

hg19 – chr1:1,000,000-1,000,010

(a)

Genomic Reference  
T G G G C A C A G C C



Example Read with 1 mismatch  
T G a G C A C A G C C

(b)

Genomic Reference  
T G G G C A C A G C C



Genomic Reference in Color-space  
(First T is terminal base)  
T 0 1 0 0 3 1 1 1 2 3 0



Example Read with 1 mismatch  
T 0 1 0 0 2 1 1 1 2 3 0



Naive conversion to base-space prior to mapping  
T G G G a c a c t a a

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(c)

Base-space

Genomic Reference  
T G G G C A C A G C C  
T G G G t A C A G C C  
Example BS-read

Color-space

Genomic Reference  
T 0 1 0 0 1 3 1 1 2 3 0  
T 0 1 0 0 3 1 1 1 2 3 0  
Example BS-read