



Parallele Sortierung

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Proseminar Algorithmen, SS14

Outline



Motivation

The Basic Problem That We Studied Previous Work

Our Results/Contribution
Main Results
Basic Ideas for Proofs/Implementation

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Make Titles Informative. Use Uppercase Letters. Long Titles are Split Automatically.



- ▶ Use itemize a lot.
- Use very short sentences or short phrases.



- using the pause command:
 - First item.



- using the pause command:
 - First item.
 - Second item.
- using overlay specifications:
- using the general uncover command:



- using the pause command:
 - ► First item.
 - Second item.
- using overlay specifications:
 - First item.
- using the general uncover command:



- using the pause command:
 - ► First item.
 - Second item.
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An Algorithm For Finding Primes Numbers.

```
int main (void)
 std::vector<bool> is_prime (100, true);
 for (int i = 2; i < 100; i++)
 return 0;
```

An Algorithm For Finding Primes Numbers.

```
int main (void)
{
    std::vector<bool> is_prime (100, true);
    for (int i = 2; i < 100; i++)
        if (is_prime[i])
        {
        }
     return 0;
}</pre>
```

An Algorithm For Finding Primes Numbers.

```
int main (void)
 std::vector<bool> is_prime (100, true);
 for (int i = 2; i < 100; i++)
    if (is_prime[i])
        std::cout « i « " ":
        for (int i = i; i < 100;
             is_prime [i] = false, i+=i);
 return 0;
Note the use of std::.
```

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Example

- 2 is prime (two divisors: 1 and 2).
- ▶ 3 is prime (two divisors: 1 and 3).
- ▶ 4 is not prime (three divisors: 1, 2, and 4).

There is no largest prime number and, in addition,

$$\int_{\Omega} \nabla u \cdot \nabla v = -\int_{\Omega} u \Delta v + \int_{\partial \Omega} u v n$$

Proof.

1. Suppose *p* were the largest prime number.

4. Thus q + 1 is also prime and greater than p.

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Proof.

- 1. Suppose *p* were the largest prime number.
- 2. Let q be the product of the first p numbers.
- 4. Thus q + 1 is also prime and greater than p.

There is no largest prime number and, in addition,

$$\int_{\Omega} \nabla u \cdot \nabla v = -\int_{\Omega} u \Delta v + \int_{\partial \Omega} u v n$$

Proof.

- 1. Suppose *p* were the largest prime number.
- 2. Let *q* be the product of the first *p* numbers.
- 3. Then q + 1 is not divisible by any of them.
- 4. Thus q + 1 is also prime and greater than p.



There is no largest prime number and, in addition,

$$\int_{\Omega} \nabla u \cdot \nabla v = -\int_{\Omega} u \Delta v + \int_{\partial \Omega} u v n$$

Proof.

- 1. Suppose *p* were the largest prime number.
- 2. Let q be the product of the first p numbers.
- 3. Then q + 1 is not divisible by any of them.
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The proof used reductio ad absurdum.



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- ► The first main message of your talk in one or two lines.
- ► The second main message of your talk in one or two lines.
- ▶ Perhaps a third message, but not more than that.

- Outlook
 - Something you haven't solved.
 - Something else you haven't solved.

For Further Reading I



A. Author.

Taschenbuch der Algorithmen. Springer Verlag, 2008.

Tom Leighton.

Einführung in Parallele Algorithmen und Architekturen Gitter, Bäume und Hypercubes.

Thomsom Publisching, 1997.