarri, M. DeGroot, and A.F.M. Smith
Music: Traditional Spanish ("Valencia")
First performance: Valencia 3

V1:

Altea, in my dreams it always seems
  I hear you softly call to me,
  [Chorus: normal; tachin, tachin...]
Altea, your beaches full of frequent stones
  have broken half my Bayesian bones
  [Chorus: ow, ow...]
Altea, the soups and fruits of Cap-Negret
  have caused posterior regret
  [Chorus: obscene noises...]
So farewell, your heavenly Bayes cast their spell,
  We'll never meet in frequentist hell!
  [Chorus: normal]

V2:

Altea, in my dreams it always seems
  I hear you softly call to me,
  [Chorus: normal; tachin, tachin...]
Elche, midst jungle palms the buses roam,
  while stranded Bayesians dream of home
  [Chorus: bus noises; honk, honk...]
Altea, in your steamy discotheques,
  we learn new variants of sex
  [Chorus: sexy noises; bump, grind...]
There's no more, the committee has to go
  and practice for Valencia 4!
  [Chorus: glug, glug...]

The Ballad of Peñiscola

Words: B. Carlin
Music: Lennon/McCartney ("The Ballad of John and Yoko")
First performance: Valencia 4

V1: Heading for the Bayesian meeting – got a bargain flight on TWA
But my travel agent said, "Don't let it go to your head –"
"That airline may go bankrupt today!"

Chorus: Bayes, you know it ain't easy – you know how hard it can be!
The way things are goin', no Bayesian meeting for me.

V2: Made it to Madrid without problem – but the flight to Barcelona was mean,
We were bouncing around – we thought we'd fall to the ground,
Normand and Wasserman were both turning green!

(Repeat Chorus)

V3: Well, we got to Papa Luna and noticed – that our leaders seemed a little unsound:
Phil Dawid's ankle went crack, and then there's Adrian's back,
It's only Sunday and they're limping around!

(Repeat Chorus)

Bridge: (I've heard of) savin' up my money for a rainy day – but *this* is ridiculous!
The sun finally showed up – but not in Morella –
We might as well have had this thing in *Pittsburgh* – think!

V4: Isa waving madly at Morris, to say that Strawderman's about to attack,
So then Carl said, "OK – I'll just get out of your way,"
"But what the hell is all that snoring in back?!?"

(Repeat Chorus)

V5: You heard about the setup with Nozer – and how I was quite the loser that day,
But while I'm having fun, making the Gibbs sampler run,
When he can't get it I know just what he'll say:

Nozer's Chorus: "You know it ain't easy – you know how hard it can be,"
"The way things are going, no more consulting for me."
"I said the way things are going, there's no more money for me."

Bayes! [You're the One for Me]

Words: D. Blackwell
Music: Jerome Kern ("Who? [Stole my Heart Away]")
First performance: Valencia 3

V1:

Bayes! you're the very best,
Truer than all the rest,
Confidence, significance too,
I don't need them since I have you!

Chorus:

Bayes! Best of all I see,
Bayes! Right as right can be,
Bayes! You're the one for me,
Bayes! Bayes! No one but you!

V2:

Bayes! You're the very best,
Simpler than all the rest,
Just five words as clear as can be:
Post is prior times likelihood. See!

Chorus: (repeat)

Bayeseamus Igitur

Words: A.P. Dawid[1]
Music: medieval student drinking song
First performance: Valencia 3

V1: Let's have more fun while we can
Until the whole world's Bayesian!
Since our prior expectation
Of posterior location
In the limit's six feet down.

V2: We'll drink a toast to former days
When everyone loved Thomas Bayes.
Be he now in Heaven or El
Lobo's den let's wish him well:
Here's to what his Theorem says!

V3: If it's inference you desire
Make the toast, "Long live the prior!"
Set it up and hit it later
With the model and the data –
That's how Dennis could retire.

V4: Frequentists may spit and curse
But they're in for something worse:
To the depths of Hell so ample
May they take repeated sample
Theory with them in the hearse!

V5: Now Adrian will lead the cheer
And we'll toast "Valencia!"
Where Jose's inspired ambition
Sets the Bayesian position:
He's the reason why we're here.

V6: And so we'll raise another glass:
"More Bayesian Valencias!"
But Morrie's gaining weight in practice
For our last toast, which is in fact is
"To the days Bayes rules at last!"

[1]being a loose translation, from the original Latin of Mammitzsch et al. (1987)

Bayesian Boy

Words: M. Rimmer
Music: Cliff Richard ("Bachelor Boy")
First performance: Valencia 6

V1: When I was young, Tony said,
"Son I've got something to say,"
And what he told me I'll never forget,
Until my dying day.

Chorus: He said, "Son you are a Bayesian boy,
And that's the way to stay,
Son you'll be a Bayesian boy,
Until your dying day."

V2: When I was sixteen I fell in love,
With an asymptotic m.l.e.,
But I remembered just in time,
What Tony said to me.

Chorus: He said, "Son you are a Bayesian boy,
And that's the way to stay,
Son you'll be a Bayesian boy,
Until your dying day."

V3: As time goes by, I probably will
Have to pack up and move away,
Leave my friends and family,
For Sheffield the Bayesian way.

Out chorus: But it's all right, 'cause I'm a Bayesian boy,
And that's the way to stay,
Happy to be a Bayesian boy,
Until my dying day.

Yeah, we are Bayesian boys,
And that's the way to stay,
Happy to be Bayesian boys,
Until our dying days!

Bayesian "Gaudeamus Igitur"

Words: V. Mammitzsch[2]
Music: medieval student drinking song
First performance: Valencia 3

V1: Gaudeamus igitur Bayesiani dum sumus!
Post iucundam iuventutem, post molestam senectutem,
Nos habebit humus, nos habebit humus.

V2: Ubi sunt qui ante nos Bayesiani fuere?
Vadite at inferos, vadite ad superos
Semper sint in flore, semper sint in flore.

V3: Vivat inferentia, vivat a priori,
Theorema splendido fiat nunc conclusio
A posteriori, a posteriori.

V4: Pereat frequentia et significantia!
Nunc et ao infinitum eat ad diabolum
Damnata frequentia, damnata frequentia!

V5: Vivat universitas, Valencia Hispaniae!
Bernardonem genuit, nobis donator fuit
Nostrae conferentiae, nostrae conferentiae.

V6: Totus mundus Bayesianus hodie in aeternum;
"Da, Bernardo splendide atque spontanissime,
Quartum Bayes' congressum, quartum Bayes' congressum!"

[2] with "insignificant contributions" by Peter Groer and Wolfgang Polasek

Bayesian Wonderland

Words: H. Ashih and R.A. Reutter
Music: D. Smith and F. Bernard ("Winter Wonderland")
First performance: Valencia 6

V1:

Glasses clink, are you listenin'?
Have a drink, [the] wine is glistenin'!
A beautiful sight, we're tipsy tonight,
Stumblin' through our Bayesian Wonderland.

V2:

It's a bad situation,
you get a fault of segmentation,
A long sleepless night, your program's not right,
Strugglin' with the Bayesian paradigm.

Bridge 1:

In the theory we can build a sampler
With the jumps reversible in time,
But in practice it's not quite that simple,
So conjugate analysis is fine!

V3:

P-val's stink, where's your prior?
It can't be flat, or you're a liar,
Ask what is known, not what is shown,
To specify our Bayesian Wonderland!

(potential solo break, over V1 and V2)

Bridge 2:

In the theory we can build a sampler,
With convergence surely guaranteed,
But beware of autocorrelations,
Or it will take forever to succeed!

V4:

When it runs, ain't it thrillin',
To the last iteration,
It frolics and plays, throughout n-space,
Walkin' in a Bayesian Wonderland.

Ending:

Random walkin' in a Bayesian Wonderland!

Bayesians in the Night

Words: B. Natvig and M. DeGroot[3]
Music: Kaenpfert/Singleton/Snyder ("Strangers in the Night")
First performance: Valencia 3

V1: Bayesians in the night
with exchangeable glances
Assessing in the night
the prior chances
We'd be sharing risks
before the night was through.

V2: Something in your prior
was so exciting
Something in your data
was so inviting
Something in my model
told me I must have you.

Bridge: Bayesians in the night
two statisticians
We were Bayesians in the night
Then came the moment when we walked down to the sea
Under a fault tree
Our likelihoods were close together
and Sir Ronald lost his final feather

V3: And ever since that night
we've been adherents
Leaders of the fight
to have coherence
It turned out all right
for Bayesians in the night.

[3] original version by Natvig (1986) replaces the second part of the bridge with:
"Until the moment that we'd said our first hello
Little did we know
Love was just a glance away
and Sir Ronald never thought that way."

Bayesians on the River

Words: B. Carlin
Music: John Fogerty ("Proud Mary [Rollin' on the River]")
First performance: 1st Riverboat Conference (Basel – Amsterdam)

(Intro: Guitar Break)

V1: Headin' for another conference,
Convinced the boss it was a professional scene,
Everything was golden – until somebody told him,
This one would be *floatin'* on a riverboat queen!

Chorus: Spendin' every morning thinkin' – but every evening we' just drinkin',
Bayesians – Bayesians – Bayesians on the River.

V2: Spent a little time in Strassbourg,
Stopped a while in Boppard and tasted some wine,
Studyin' statistics – and econometrics –
Is sure a lot more fun when you're cruisin' the Rhine!

Chorus: Stars up in the sky are twinklin' – but everybody's still up drinkin',
Bayesians – Bayesians – Bayesians on the River.

(Guitar Break – Solo – Repeat Chorus – Guitar Break)

V3: Frequentists are green with envy,
Sayin' that our riverboat trip is a scam,
But they're just feelin' funny – 'cause they got no money,
For floatin' down from Basel to Amsterdam!

Chorus: Even if the boat were sinkin' – everybody'd keep on drinkin'!
Bayesians – Bayesians – Bayesians on the River.
I say Bayesians – Bayesians – Bayesians on the River...

(Guitar Break and Out)

Frequentist Frenzy

Words: K. Laskey
Music: Lennon/McCartney ("Eleanor Rigby")

Intro: Bayes saves the incoherent people!
Bayes saves the incoherent people!

V1: Frequentist frenzy –
Conditions on theta but priors can't help make her case,
Tries to be safe,

P-value envy –
Wants .05 but it's not what the data support,
Thrown out of court!

Chorus: Incoherent people – where do they all come from?
Incoherent people – where do they all belong?

V2: Randomization –
Thinks it's the savior to cure all humanity's ills,
There's no magic pill,

Hypothesis testing –
The answer you get, it is not what the boss wants to hear,
Pink slip is near!

Chorus: (repeat)

Bridge: Bayes saves the incoherent people!
Bayes saves the incoherent people!

V3: Cross-validation –
Why does it work when it's not blessed by Reverend Bayes?
She's in a daze,

Markov Chain Monte Carlo –
Bayesians love it and frequentists even approve,
Excellent news!

Chorus: (repeat and out)

Frequentists and Bayesians

Words: M. Glickman
Music: Lennon/McCartney ("Two of Us")
First performance: Valencia 5

V1: Frequentists incoherent – dredging data,
    Procedural flaws,
Bayesians model science – update priors,
    Use MC-MC!
Use MCMC – use MCMC – use MC squared!

V2: Frequentists pick their noses – never shower,
    Pencil-necked geeks!
Bayesians hosting parties – making money,
    Meetings on a beach!
We meet on a beach – we meet on a beach – a topless beach!

Bridge: Bayesians have remedies,
    For problems frequentists can't handle out of hand...

(Verse 1 – repeat)

(Bridge – repeat)

(Verse 2 – repeat, and out)

audible .wav file of this song available at:
`http://math.bu.edu/people/mg/music.html`

I.S.B.A.

Words: J. Wakefield, D. Stephens, and B. Carlin
Music: The Village People ("Y.M.C.A.")
First performance: Valencia 5

V1:

Bayesians – won't you listen to me,
    I said, Bayesians – find out what you can be,
So just come on – to the I.S.B.A.,
    It will boost your career today!

Bayesians – do you want something more,
    I said, Bayesians – is your research a bore,
Then just come on – to the I.S.B.A.,
    Because they will take you anyway!

Chorus 1:

It's fun to be in the I.S.B.A – it's fun to be in the I.S.B.A!
You can grease a few palms – go hunting for jobs,
    You can suck up to all the knobs!

It's fun to be in the I.S.B.A – it's fun to be in the I.S.B.A!
You can work on your tan – you can swim in the sea,
    You can hang out with Arnie Zee!

V2:

ISBA – so the newsletter's late,
    But at ISBA – the food is just great,
And though we don't know who the president will be,
    I'm sure they will work it out finally.

ISBA – the location is fine,
    And at ISBA – we get drunk all the time,
We'll have a journal – and though we don't know when,
    We'll just keep on voting 'til then!

Chorus 2:

It's fun to be in the I.S.B.A – it's fun to be in the I.S.B.A!
You can drink a few beers – go hunting for jobs,
    You can suck up to all the knobs!

It's fun to be in the I.S.B.A – it's fun to be in the I.S.B.A!
You can work on your tan – you can go back to bed,
    You can hang out with Arnie Zed!

(Repeat Chorus 1, and out)

Imagine

Words: B. Carlin and R. McCulloch
Music: John Lennon ("Imagine")
First performance: Valencia 4

V1:

Imagine you're a Bayesian–
    It's easy if you try,
You just adopt a prior,
    And the data updates π.
Statistics is so simple
    With subjective probabilityyyyy – ah-ah! ah ah...

V2:

Now imagine you're a frequentist,
    Worrying about what might have been,
Spending your whole lifetime
    Analyzing data you've never seen.
And if you want an interval,
    You'll need a pivotal quantityyyyy – ah-ah! ah ah...

Chorus:

You may say I sound like Nozer –
    But I'm not the only one:
Every four years we all get together,
    To talk, drink beer, and lie in the sun.

V3:

We used to sweat computation –
    But Adrian and the boys took care of that,
And if you want elicitation,
    Then Kadane et al. is where it's at.
And Jose and Jim talk reference priors –
    Building on work by Jeffreyyyyys – ah-ah! ah ah...

Chorus:

You may say, "He must've flunked out at Berkeley,"
    But you stick around and see,
All the misguided will someday join us –
    And then the world will *finally* be free!

José Bernardo

Words: H. Ashih and R.A. Reutter
Music: Los del Rio/Bayside Boys ("The Macarena")
First performance: Valencia 6

V1: Stepped off the plane, found myself in Barcelona
Lotsa pushy people, glad I wasn't all alone-a
Got my luggage swiped, and I wanted to go home-a
Jose Bernardo!

V2: Came to this place and the staff was kinda slow-a
Where's our next course, they have coffee and dessert-a?
But the worst of all was the lack of orange juice-a
Jose Bernardo!

V3: Had to use a hammer to put our papers up-a
First night of posters was really quite a zoo-a
Couldn't breathe, couldn't move, couldn't hear a thing-a
Jose Bernardo!

V4: Went on the beach trip and had to swim for shore-a
Cold salty water, but lots of free sangria
Only thirty minutes to see Peniscola
Jose Bernardo!

V5: Overhead projectors that kept burning out-a
Screeches from the mikes provided a few shocks-a
But we all recovered with nice long siesta
Jose Bernardo!

V6: Had a lot of troubles and it kinda stank-a
There's much more to tell, but our minds are going blank-a
Guess it's all been fun, we really oughta thank-ya
Jose Bernardo!

[Markov] Chain of Fools

Words: B. Carlin
Music: Aretha Franklin ("Chain of Fools")
First performance: Valencia 6
[with backup vocals by "Las Bayesianas": S. Bayarri, A. Carriquiry, and R. Prado]

Chorus: Chay-chay-chain [Markov chain],
Chay-chay-chain [Markov chain],
Chay-chay-chay-ee-ay-ee-ay-ee-ay-ee-ain,
Chain of fools!

V1: Ten thousand iterations – I thought you would converge,
But I found out – those parallel chains never would merge,
Ya got me where you want me – I just keep hanging on,
All my diagnostics say that you are never too long!

Chorus: (repeat)

V2: [Ooh – ooh!] Steve Brooks says just run it long,
[Ooh – ooh!] Chris Robert says correlations are strong,
[Ooh – ooh!] Peter Green says exact is easy,
But Adrian says all my models are wrong – I sit and stare at a

Chorus: (repeat)

V3: One of these days – my computer's gonna break,
But up until then, child – I'm gon' give it all it can take,
To build up my patience – be the calmest man alive,
I'll sit in the hotel, and wait for my food to arrive!

Chorus: (repeat twice and out)

Nobody Loves You When You're a Bayesian

Words: B. Carlin and L. Pericchi
Music: Eric Clapton ("Nobody Knows You When You're Down and Out")
First performance: Valencia 5

V1:

Once I lived the life of a frequentist,
  In prior distributions – had no interest,
Ran all the packages, as nice as can be,
  GLIM, SAS, Minitab – and BMDP,
Then I read the good Reverend's theorem,
  And saw what an incoherent fool I'd been,
Now if I get my hands on a client again,
  I'll hang on to him 'til that paycheck comes in, because,

Chorus 1:

Nobody loves you –
  – when you're a Bayesian!
In your pocket – not one penny, because,
  Grants and contracts, you don't have any,
No M.D. knows what you're talking about,
  And journal editors think you must've flipped out,
You know the gravy train has come to an end, because,
  Nobody loves you when you're a Bayesian!

(Guitar Break – Luis!)

V2:

For clinical trials, I thought Bayes was a boon,
  But all the docs said, "Boy, you're stopping too soon!"
When I tried to maintain my objectivity,
  My posterior summed up to infinity,
At first the Gibbs sampler seemed pretty cool, but you know,
  Convergence checks were always easy to fool,
I asked the theory boys to give me a sign, and they said,
  "Fifty billion iterations should be just fine!" – awwww....

Chorus 2:

No te conocen –
  Si eres Bayesiano,
Ya no te miran, ni te contratan,
  Solo te buscan, para darte la lata!

(Repeat Chorus 1, and out)

P for Two

Words: F. Dilke
Music: traditional ("Tea for Two")
First performance: BBC2 Programme[4] "Lies, Damned Lies, and Bayesian Statistics,"
18 February 1997

V1: P of B
    Given A times P
Of A equals P
    Of A given B
Times P of B
    That's Bayes' Theorem!

V2: P of A
    Given B
Is equal to P of B
    Given A
Times P of A
    Divided by P of B!

V3: P of A
    Given B
Is proportional
    To P of B
Given A
    Times P of A!

[4] Only Verse 1 was used in the programme.

A Spouse's View of Bayes Theorem

or

My Hubby

Words: C. Mitchell
Music: W. Donaldson ("My Buddy")
First performance: Valencia 5

V1: Nights are long since you learned of Bayes,
You think about him all through your days.
Your models, your rankings – validations, oh so true.

V2: While dinner's burning up on the stove,
The bathroom's flooding under your nose,
Your priors mean nothing – you haven't got a clue.

V3: Give me odds your work will be done,
Give me chances for walks in the sun,
Your Bayesian equation – should be, "Bayesians have more fun."

There's no Theorem like Bayes' Theorem

Words: G.E.P. Box
Music: Irving Berlin ("There's no Business like Show Business")
First performance: Valencia 1

V1: The model, the data you can't wait to see
The theta, beta, sigma, and the rho
The Normal, the Poisson, the Cauchy, the *t*
The need to specify what you don't know
The likelihood for data you acquire
The perspicacious choosing of the prior

Refrain: There's no theorem like Bayes' theorem
Like no theorem we know
Everything about it is appealing
Everything about it is a wow
Let out all that a priori feeling
You've been concealing right up to now!

There's no people like Bayes people
All odd balls from the urn
The other day you thought that you had got it straight
Take my advice and don't celebrate
A paradox by Lindley could arrive quite late
Another Stone to unturn!

Refrain: There's no theorem like Bayes' theorem
Like no theorem we know
You can lose forever that perplexed look
If you start to study it right now
Even more enthralling than a sex book
You'll find that textbook by Box and Tiao!

There's no dogma like Bayes' dogma
It's great knowing you're right
We know of a fiducialist who knew the lot
We thought at first he had hit the spot
But after three more seminars we lost the plot
We just could not see the light!

Refrain: There's no theorem like Bayes' theorem
Like no theorem we know
Fisher felt its use was quite restricted
Except in making family plans for mice
But there, he said, for pinning down a zygote
I'd give it my vote and not think twice!

There're no answers like Bayes' answers
Transparent, clear and precise
Stein's conundrums you can solve without a blink
Best estimators in half a wink
You can even understand what makes 'em shrink
Their properties are so nice!

V2: There's Raiffa and Schlaifer, Mosteller & Pratt
There's Geisser, Zellner, Novick, Hill and Tiao
And these all are people who know what they're at
They represent Statistics' finest flower
And tho' on nothing else they could agree
With us they'd join and sing in harmony!

Refrain: There's no theorem like Bayes' theorem
Like no theorem we know
Just recall what Pearson said to Neyman
Emerging from a region of type B
"It's difficult explaining to the Lehmann;
I fear it lacks Bayes' simplicity!"

There's no haters like Bayes' haters
They spit when they see a prior
Be careful when you offer your posterior
They'll try to kick it right through the door
But turn the other cheek if it is not too sore
Of error they may yet tire!

Refrain: There's no theorem like Bayes' theorem
Like no theorem we know
Critics carp at Bayes's hesitation
Claiming that his doubts on what he'd done
Led to late posthumous publication
We will explain that to everyone:

When Bayes got up to Heaven
He asked for an interview
Jehovah quickly told him he had got it right
Bayes popped down earthwards at dead of night
His spectre ceded Richard Price the copyright
It's very strange but it's true!!

Thomas Bayes's Army
[The Battle Hymn of Las Fuentes]

Words: P.R. Freeman and A. O'Hagan
Music: traditional ("The Battle Hymn of the Republic")
First performance: Valencia 2

V1: Mine eyes have seen the glory of the Reverend Thomas Bayes.
He is stamping out frequentists and their incoherent ways.
He has raised his mighty army at the Hotel Las Fuentes.
His troops are marching on!
  Glory, glory, probability!
  Glory, glory, subjectivity!
  Glory, glory to infinity!
  His troops are marching on.

V2: I am a humble applicant of Thomas Bayes's rule.
I use his theorem even while I'm swimming in the pool.
And if I wave my hands about, I do it to keep cool.
Can you guess who I am?
  Glory, glory, Dennis Lindley! (3 times)
  His troops are marching on.

V3: The last time I was here it was my honeymoon, you know.
It's hard when you're as shy as me to come, this time, alone,
But it takes more than that to keep me out of El Lobo.
Can you guess who I am?
  Glory, glory, Morris de Groot! (3 times)
  His troops are marching on.

V4: Whenever I have any kind of inference to state,
Predictive densities are what I always calculate.
They work for everything, including yesterday's date.
Can you guess who I am?
  Glory, glory, Seymour Geisser! (3 times)
  His troops are marching on.

V5: Within the Bayesian army a fifth columnist am I:
I've come to sow the seeds of doubt; at least, I mean to try.
The pivotal approach is best, and I can tell you why.
Can you guess who I am?
  Glory, glory, George Barnard! (3 times)
  His troops are marching on.

V6: The weight of evidence to me's a subject very dear,
Although the meaning of "not H" is hardly ever clear.
I have another fifty papers coming out this year.
Can you guess who I am?
Glory, glory, glory, Jack Good! (3 times)
His troops are marching on.

V7: It's easy to be Bayesian, I'm sure you'll all agree:
You only have to stay up late and dance as well as me,
And publish your first paper joint with Dennis Lindley.
Can you guess who I am?
Glory, glory, Adrian Smith! (3 times)
His troops are marching on.

V8: I arranged a little boat trip to Peniscola one day.
I told them it was safe to swim, but I forgot to say
The captain is inclined to let his ship just drift away.
Can you guess who I am?
Glory, glory, Jose' Bernardo! (3 times)
His troops are marching on.

V9: *(Repeat V1, and out)*

Valencia Wood

Words: M. Glickman
Music: Lennon/McCartney ("Norwegian Wood")
First performance: Valencia 6

V1:

Bayes once had a rule
that I ignored
when I was in school.

I thought I was smart,
all Neyman's work
I knew by heart.

Bridge 1:

I preached all the frequentist arguments, honest and pure.
I never realized the great changes I was to endure.

V2:

I woke from a dream,
a ghost in my sight,
a wise man it seemed.

He called me a fool,
and then he said
you must use my rule.

Bridge 2:

He told me to summarize models with posterior means,
and stop basing inference on data I haven't yet seen.

V3:

Now, from that day since,
I've changed my ways,
I was convinced.

I'm no longer a fool,
now I can say
I use Bayes' Rule.

audible .wav file of this song available at:
`http://math.bu.edu/people/mg/music.html`

Vandal Who Had Sinned

Words: B. Carlin
Music: Elton John ("Candle in the Wind")
First performance: Valencia 6

Intro: (piano lick)

V1: Goodbye Thomas Bayes, though I never knew you at all,
You had the grace to hold yourself, and the mental wherewithal,
[And] thanks to Richard Price, you were guaranteed your fame,
We now have your method, and the rule that bears your name,

Chorus 1: Yet it seems to me they treated you like a vandal who had sinned,
Drowning out your simple wisdom with their raucous din,
And I would have liked to've known you, but from my time you're hid,
Your candle burned out long before your theorem ever did.

V2: The ministry was tough, the toughest trade you ever plied,
A godly man from Tunbridge Wells; a mathematician on the side,
Not til Bruno D., Savage, Lindley and the rest
Finally built on what you did, was your impact rightly stressed,

Chorus 2: And it seems to me they treated you like a vandal who had sinned,
Not conforming to your system true and genuine,
And I would have liked to've known you, but this did God forbid,
Your candle burned out long before your theorem ever did.

V3: Goodbye Thomas Bayes, though I never knew you at all,
When accounting for uncertainty, yours is the finest protocol,
Goodbye Thomas Bayes, from the young man in a crowded lecture hall,
Who sees you as more than intelluctual,
more than just our "Father on the Wall"

Chorus 1: (repeat)

Ending: Your candle burned out long before your theorem ever did!

Walk on the Bayes Side

Words: B. Carlin
Music: Lou Reed ("(Take a) Walk on the Wild Side")
First performance: Valencia 5
[with backup vocals by "The Bayesettes": M. Clyde, D. Pauler, and L. Wolfson]

V1: The governor, he welcomed us to Spain,
Promising that *this* time, it would not rain,
Lindley said, "I hope you understand, that p-values have now been banned!"
Chorus: He said, "Hey babe – Take a walk on the Bayes side,
I mean, hey folks – take a walk on the Bayes side – all right!"

V2: Strawderman tries not to give himself away,
Proving admissibility all day,
But a pixel here and a pixel there – Alicante is the place where
Chorus: He says, "Hey babe – Take a walk on the Bayes side,
He says, "Hey Ed – let's take a walk on the Bayes side – nice map!"

V3: Wasserman is such a sensitive male,
Got statistics that didn't have a scale,
Zellner said, "You oughta take a look, at the stuff that's in my book!"
Chorus: He said, "Hey babe – Take a look at a Bayes factor,
He says, "Hey Larry – take a look at a Bayes factor"
And the frequentists say, "No, nono, nono, no, nono – no, nono, nono, no, nono..."
(and so on, adding high harmony vocals)

V4: Polson got some decent bounds on kappa,
But Wally still was not completely happy,
So later when he raised his hand, the rest of us thought, "Not again!"
Chorus: We said, hey Wally – take a walk to the hallway,
I mean, hey Wally – take a walk to the hallway – good grief!

V5: Bernardo led us all out to the island,
Promising us beaches, sun and snorkelin'
But though the trip was pretty quick, lots of people started getting sick!
Chorus: I said, hey folks – take a walk to the bathroom!
I mean, hey guys – take a jog to the bathroom – good God!!

V6: Nozer was just babbling away,
Thought we all were engineers that day,
Finally he took a walk; some statistics would've helped that talk!
Chorus: I said, "Hey Noze – take a walk on the Bayes side,
I mean hey, little man – take a walk on the Bayes side,
And the Bayesians say, "Si, sisi, sisi, si, sisi – si, sisi, sisi, si, sisi..."
(and so on, adding high harmony vocals, and out)

The Wild Frequentist

Words: A.E. Raftery
Music: Traditional Irish ("The Wild Rover")
First performance: Valencia 5

V1: I've been a frequentist for many's the year,
And I've spent all my time playing the data by ear,
But now I'm returning with Bayes in great store,
And I never will play the frequentist no more.

Chorus : For it's no nay never, no nay never, no more,
Will I play the frequentist, no never, no more!

V2: I went into a lab where I used to consult,
They gave me some data, said "P that for us,"
I said, "No way, Jose" with a bit of a smile,
P values and evidence just don't reconcile!

(Chorus – repeat)

V3: I said it's your prior that we need to shed light,
And the researcher's eyes opened wide with delight,
He said, "My prior views are as good as the rest,
And for sure a Bayes factor is what will work best!"

(Chorus – repeat)

V4: I'll go back to my teachers, confess what I've done,
And ask them to pardon their prodigal son,
But when they've forgave me, as often before,
I never will play the frequentist no more!

(Chorus – repeat twice, and out)

Will Your Chains Now Be Recurring

Words: C. Mitchell and J. Kadane
Music: traditional ("Will the Circle Be Unbroken")

V1:

I was standing by my window
  on a dark and confused day
'cause my classical equations
  just did not have much to say.

V2:

My unbiased estimators
  gave me nonsense I could see
My *p*-values were perplexing
  and they were no use to me.

V3:

Friends were running Markov chains
  and were learning how to mix,
So I travelled to Valencia
  just to find a Bayesian fix.

V4:

I found out there that I needed
  likelihoods and a good prior
If my priors were not proper
  then my chain is in the mire.

V5:

Now my chains are all recurring
  Now that Bayes' Rule's at my side
There's a better world awaiting
  Now that Tom Bayes is my guide.

V6:

Now my liklihoods and priors
  all reflect my true beliefs.
Now my chains are all converging
  and it is a great relief.

Finale:

Will your chains now be recurring
  if you have Bayes at your side?
There's a better world awaiting
  if you let Bayes be your guide.

Alice in Alicante

By Tony O'Hagan, with help from Peter Jones, Peter Freeman, Simon French and Max Mendel

First performance: Valencia 5

Abstract

Peter Jones walks onto the Valencia 5 cabaret stage wearing his jammies, with Tony O'Hagan close behind. The "chorus" stands off to the side.

Peter Tell me a story, Daddy.

[*Tony opens the new O'Hagan book.*]

Peter No, you *always* want to read that one. Tell me an *interesting* story!

[*Tony opens the new Bernardo and Smith book.*]

Peter No, Daddy, nobody *reads* that. They just leave it on their desks to impress their friends. Put it back quickly, Daddy, the table's going all wobbly again.

Tony Well, what story do you want?

Peter Tell me about the old, old times, Daddy. When the world was full of Bayesians.

Tony You mean the 21st century? No, let's go back a little before that. [*Picks up a book.*] Now, are you sitting comfortably?

Peter [*Squirming.*] No, I think I just wet myself.

Tony Not another p-value?

Chorus Don't mention p-values!

Tony It must be that multiplicity of Berries you had at dinner. Well, too bad. Are you ready for this story?

Peter [*Still squirming.*] Yes, Daddy.

Tony [*Reading,*] "Alice's Adventures in Alicante". Alice was getting bored in the frequentist statistical conference. The speaker had tossed a coin twenty million times so far, and she was beginning to feel that infinity was a long time to wait to define just one probability. She slipped out and went to the rest-room. She looked in the mirror, and there was something about the looking-glass Alice who looked back at her that was strangely exciting. Then she realised what it was. Whereas the boring frequentist papers Alice was holding were all about $[\mathbf{x} \mid \boldsymbol{\theta}]$, the looking-glass Alice's papers were saying exciting things about $[\boldsymbol{\theta} \mid \mathbf{x}]$. Then somehow Alice found herself stepping through the mirror into the wonderful, coherent looking-glass conference on the other side.

Peter Where was she then, Daddy?

Tony In Alicante, Peter.

Peter And was she a Bayesian, then?

Tony Yes, she was.

Peter Hooray! And she didn't have to mention p-values ever again! Tell me about the strange creatures she met in Alicante, Daddy.

Tony Oh, they were *very* strange, Peter. There was Old Father Dennis, for a start. Do you remember the poem Alice said about him?

P & T You are old Father Dennis, the young man said,

And the problems you tackle get harder.

But I tell you emphatically —

To speak diplomatically,

All Don't mention the Spanish Armada!

Peter I bet they [*indicating audience*] didn't expect to hear about the Spanish Armada!

Chorus *Nobody* expects the Spanish Armada!

Tony Then those two naughty boys Tweedledum and Tweedledee came in.

Peter You mean TweedleduMouchel and TweedleMorris?

Tony Yes, and they hadn't listened when Old Father Dennis said ...

Chorus Don't mention p-values!!

Tony ... and Alice was beginning to think she'd *heard all this before*, and she wondered if she had somehow got back on the wrong side of the looking-glass.

Peter Tell me about the Walrus and the Carpenter.

Tony You mean the Strawderman and the Singpurwalla? Well the Walrus was a very strange creature because he was really only a Bayesian once every four years.

Peter Or sometimes three years, Daddy.

Tony Yes, Peter. Actually, Seymour the Dodo's predictive distribution had said it would be four years again, so he wasn't in Alicante.

Peter He wasn't observable, then. And the Singpurwalla Carpenter, Daddy?

Tony Well, he wasn't really a carpenter, more of a ceramics artist.

Peter I thought he was a p-artist.

Chorus Don't mention p-values!!!

Tony No, he didn't mention them. Actually, he didn't seem to mention *any* kind of statistics.

Peter Perhaps they were on the other 492 transparencies?

Tony Maybe. And do you remember when Alice met the Knave of Hearts?

Peter Did he steal her Don-berry tarts?

Tony I think so, but in the end he only had a feeble climax.

Peter *And* it took him half an hour to get it!

Tony That's right. Then Alice went to the Mat Hatter's Irish Tea-Party.

Peter Where the Mad Hatter leprechaun and the March Hair leprechaun were being very uncertain about their models.

Tony Yes, and they weren't even sure if they were making any sense at all. And the Dormouse with cirrhosis of the liver said to the Mad Hatter, "Is that a gun in your pocket, or have you just got scrotal swellings?"

Chorus Don't mention scrotal swellings, *please*!!

Peter And wasn't there something funny about queues, Daddy?

Tony Oh, you mean the Susie Q?

Peter Yes. Are you going to tell me that joke again about how many servers she had?

Tony And all her customers? Certainly not!

Peter Well, tell me about the island then.

Tony Ah well, the White Rabbit told all the people to get on two little boats, and sail away to an exciting island.

Peter That was a good joke, Daddy!

Tony Yes, but some of them weren't feeling well enough to laugh very much.

Peter And tell me about all the exciting things there were to do on the island.

Tony Ah, ...

Peter And all the interesting things to see.

Tony [*Pause.*] And then they got back on the boats and went home.

Peter Wow, that was really the high spot of the whole conference!

Tony And then Humpty-Dumpty Zidek invented a new word.

Peter Really?

Tony Yes, *neo-normative*!

Chorus Don't mention neo- ... er ... Don't mention ... um ...

Tony *Neo-normative*!! It means ... well, it means ...

Peter Wow, that was a catchy new word!

Tony Yes, and it was both original and interesting. Anyway, you should be going to sleep now, Peter.

Peter Ohhhh! I'm not bored enough yet, Daddy. Not quite. Tell me about Arnold, the Cheshire Cat.

Tony Oh, yes. As soon as anyone else finished a story, the Cheshire cat would appear and tell *them* a little story about Jeffreys.

Peter That was nice of him! He was a bit like Adrian "Mock Turtle" Smith wasn't he? Only with more original ideas.

Tony Come on Peter, time for bed.

Peter [*Yawning.*] Alright, Daddy. [*Tony starts to go.*] Daddy, whatever happened to the Bayesians, then?

Tony Nobody really knows, Peter. Some say they all died of cirrhosis of the liver. Or scr ...

Chorus Don't mention scrotal swellings!!!!

Tony And some say they are still out there, endlessly searching for the True Model.

Peter And what do you think, Daddy?

Tony I think they had another conference, and the White Rabbit organised another boat trip. And this time he got it just right.

Bayesian Mastermind

By Tony O'Hagan, Simon French, Peter Jones, and Simon Young

First performance: Valencia 4

Abstract

The scene is the cabaret at Valencia 4. The celebrated Magnus Magnusson comes to the microphone.

MM Ladies and gentlemen, fellow Bayesians, George Casella, dead sheep and others, before going any further I have couple of announcements to make.

First, as a humanitarian act, and especially for the benefit of the unfortunate Jim Smith, the organisers have arranged for simultaneous translation of this act into sign language.

Also, I wish to make it quite clear that none of what follows has been transformed to normality.

I wish now to take you forward to the Brave New World of Valencia 5. The year is 1993. In only a few months time, Bayesians from around the world will gather yet again to discuss the deep and fundamental issues that concern each and every speaker. Like "Why do my slides keep shaking?", and "Whatever happened to Gibbs sampling?"

But the conference itself is still in the future. I repeat — it is 1993, and the conference organisers are meeting together, with their physiotherapists and their Zimmer frames, to choose the invited speakers. The competition is fierce, and to make the final selection every author is subjected to the most thorough questioning. Several big names have already fallen by the wayside.

A used car salesman named Singpurwalla was turned down because his warranties were not worth the paper they were given in.

José Bernardo was found to be small but perfectly uninformed.

Dennis Lindley was sunk by questions on the Armada. "That's not fair", he complained, "I didn't expect the Spanish Inquisition!"

All *Nobody* expects the Spanish Inquisition!

MM Now the next author steps forward to play 'Bayesian Mastermind'

All [*Mastermind music.*]

MM Our 43rd contestant is the Reverend Thomas Bayes, a deceased probabilist from the 18th century. Dr. Bayes, you took as your specialist subject in the first round 'Gibbs sampling'. And you got 3 points in 7 million 4 hundred and 12 passes. You have submitted a paper entitled "Don't blame that theorem on me. It was two other guys called Sacco and Vanzetti". The referees disagree about your paper, so you now go forward to the second round of general knowledge questions.

First, complete this quotation: The rain in Spain . . .

TB … stays mainly on the Bayesians.

MM Correct. Is our view of Herman Rubin too narrow?

TB No, he's just very robust.

MM Correct. How do you win a Spanish state election?

TB By throwing out every vote more than two standard deviations from the Socialist.

MM Correct — also known as rejection sampling. What is Corollary 2.3 to Theorem 4.6.2, concerning consistently estimable projections of filtrations of sigma fields, in the book 'Elementary Bayesian Statistics'?

TB Hang on. That's a bit tough. I didn't expect the Spanish Inquisition!

All *Nobody* expects the Spanish Inquisition!

MM The answer is, 'the limit as n tends to infinity equals 30'. What must you make if you want a BAD view of Susie Bayarri?

TB Pass.

MM Correct. What is 'borrowing strength'?

TB Pouring vodka into Laurence Pettit's mineral water.

MM Wrong. The correct answer is 'coming to Valencia to learn from some *real* Bayesians'. Why did Jim Berger cross the road?

TB Was he looking for the bar?

MM No, I'm sorry — that was yesterday's reason. How many Bayesians does it take to change a light-bulb?

TB Only one to change the bulb, but 280 to wait for the power to come back on.

MM Correct. What are the three axioms of Bayesian statistics?

TB Practice, practice, practice.

MM Correct. What could be less exciting than a dead sheep?

TB Prequential inference.

MM Correct. I would also have accepted any reference to the Gibbs sampler. What, at Valencia 4, had the greatest p-value?

TB Mark Schervish's doubly nonsensical F?

MM Wrong — the wine at lunch. What is an iteration of the Gibbs sampler called?

TB Pass.

MM Correct. Who said, "So, shall we take a show of hands, then, on who would like to see the formation of some kind of thing broadly along the lines of a possibly decentralised body that might be interested in doing something vaguely similar … or not?"

TB I'm sorry, I don't understand the question.

MM Neither do I. Do you think the Gibbs sampler is the answer to the ultimate question of Life, the Universe and Everything?

TB Yes ... No ... No, Yes, No, ... Yes, Yes, No ...

All [*Beep, beep sound.*]

MM I'm sorry, I'll have to stop you there, as you don't seem to have converged. Your time is up, Dr. Bayes, and I'm sorry to have to tell you that you've failed. You obviously don't understand the first thing about Bayesian statistics. We couldn't possibly allow you to give a poster session at Valencia 5, but we'd be very pleased to have you as an invited speaker.

An Interview

By Tony O'Hagan

First performance: Valencia 6

Abstract

At Valencia 6, we had the rare privilege of a visit from the Reverend Thomas Bayes himself. Bayes manifested himself in the form of his earthly look-alike, Tom Leonard. This historic interview with The Master of the Revels took place at the notorious end of conference cabaret.

Master It's a real pleasure to have you here, Mr. Bayes, or should I say Your Reverence?

Bayes Just call me Tom.

Master Before we go any further, Tom, I wonder if you would be so gracious as to bless our cabaret?

Bayes Certainly. [*Praying.*] Benedictus Bayesianum.

Master That was wonderful. Thank you. OK, Tom. Let me ask you first how you got here to Alcossebre — you know, many people had a lot of trouble.

Bayes Yes, all those aeroplanes milling around when one is trying to get down from Heaven are a real nuisance. So I made the air traffic controllers stop them for a bit. I'm sure it made things much easier all round.

Master Oh yes, good idea! So now you've had a good look at Bayesianism in 1998. What do you think of it?

Bayes It's wonderful. Such a lot of good work!

Master Yes, all those clever invited speakers.

Bayes Oh no. I was talking about the poster sessions.

Master So you weren't impressed with the invited sessions?

Bayes Well, for example, take this fellow Green and his "exact sampling". You have to go backwards and forwards in time, turn density functions into jigsaw puzzles, and what have you got at the end of it?

Master An exact . . . random . . . number. Hmm . . .

Bayes I've never heard such nonsense!

Master There's been a lot of talk about model choice. What did you think of that?

Bayes I liked what that Smith fellow said. He said there were far too many of these *ad hoc* criteria, and all this ad hockery was not really Bayesian.

Master So what did he do?

Bayes Oh, he gave us a few more *ad hoc* criteria. And they're not really Bayesian.

Master But we mustn't be too hard on Adrian Smith. You know he's [*gulp*] leaving us?

Bayes Yes. Shall I do a 'Requiem' or a 'Gloria'?

Master Going back to model choice, José Bernardo gave us the BRC. What does that stand for?

Bayes I think it stands for Bernardo's Really Confused.

Master Yes, I'm sure you're right! And it's all tied up with Bayesian model averaging, I believe.

Bayes Indeed. That was the talk by that Clyde woman. By the way, isn't it nice to see so many women Bayesians?

They must work hard to do Bayesian statistics as well as their washing, cleaning and cooking.

Perhaps if more of them gave the invited papers we'd have some better talks.

Master So what did you like most about Merlise Clyde's paper?

Bayes Well I thought it was really clever how she pretended that the important question was how you *compute* model averages. So nobody noticed that the *real* question is whether it makes any sense in the first place.

Master Well, Tom, it's been a real pleasure to have you here. Is there one last piece of advice you can leave us with for all the bright young Bayesians?

Bayes Yes, here you are.

[*Bayes hands Master a piece of paper.*]

Master [*Reading.*] Advice to Bright, Young Bayesians

- Take a tip from dim, old Bayesians.
- Don't make life too hard for yourself.
- Don't try to think about real prior beliefs.
- Don't tackle real data.
- Just make up a nice complicated model, throw down a default prior, simulate some data, then you'll have time for loads of fun with your MCMC.

Bayes And who cares if it doesn't converge? You can still get the papers published, because nobody's going to check your calculations, are they?

Master Ladies and Gentlemen, some words of wisdom from the late, great Reverend Thomas Bayes. Take a bow, Tom!

A Message from Hilbert Space

By Tony O'Hagan, John Deely, Peter Freeman, Simon French, and Michael Goldstein

First performance: Valencia 3

Abstract

At Valencia 3, while we relaxed after a splendid conference dinner, a ghostly voice was suddenly heard over the PA system.

Hello ... hello, operator ... Operator ... is my call to Earth ready? ... What do you mean 'what call'? This is the Reverend Thomas Bayes ... Bayes ... B–A–Y–E–S ... I asked you to put a call through to my disciple on Earth ... What? ... I'm through now? ... Oh, bless you!

Hello, Dennis ... Are you there, Dennis? Is the microphone on? ... Can you speak up? ... That's better. So what's new. How is my theorem going? ... Well? Oh, good.

Now just hold on a minute, Dennis. I'm not quite sure about some of those words you're using. Bayes-ian-ity? Is that a disease? ... And about those other words. Who is this prior? And why is he wearing a likely hood? ... I see, and you multiply those two together and you get what? ... The post- ... Dennis, the Committee up here have agreed — no more jokes about that!

So where are you *this* month, Dennis? ... Spain? ... A Spanish Bayesian? Make sure you check his references ... That fellow can't even walk on a table, let alone water.

Oh, you're at a conference ... A whole conference, all about my theorem? Listen, Dennis, it's just a theorem. The left hand side equals the right hand side.

What are the lectures like? ... They're exchangeable? ... Oh ... oh Bruno just explained exchangeability to me. It seems a neat idea ... And yet the first talk took 45 minutes, all about exchangeability? Who is this guy? ... A magician? ... From California? ... Is that part of his act?

What was the next talk, then? ... Dick Barlow. Oh, just a minute, Dennis, Bruno's speaking again. ... He says he tried to talk to Dick the other day but it was a bad line. He couldn't understand anything he was saying.

What's that, Dennis? ... Morrie's gaining weight? I thought he was just going grey.

Tell me that again, Dennis ... You say there's a lot of talk about what? ... Software and hardware. You know we don't wear anything up here ... No, it was not me at the sex show! ... And what were you doing there?

So what do you do with the hardware and software ... You run it simultaneously on 436 parallel-processing micro-VAXes — and it still takes four and a half days to solve a six-dimensional problem? Dennis, Dennis, up here in Hilbert space we find infinite-dimensional problems easy. All you need is divine Grace.

So what is this numerical integration good for? ... About five million dollars.

Oh, Dennis, I bumped into Jimmy Savage the other day. Small world.

Well, what have you been doing, Dennis? ... Hardy-Weinberg ... That could be quite significant. Oh, sorry! Wash my mouth out.

Oh, just a minute, Dennis, Bruno's saying something. ... Oh, he's having a prevision ... It's alright, he's feeling better now.

You say you have big datasets to analyse ... Oh, but 90% of the numbers are missing. So what do you do about that? ... Of course! You make them up.

Well, how would you sum up the conference, Dennis? ... Palm trees ... and more palm trees ... and palm trees ... with penguins? Is the heat getting to you?

So, my theorem's going really well, and the world is full of Bayesians. How many, would you say? Millions? ... Thousands? ... [*Disappointed.*] Oh, I see. About 180 ... [*Even more disappointed.*] and one of those is George Barnard.

Anyway, if some people are not Bayesians, what do you call them? ... Frequentists? ... Well, I wouldn't know the word. There are none of *them* up here.

'Bye, Dennis!