Algorithms

Robert Sedgewick | Kevin Wayne

http://algs4.cs.princeton.edu

2.3 Quicksort Demos

- *Sedgewick 2-way partitioning*
- *Dijkstra 3-way partitioning*
- *Bentley-McIlroy 3-way partitioning*
- *Dual-pivot partitioning*

Dijkstra 3-way partitioning demo

- Let `v` be partitioning item `a[lo]`.
- Scan `i` from left to right.
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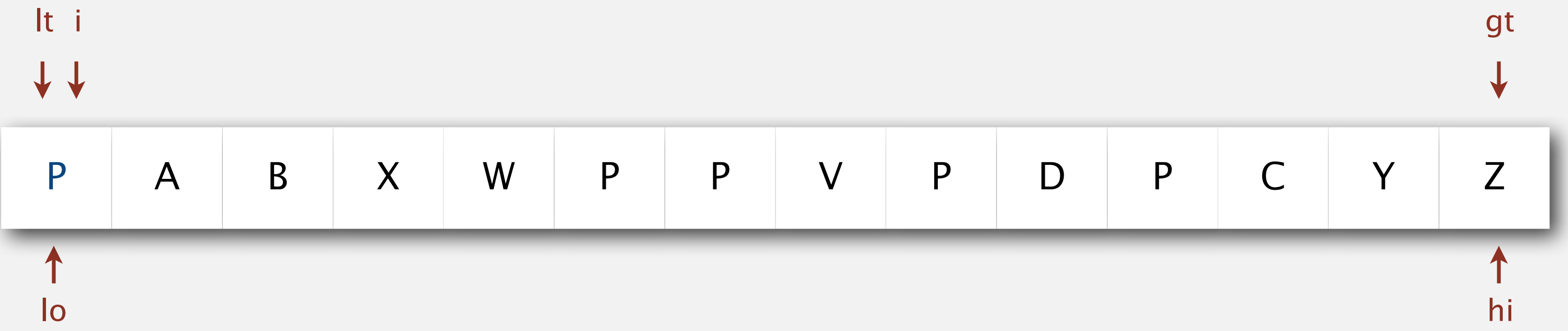
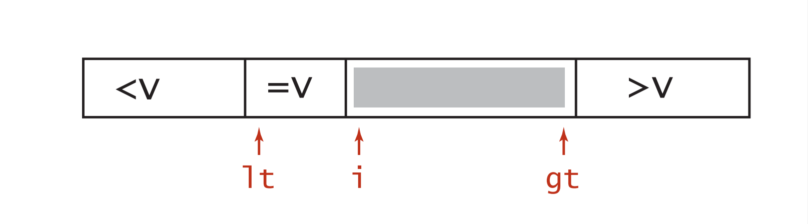


invariant



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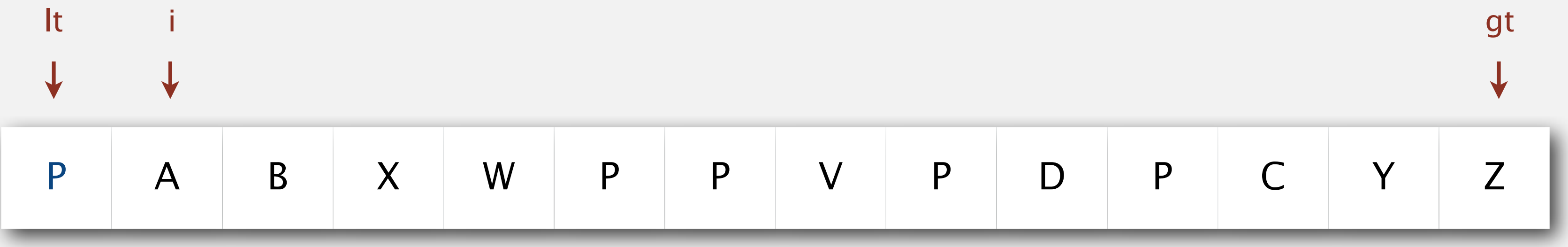
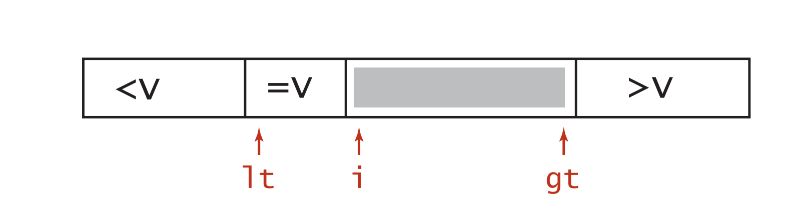


lt i gt

P	A	B	X	W	P	P	V	P	D	P	C	Y	Z

invariant



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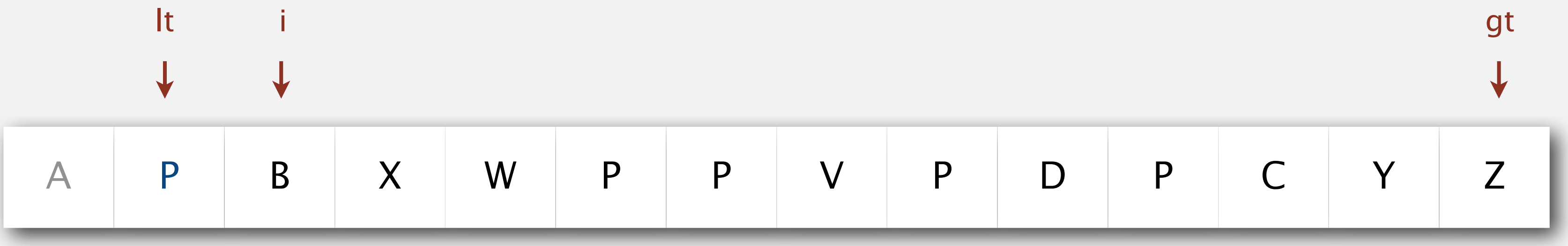

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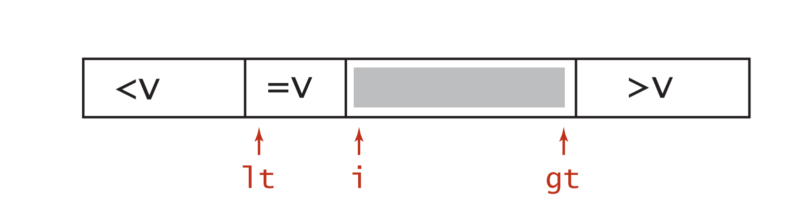
invariant



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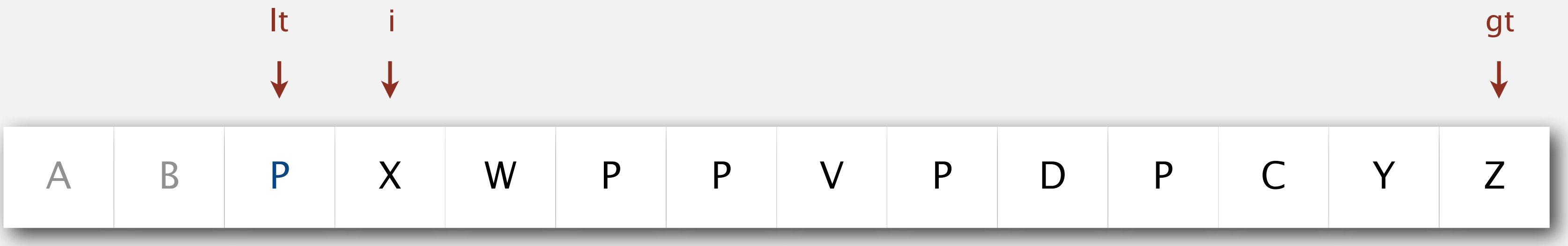
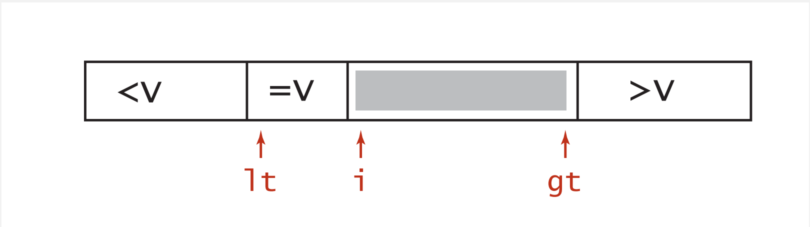


invariant



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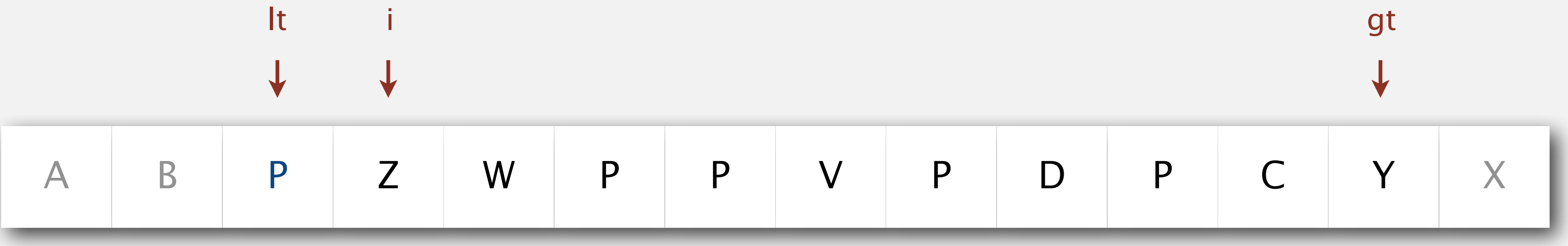
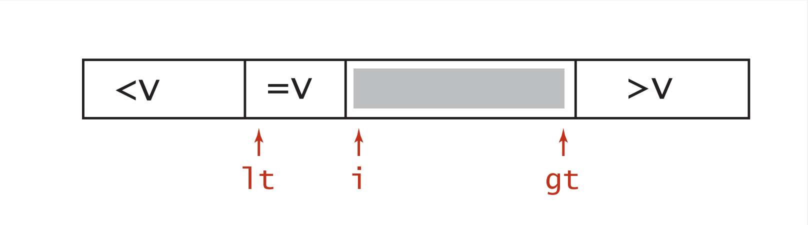


invariant



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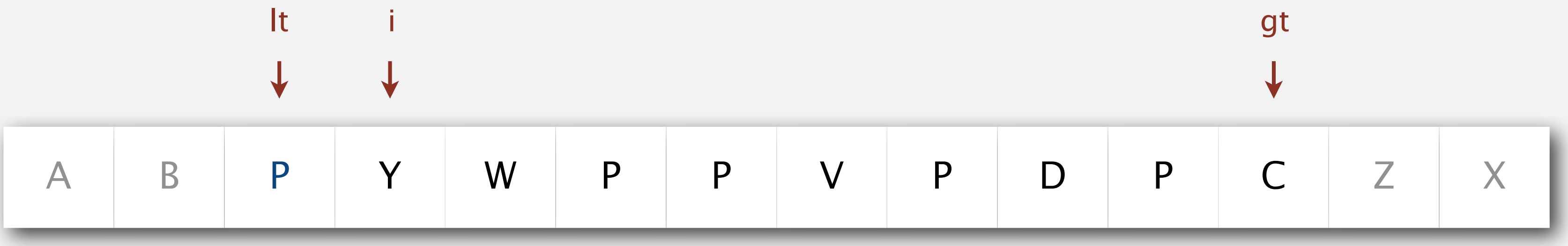
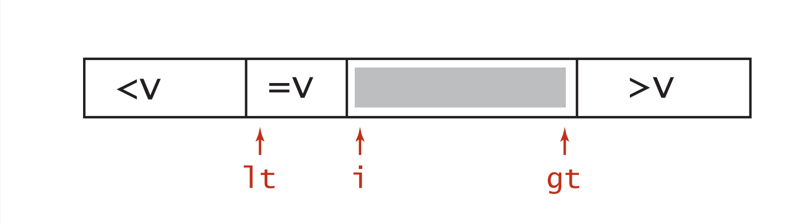


lt i gt

A B P Y W P P V P D P C Z X

invariant



<V =V >V

lt i gt

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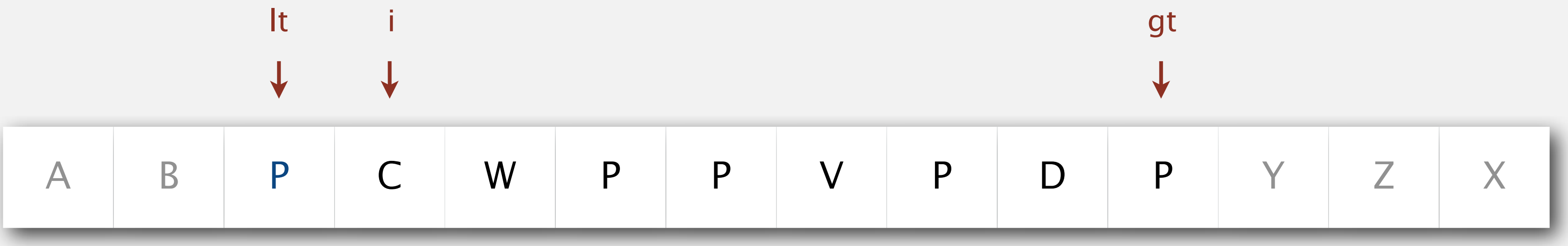

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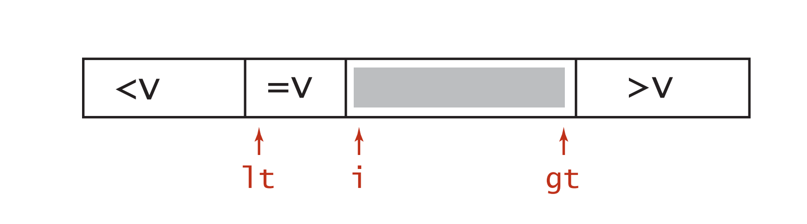

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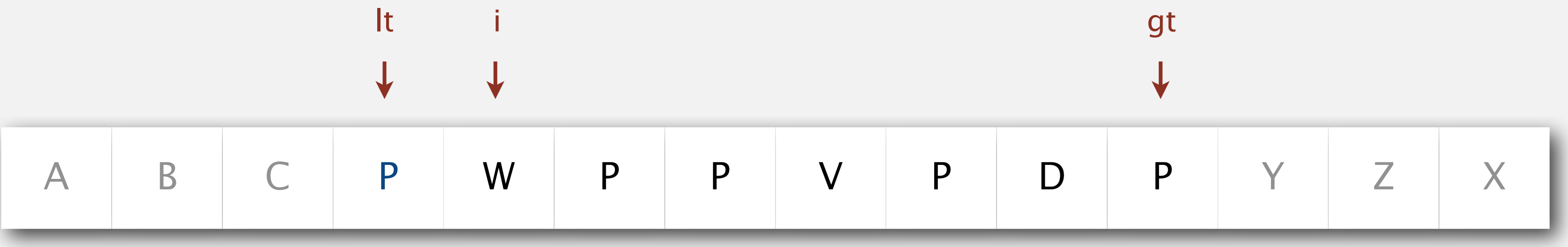

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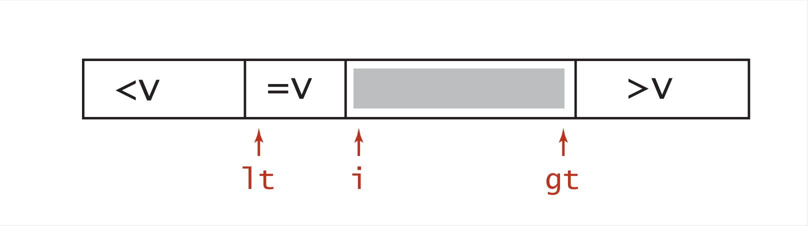

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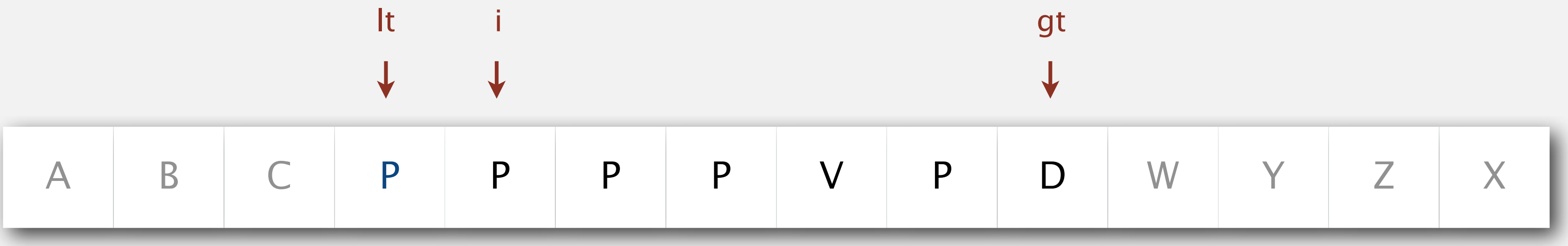

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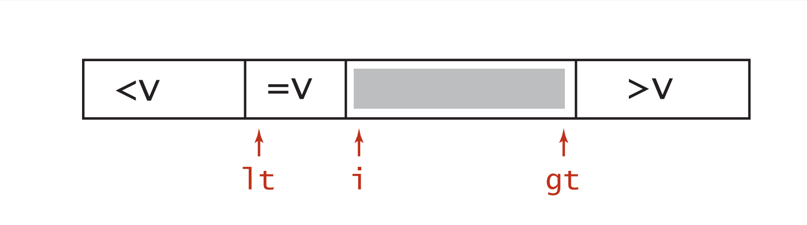

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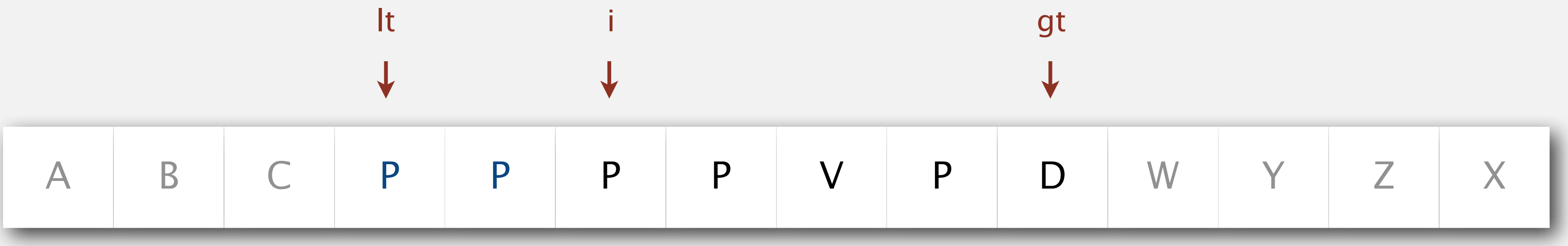

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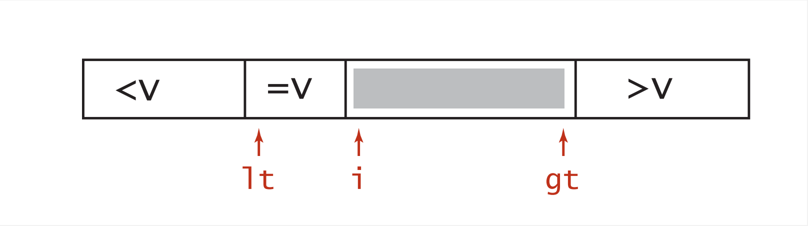

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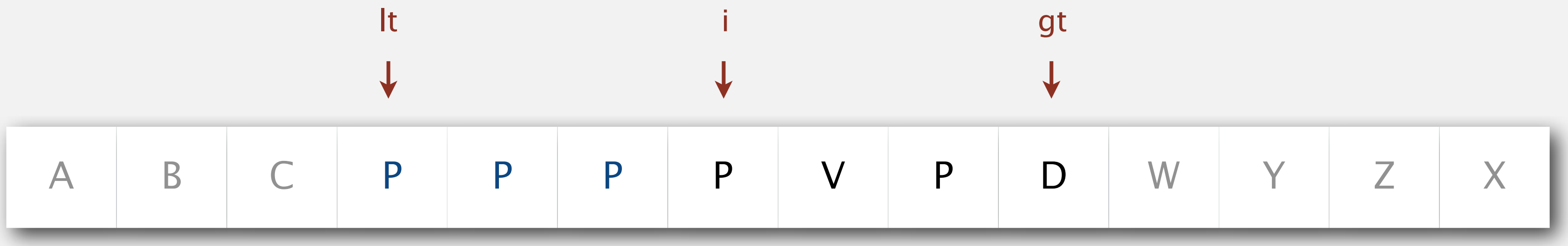

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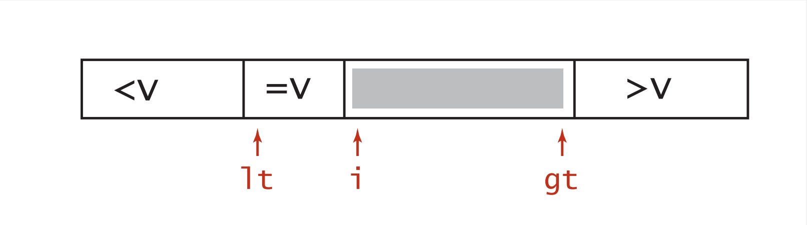

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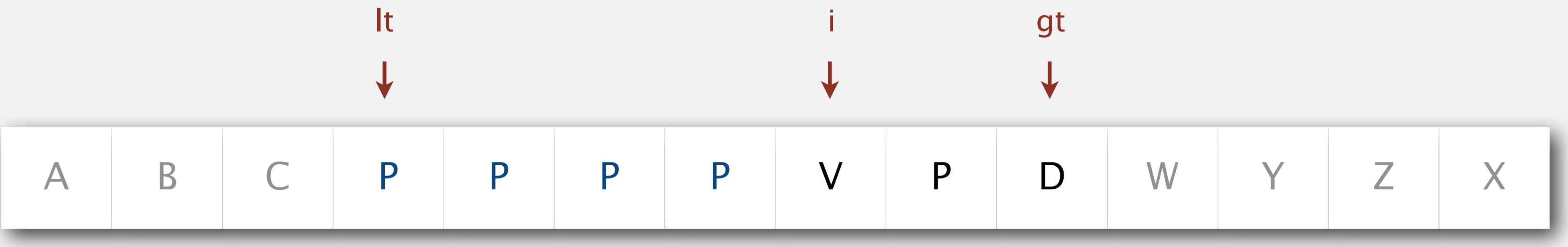

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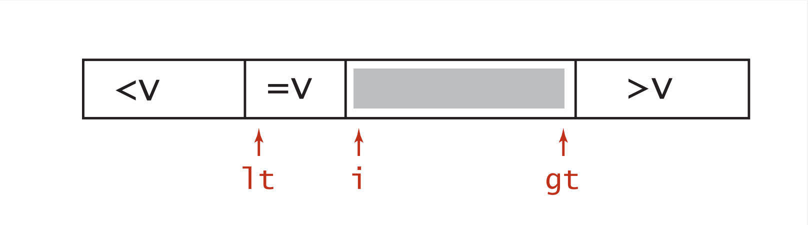

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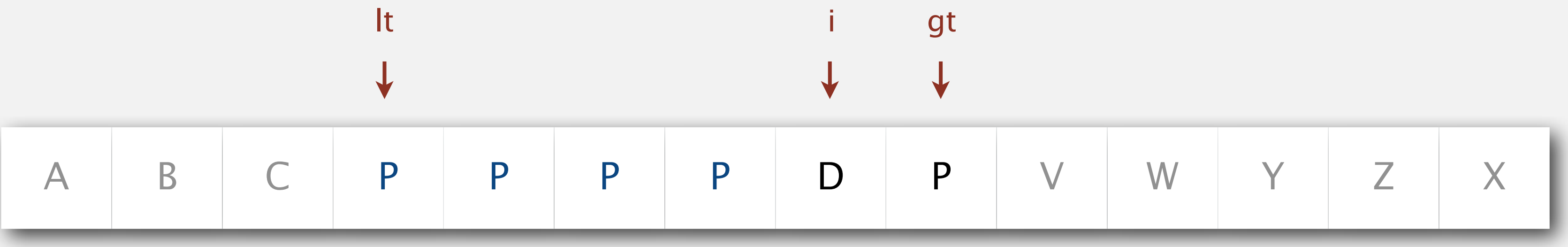

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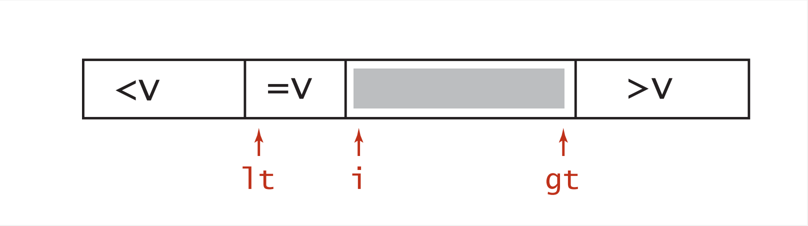

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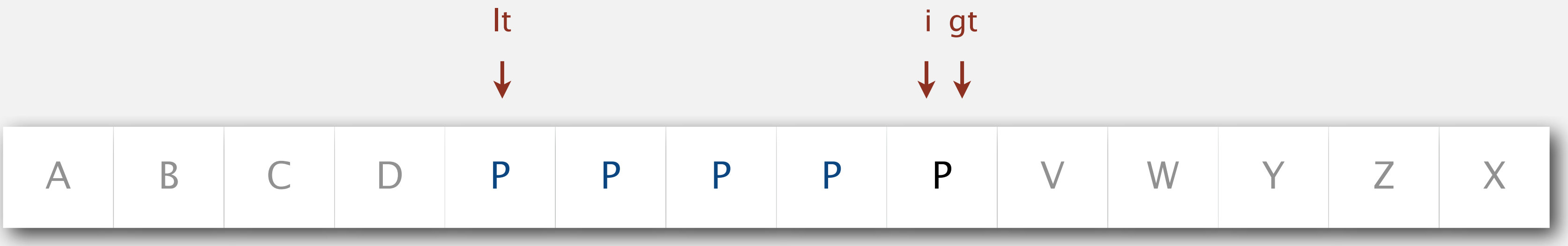

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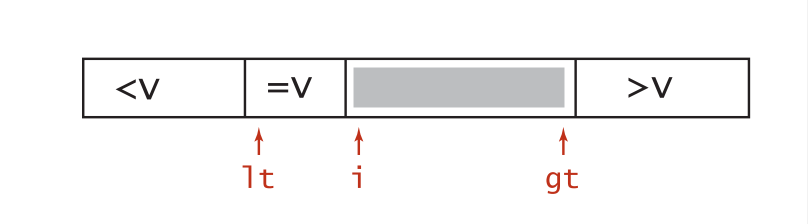

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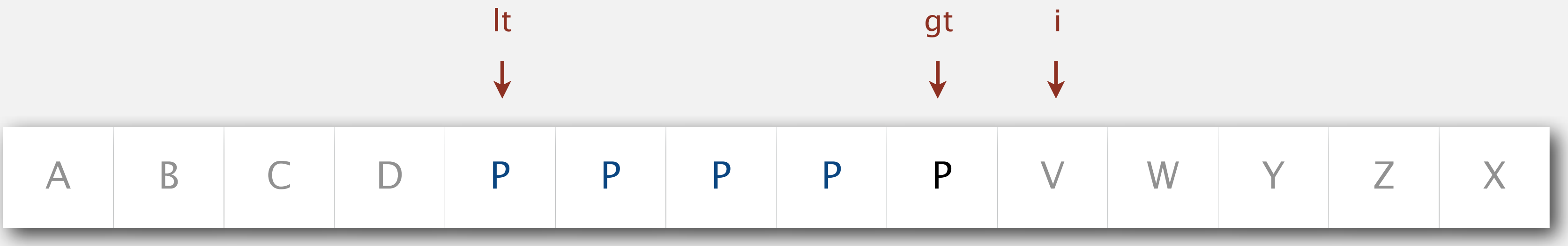

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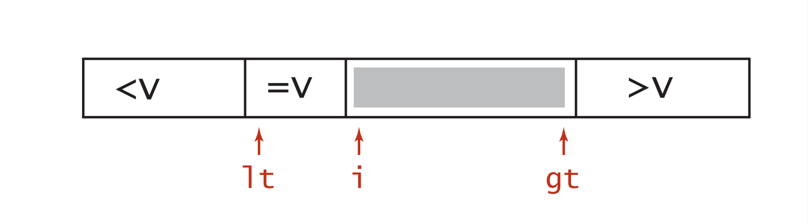

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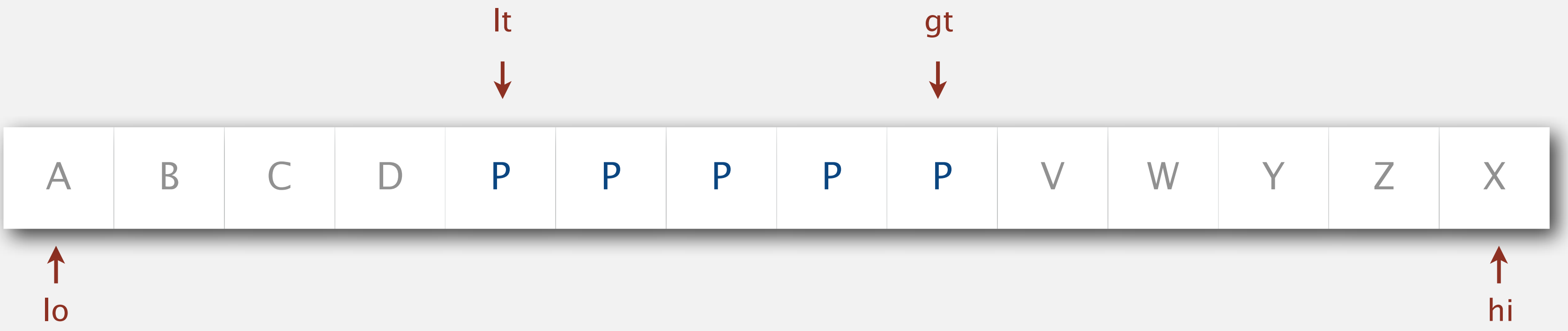

lt

gt

A	B	C	D	P	P	P	P	P	V	W	Y	Z	X

lo

hi

invariant