The QTLseq package [almost finished]

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Short Overview:

0:13 How strong is the strongest beer?

0:59 Segregants, mappings, assisted assembly and all that stuff.

2:12 One dimensional QTL scan.

3:11 Two dimensional QTL scan.

4:28 More and more QTLs ...

How strong is the strongest beer?

50 strongest beers in the world

* not including retired beer

	name	ABV	score	ratings	atyle
1	Brewmeister Armageddon	65%		0	Eisbock
2	Schorschbräu Schorschbock 57% finis coronat opus	57.7%	2.62	29	Eisbock
3	Schorschbräu Schorschbock 43%	43.38%	2.9	32	Eisbock
4	BrewDog Sink the Bismarck	41%	3.34	290	Imperial/Double IPA
5	Baladin Esprit de Noel	40%		0	Belgian Strong Ale
6	Struise Black Damnation VI - Messy	39%	3.87	101	Imperial Stout
7	Revelation Cat Freeze the Penguin	35%	3.57	42	Barley Wine
8	BrewDog Tactical Nuclear Penguin	32%	3.26	370	Imperial Stout
9	Schorschbräu Schorschbock 31% Black Edition	31%	2.88	21	Eisbock
10	Schorschbräu Schorschbock 31%	30.86%	3.16	47	Eisbock
11	Samuel Adams Utopias 10th Anniversary	29%		0	Barley Wine
12	BrewDog Ghost Deer	28%	3.48	20	Belgian Strong Ale
13	Südstern XXL	27.6%	3.1	16	Eisbock
14	Samuel Adams Utopias	27%	4.02	724	Barley Wine
15	Struise Black Damnation V - Double Black	26%	4.1	185	Imperial Stout
16	Struise Special Darkest Night	26%	3.36	6	Imperial Stout
17	Struise Five Squared	25%	3.49	78	Abt/Quadrupel
18	Emelisse XXV Imperial Russian Stout	25%	3.72	35	Imperial Stout
19	Fleurac Octo-Pyroclastic Black IPA	24%	3.24	27	Black IPA
20	Herkimer Toripuru Strong Bock	23%	3.25	5	Doppelbock

Let's take two strains ...

High Tolerance Strain

ATTGGCTAGGTTACACTGGTAGACACATGAGTA

Low Tolerance Strain

TTCGACCAAGTGACGCTGATGGAAACAGGAATA

... produce offspring ...

High Tolerance Strain

ATTGGCTAGGTTACACTGGTAGACACATGAGTA

Low Tolerance Strain

TTCGACCAAGTGACGCTGATGGAAACAGGAATA

Offspring

TTTTGGCAGGTTACACTGGTAGACACATGAGTG

ATTGGCTACGTTACACTGGTAGACACATGAGTA AATGGCTAGGTTACACTGGTAGACACATGAGTT

TTTTGGCAGGTTACACTGGTAGACACATGAGTG ATTGGCTACGTTACACTGGTAGACACATGAGTA

GATGGCTAGGTTACACTGGTAGACACATGAGGG

AATGGCTAGGTTACACTGGTAGACACATGATTA ATTGGCTACGTTACACTGGTAGACACATGAGTA

ATTGGCTAGGTTACACTGGTAGACACATGAGTA

ATTGGCTAGGTTACACTGGTAGACACATGAGTA AATGGCTAGGTTACACTGGTAGACACATGAGTT

GATGGCTAGGTTACACTGGTAGACACATGAGGG

AATGGCTAGGTTACACTGGTAGACACATGATTA

ATTGGCTAGGTTACACTGGTAGACACATGAGTA

ATTGGCTAGGTTACACTGGTAGACACATGAGTA

ATTGGCTACGTTACACTGGTAGACACATGAGTA

... add a 20% concentration of ethanol ...

High Tolerance Strain

ATTGGCTAGGTTACACTGGTAGACACATGAGTA

Low Tolerance Strain

TTCGACCAAGTGACGCTGATGGAAACAGGAATA

Segregants

AATGGCTAGGTTACACTGGTAGACACATGAGTT

GATGGCTAGGTTACACTGGTAGACACATGAGGG

AATGGCTAGGTTACACTGGTAGACACATGATTA

ATTGGCTAGGTTACACTGGTAGACACATGAGTA

GATGGCTAGGTTACACTGGTAGACACATGAGGG

ATTGGCTAGGTTACACTGGTAGACACATGAGTA

ATTGGCTAGGTTACACTGGTAGACACATGAGTA

... and put survivors to a sequencer

High Tolerance Strain

ATTGGCTAGGTTACACTGGTAGACACATGAGTA

AATGG CTGGTAG CACATGAT
GGCTA CACATG
GGTTA TAGACA TGAGTT
GATGG ACACTGG ATGAGG
GGTTACAC
CTAGGTT

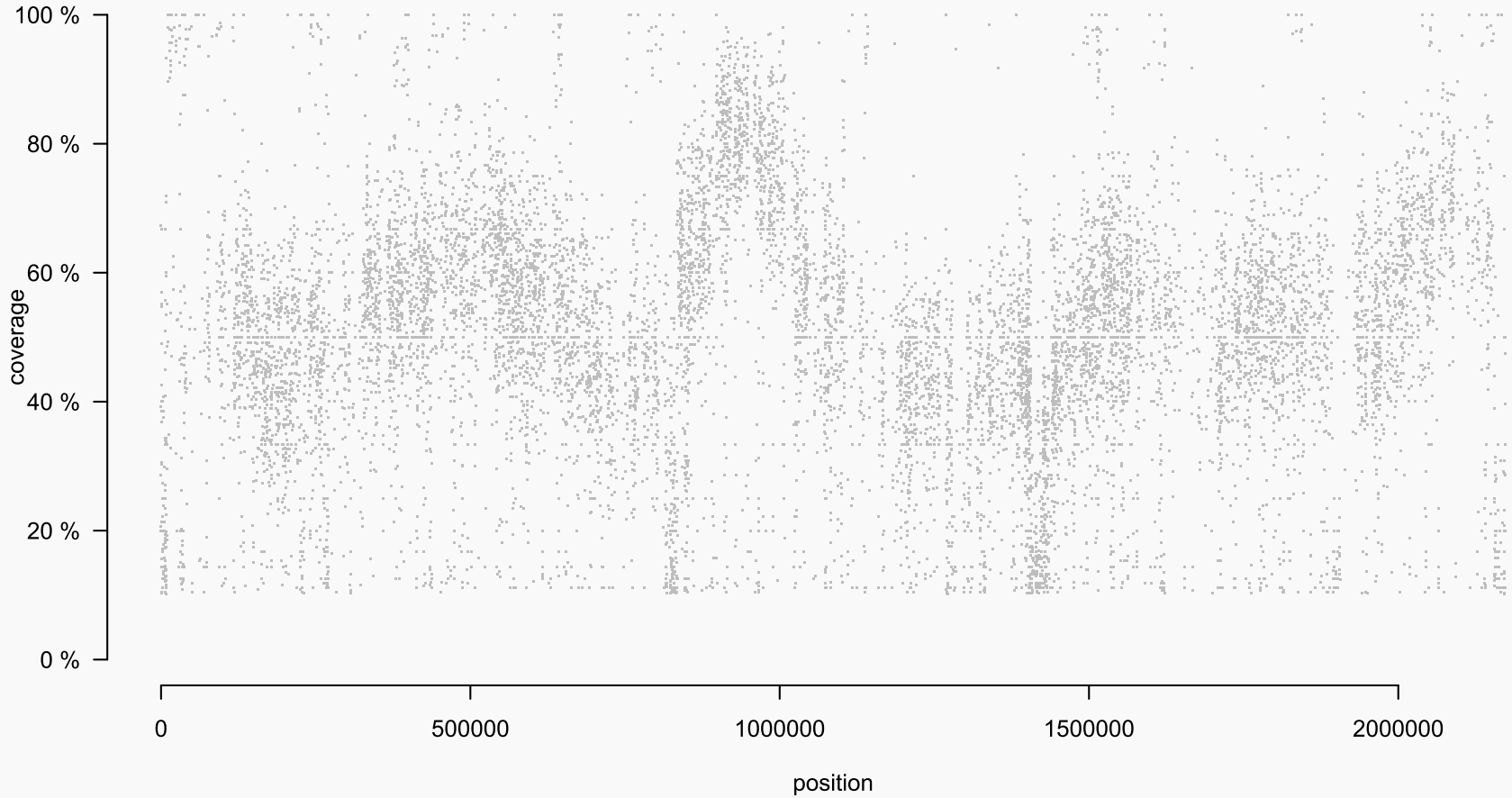
Low Tolerance Strain

TTCGACCAAGTGACGCTGATGGAAACAGGAATA

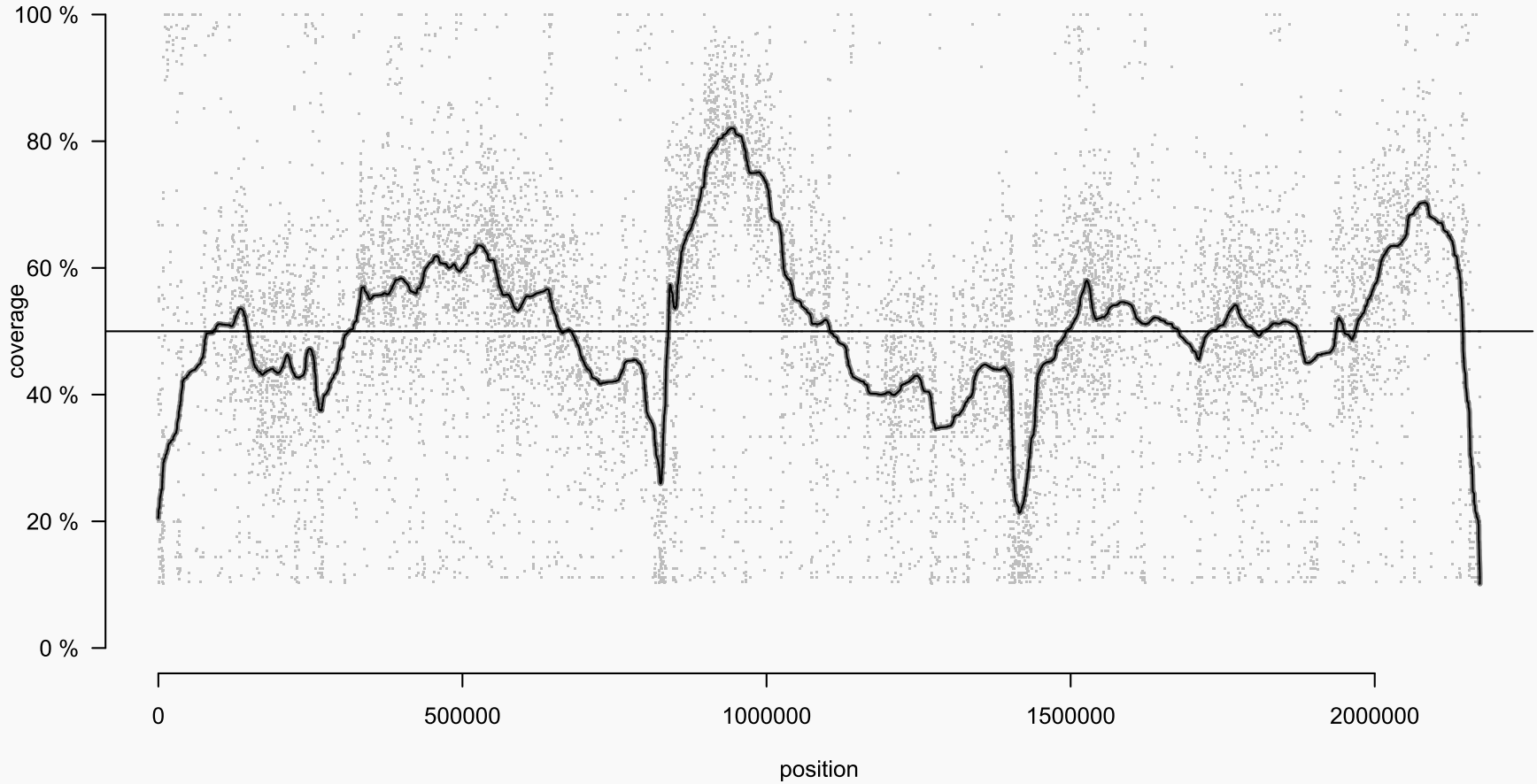
segregants are mixed and genotyped
reads are mapped against HTS genome
[and/or against LTS genome]

SNP/indels are extracted and used as biomarkers

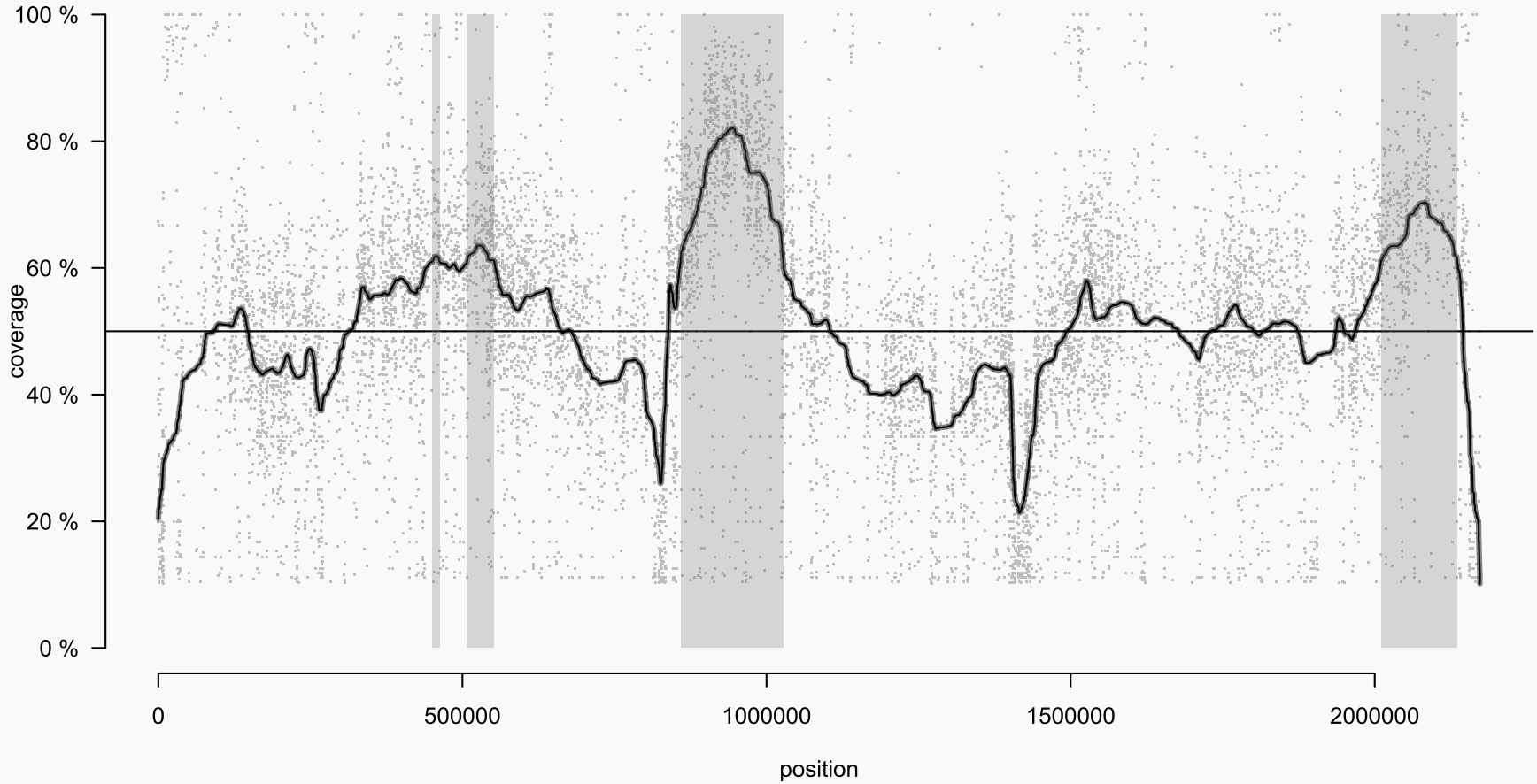
plot(coverage.obj, ...)



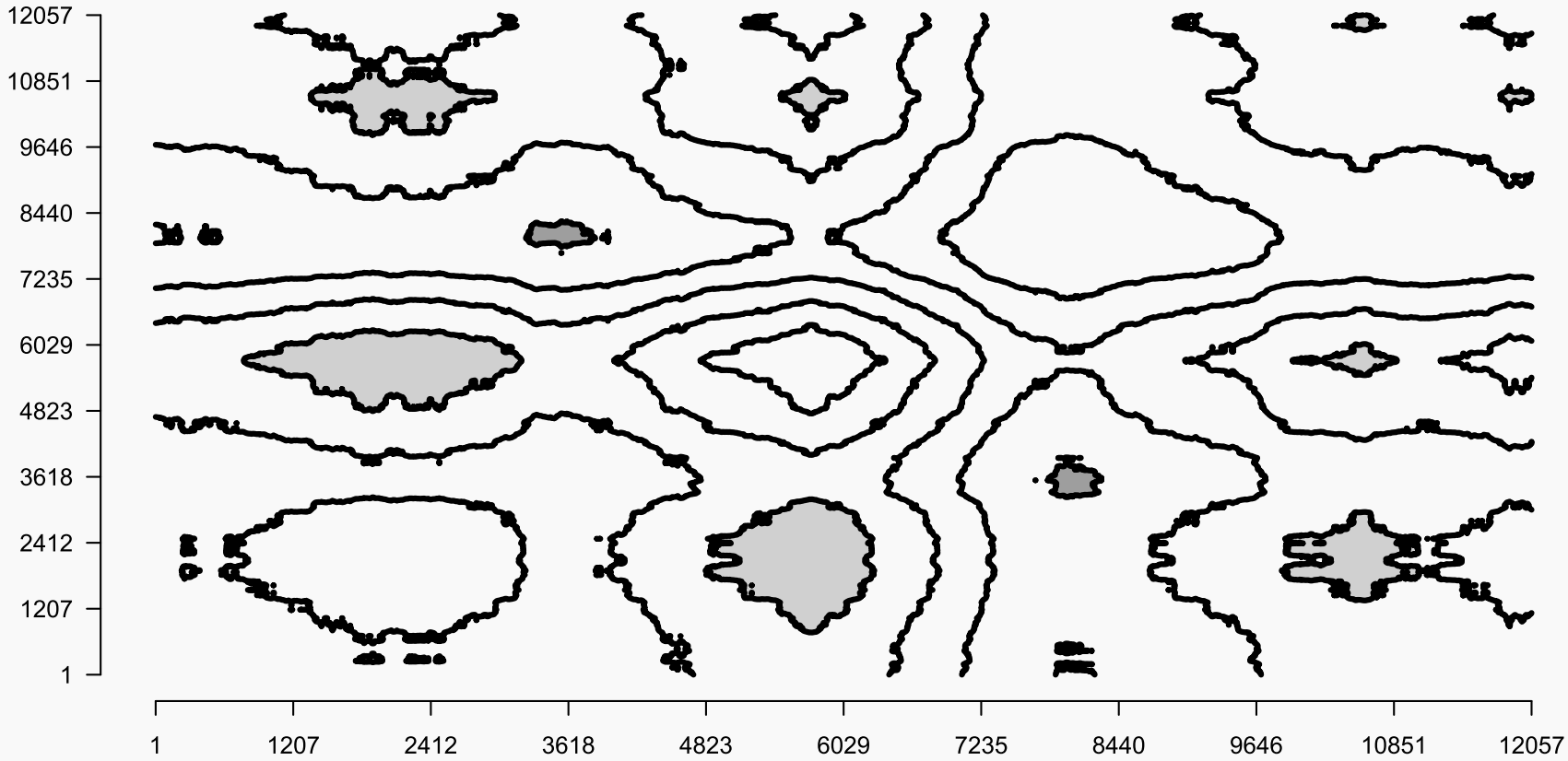
plot(onedimscan(coverage.obj, ...))



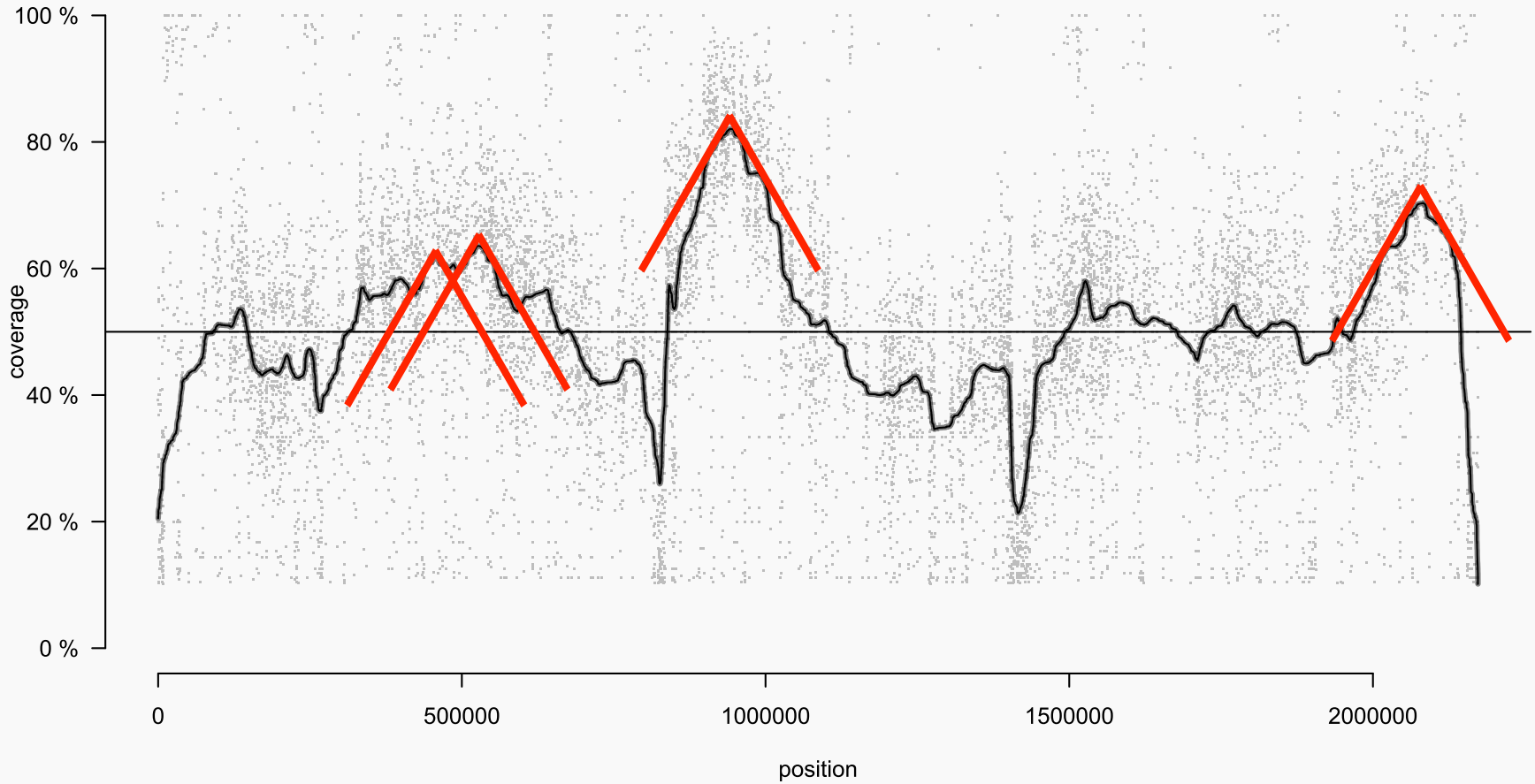
plot(onedimscan(coverage.obj, intervals=TRUE, ...))



plot(twodimscan(coverage.obj, ...))



plot(GICscan(coverage.obj, k=2, ...))



That's all!

Thanks goes to:

- Tomasz Burzykowski and his group [Hasselt University] (data / questions),
- Norber Dojer and his group [Warsaw University] (mappers, assemblers),
- R&D department, IBM Poland [Poland] (clusters, GPUs and GPU mappers),
- Bioconductor developers (Bioconductor) ...

... and of course all of you!