写出下列程序的运行结果

```
int main()
{  const char *c[]={"John learn C++ language",
                    "Be well!", "You", "Not very"};
   const char **p[]={c+3, c+2, c+1, c};
   const char ***pp=p;
   cout << (**++pp);
   cout << (*--*++pp+4);
   cout << (*pp[-2]+3);
   cout << (pp[-1][-1]+2);
   cout << endl;
   return 0;
}
```

注：直接在本文件上作答，画出程序执行过程的内存变化即可

★ 首先画出三句定义语句结束后内存中各变量的所占空间及初值

★ 每个执行语句的每一步执行完成后的内存中各变量的所占空间及值

★ 每步变化一个页面(例：**++pp，分三步计算，需要三页)

★ 不允许手写在纸上，再拍照贴图

★ 允许在各种软件工具上完成，再截图贴图

★ 转换为pdf后提交

c	1000	2000
	1004	2100
	1008	2200
	1012	2300

p	3000	1012
	3004	1008
	3008	1004
	3012	1000

pp	4000	3000

字符串常量"John learn C++ language"

2000	J
2001	o
…	
…	
2020	a
2021	g
2022	e
2023	\0

字符串常量"Be well!"

2100	B
2101	e
2102	' '
2103	w
2104	e
2105	l
2106	l
2107	\0

字符串常量"You"

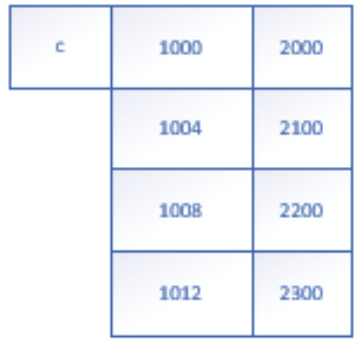
2200	Y
2201	o
2202	u
2203	\0

字符串常量"Not very"

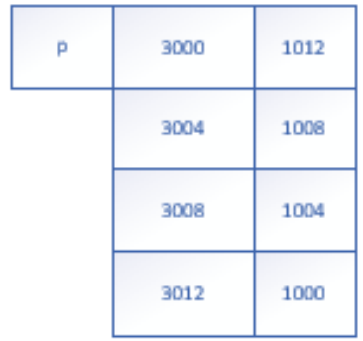
2300	N
2301	o
2302	t
2303	' '
2304	v
2305	e
2306	r
2307	y
2308	\0

cout << (**++pp);

++pp



c	1000	2000
	1004	2100
	1008	2200
	1012	2300



p	3000	1012
	3004	1008
	3008	1004
	3012	1000

pp	4000	3000

pp	4000	3004

字符串常量"John learn C++ language"

2000	J
2001	o
...	
...	
2020	a
2021	g
2022	e
2023	\0

字符串常量"Be well!"

2100	B
2101	e
2102	' '
2103	w
2104	e
2105	l
2106	l
2107	\0

字符串常量"You"

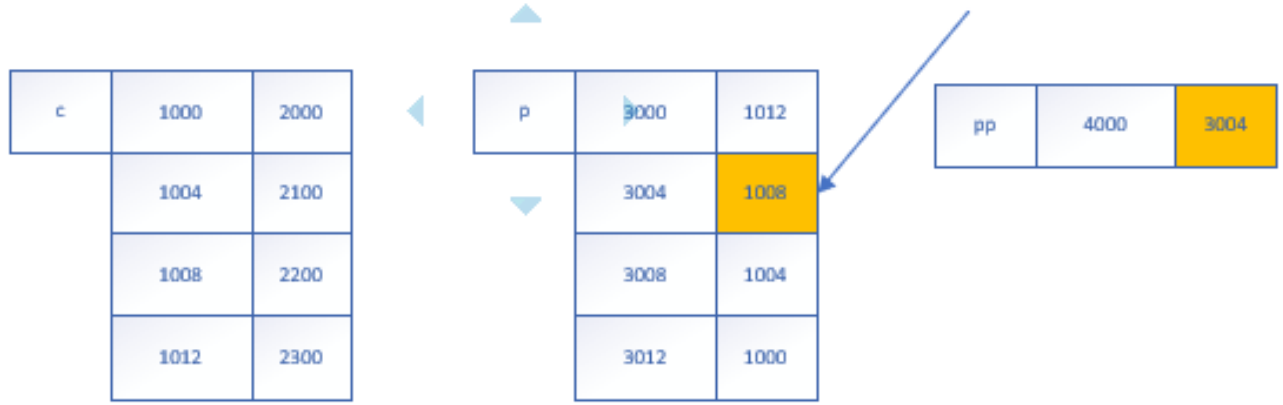
2200	Y
2201	o
2202	u
2203	\0

字符串常量"Not very"

2300	N
2301	o
2302	t
2303	' '
2304	v
2305	e
2306	r
2307	y
2308	\0

cout << (**++pp);

*++pp



字符串常量"John learn C++ language"

2000	J
2001	o
...	
...	
2020	a
2021	g
2022	e
2023	\0

字符串常量"Be well!"

2100	B
2101	e
2102	' '
2103	w
2104	e
2105	l
2106	l
2107	\0

字符串常量"You"

2200	Y
2201	o
2202	u
2203	\0

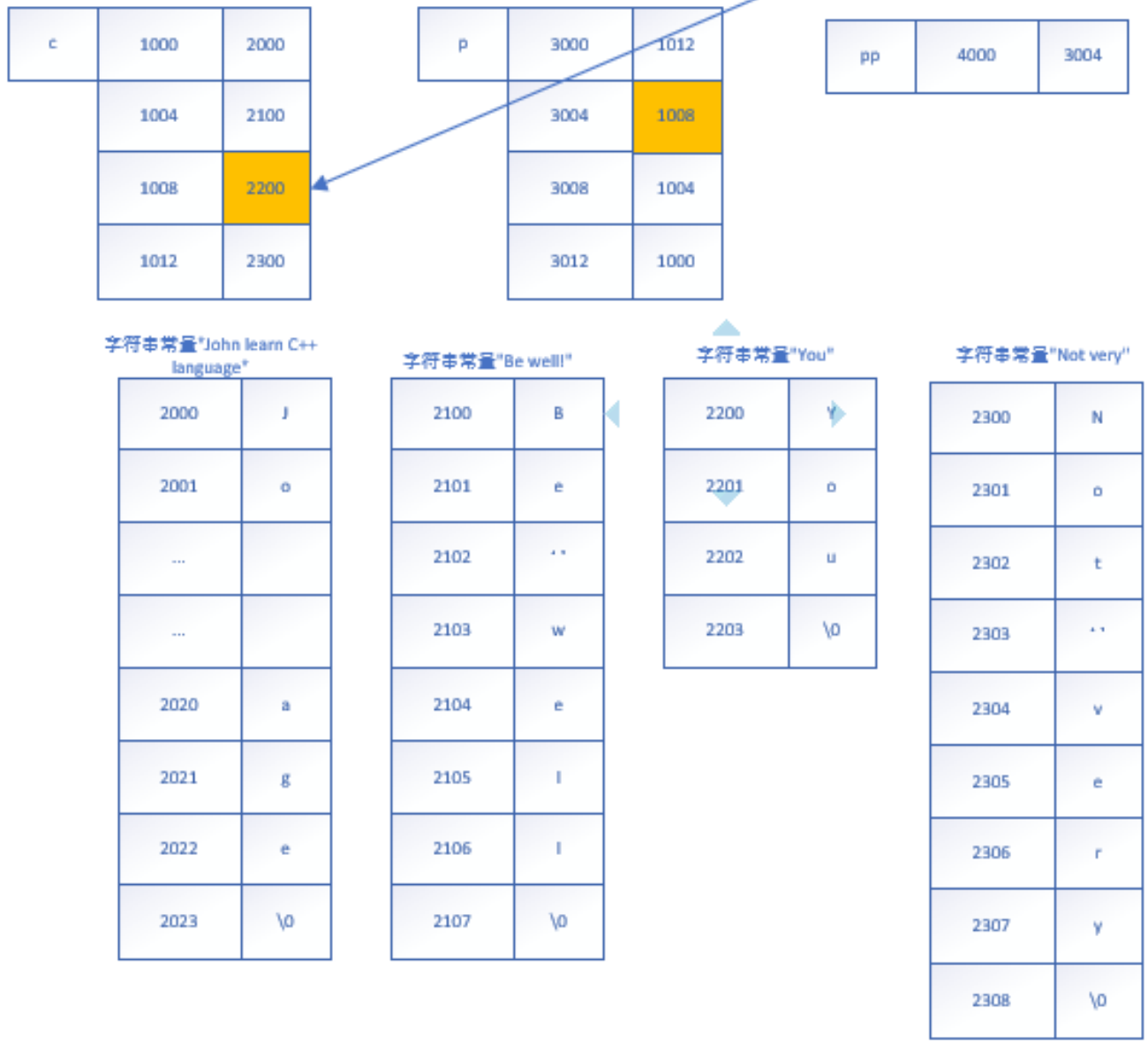
字符串常量"Not very"

2300	N
2301	o
2302	t
2303	' '
2304	v
2305	e
2306	r
2307	y
2308	\0

cout << (**++pp);

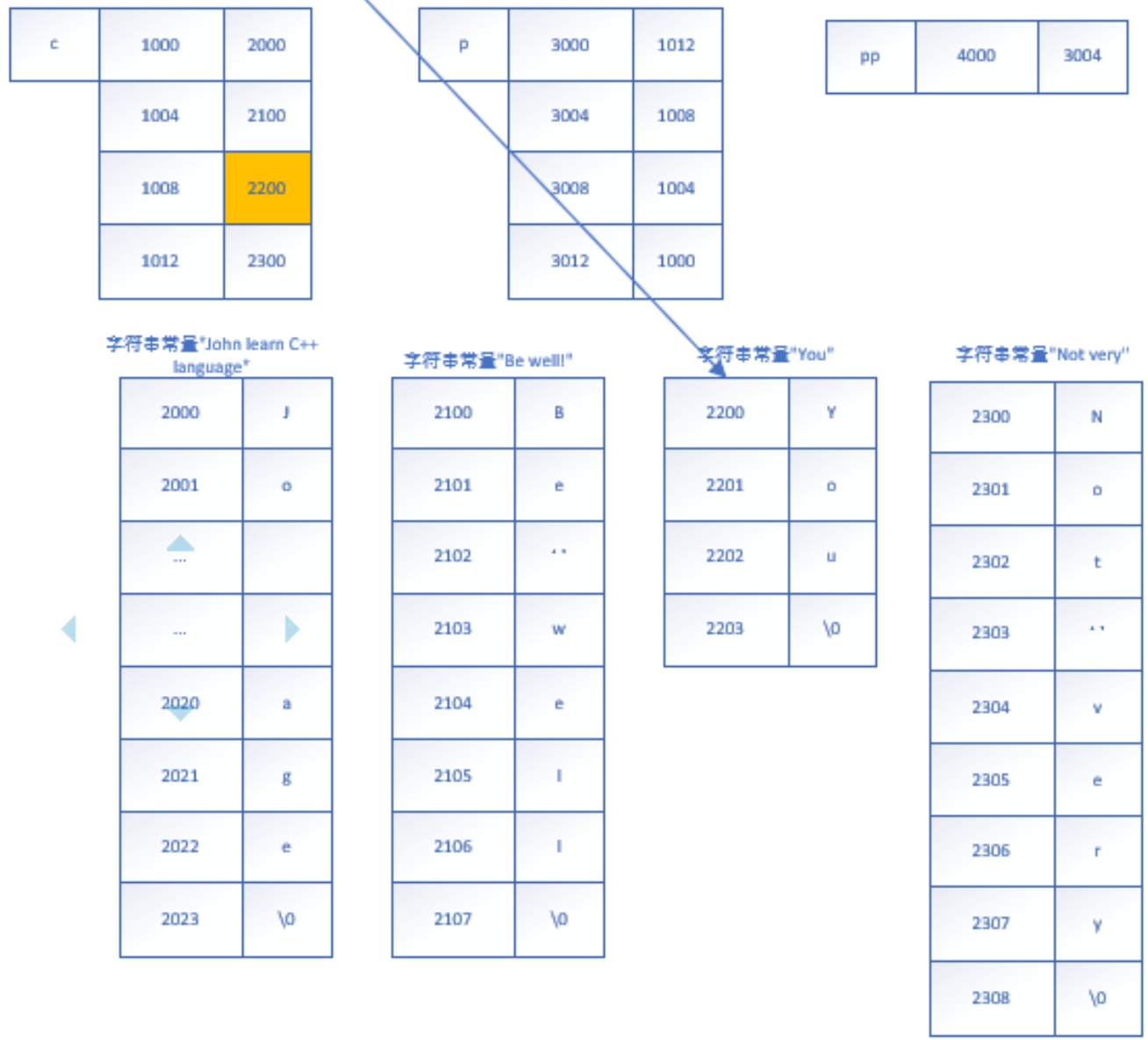
**++pp

输出2200位置的字符至遇到尾0，输出结果为You



cout << (**++pp);

输出2200位置的字符至遇到尾0，输出结果为You



cout << (*--*++pp+4);

++pp

c	1000	2000
	1004	2100
	1008	2200
	1012	2300

p	3000	1012
	3004	1008
	3008	1004
	3012	1000

pp	4000	3004

pp	4000	3008

字符串常量"John learn C++ language"

2000	J
2001	o
...	
...	
2020	a
2021	g
2022	e
2023	\0

字符串常量"Be well!"

2100	B
2101	e
2102	' '
2103	w
2104	e
2105	l
2106	l
2107	\0

字符串常量"You"

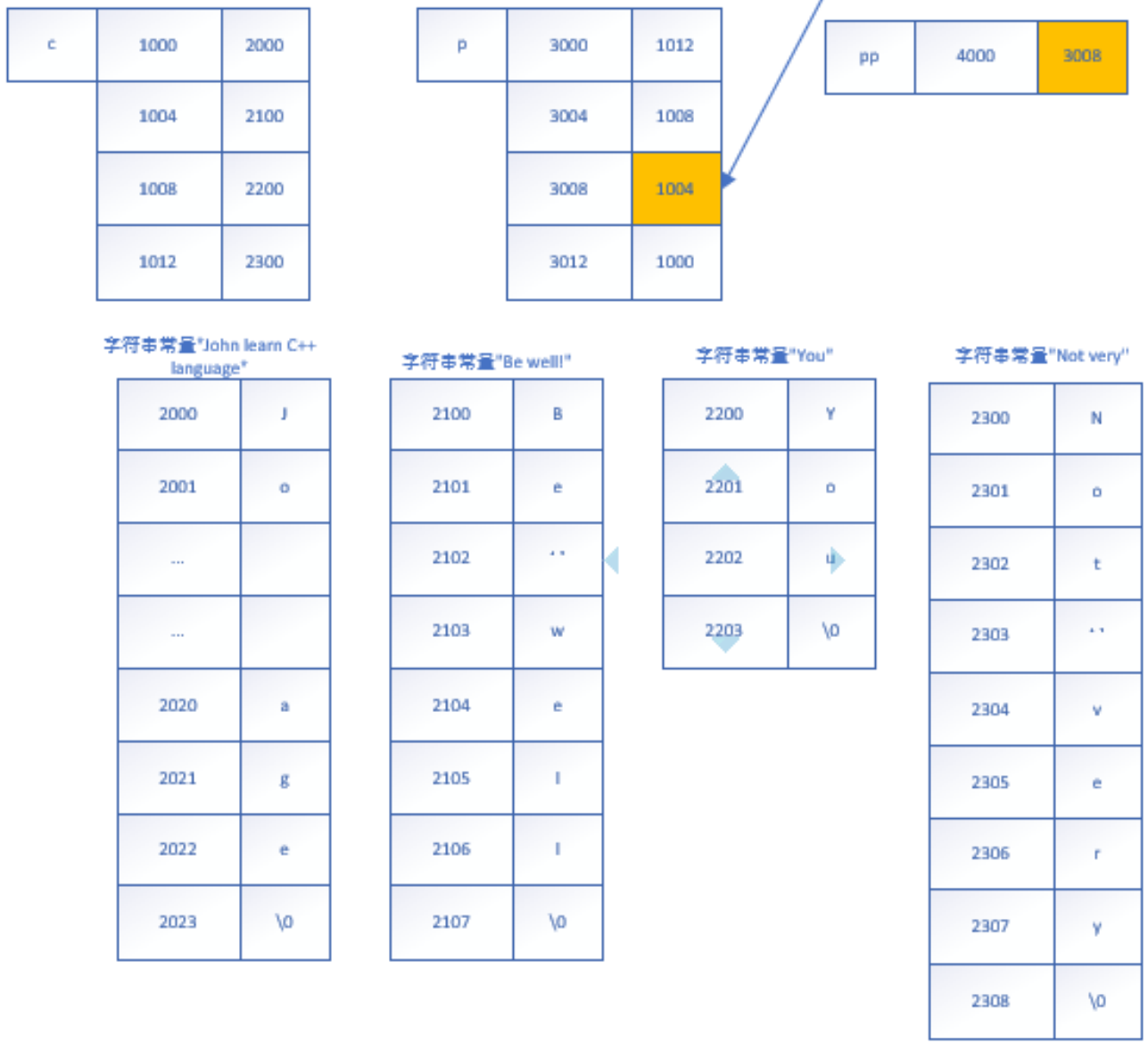
2200	Y
2201	o
2202	u
2203	\0

字符串常量"Not very"

2300	N
2301	o
2302	t
2303	' '
2304	v
2305	e
2306	r
2307	y
2308	\0

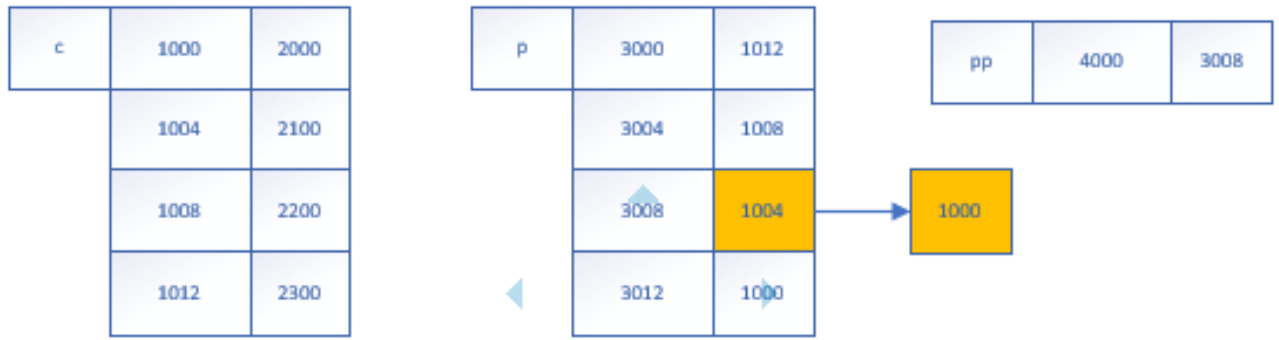
cout << (*--*++pp+4);

*++pp


c
1000
2000
1004
2100
1008
2200
1012
2300
p
3000
1012
3004
1008
3008
1004
3012
1000
pp
4000
3008
字符串常量"John learn C++ language"
2000 J
2001 o
...
...
2020 a
2021 g
2022 e
2023 \0
字符串常量"Be well!"
2100 B
2101 e
2102 ' '
2103 w
2104 e
2105 l
2106 l
2107 \0
字符串常量"You"
2200 Y
2201 o
2202 u
2203 \0
字符串常量"Not very"
2300 N
2301 o
2302 t
2303 ' '
2304 v
2305 e
2306 r
2307 y
2308 \0

cout << (*--*++pp+4);

--*++pp



字符串常量"John learn C++ language"

2000	J
2001	o
...	
...	
2020	a
2021	g
2022	e
2023	\0

字符串常量"Be well!"

2100	B
2101	e
2102	' '
2103	w
2104	e
2105	l
2106	l
2107	\0

字符串常量"You"

2200	Y
2201	o
2202	u
2203	\0

字符串常量"Not very"

2300	N
2301	o
2302	t
2303	' '
2304	v
2305	e
2306	r
2307	y
2308	\0

cout << (*--*++pp+4);

--++pp+4


c
1000
2000
1004
2100
1008
2200
1012
2300
p
3000
1012
3004
1008
3008
1000
3012
1000
pp
4000
3008
字符串常量"John learn C++ language"
2000
J
2001
o
...
...
2020
a
2021
g
2022
e
2023
\0
字符串常量"Be well!"
2100
B
2101
e
2102
' '
2103
w
2104
e
2105
l
2106
l
2107
\0
字符串常量"You"
2200
Y
2201
o
2202
u
2203
\0
字符串常量"Not very"
2300
N
2301
o
2302
t
2303
' '
2304
v
2305
e
2306
r
2307
y
2308
\0
2004
' '
2005
l
2006
e
2007
a

cout << (*--*++pp+4);

输出2004位置的字符至遇到尾0，输出结果为
learn C++ language（前有空格）

c	1000	2000
	1004	2100
	1008	2200
	1012	2300

p	3000	1012
	3004	1008
	3008	1000
	3012	1000

pp	4000	3008

字符串常量"John learn C++ language"

2000	J
2001	o
...	
...	
2020	a
2021	g
2022	e
2023	\0

字符串常量"Be well!"

2100	B
2101	e
2102	' '
2103	w
2104	e
2105	l
2106	l
2107	\0

字符串常量"You"

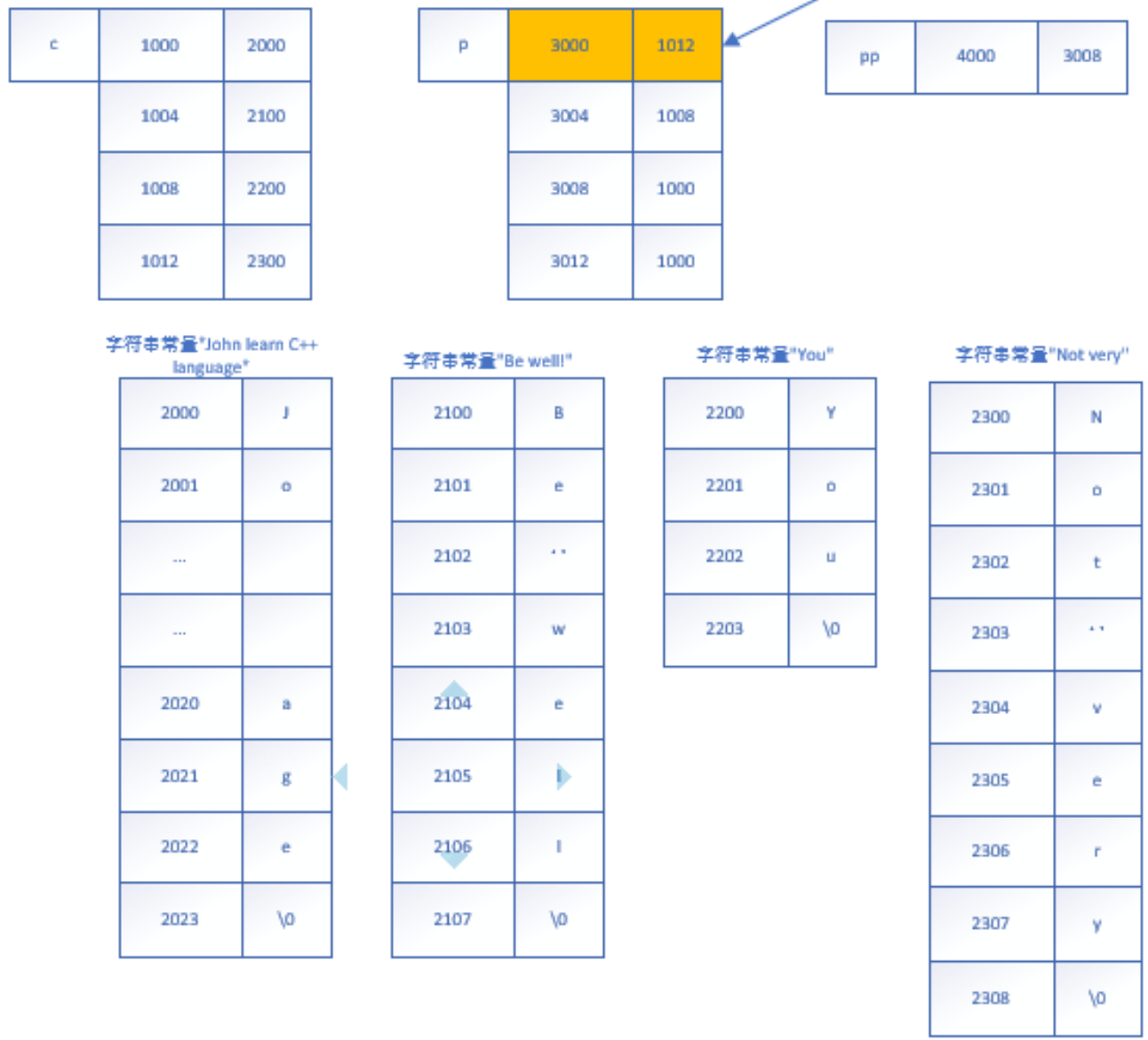
2200	Y
2201	o
2202	u
2203	\0

字符串常量"Not very"

2300	N
2301	o
2302	t
2303	' '
2304	v
2305	e
2306	r
2307	y
2308	\0

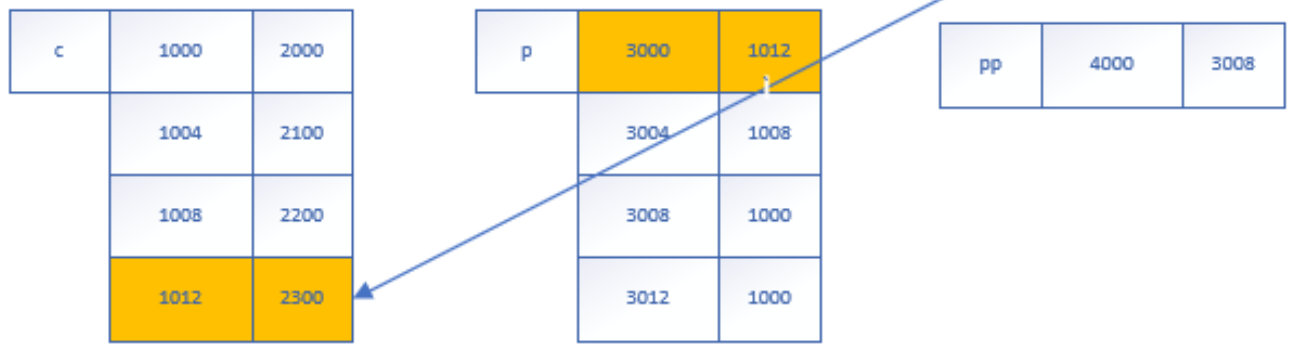
cout << (*pp[-2]+3);

pp[-2]



cout << (*pp[-2]+3);

*pp[-2]



字符串常量"John learn C++ language"

2000	J
2001	o
...	
...	
2020	a
2021	g
2022	e
2023	\0

字符串常量"Be well!"

2100	B
2101	e
2102	' '
2103	w
2104	e
2105	l
2106	l
2107	\0

字符串常量"You"

2200	Y
2201	o
2202	u
2203	\0

字符串常量"Not very"

2300	N
2301	o
2302	t
2303	' '
2304	v
2305	e
2306	r
2307	y
2308	\0

cout << (*pp[-2]+3);

*pp[-2]+3

c	1000	2000
	1004	2100
	1008	2200
	1012	2300

p	3000	1012
	3004	1008
	3008	1000
	3012	1000

pp	4000	3008

字符串常量"John learn C++ language"

2000	J
2001	o
...	
...	
2020	a
2021	g
2022	e
2023	\0

字符串常量"Be well!"

2100	B
2101	e
2102	' '
2103	w
2104	e
2105	l
2106	l
2107	\0

字符串常量"You"

2200	Y
2201	o
2202	u
2203	\0

字符串常量"Not very"

2300	N
2301	o
2302	t
2303	' '
2304	v
2305	e
2306	r
2307	y
2308	\0

cout << (*pp[-2]+3);

输出2303位置的字符至遇到尾0，输出结果为very（前有空格）

c	1000	2000
	1004	2100
	1008	2200
	1012	2300

p	3000	1012
	3004	1008
	3008	1000
	3012	1000

pp	4000	3008

字符串常量"John learn C++ language"

2000	J
2001	o
...	
...	
2020	a
2021	g
2022	e
2023	\0

字符串常量"Be well!"

2100	B
2101	e
2102	' '
2103	w
2104	e
2105	l
2106	l
2107	\0

字符串常量"You"

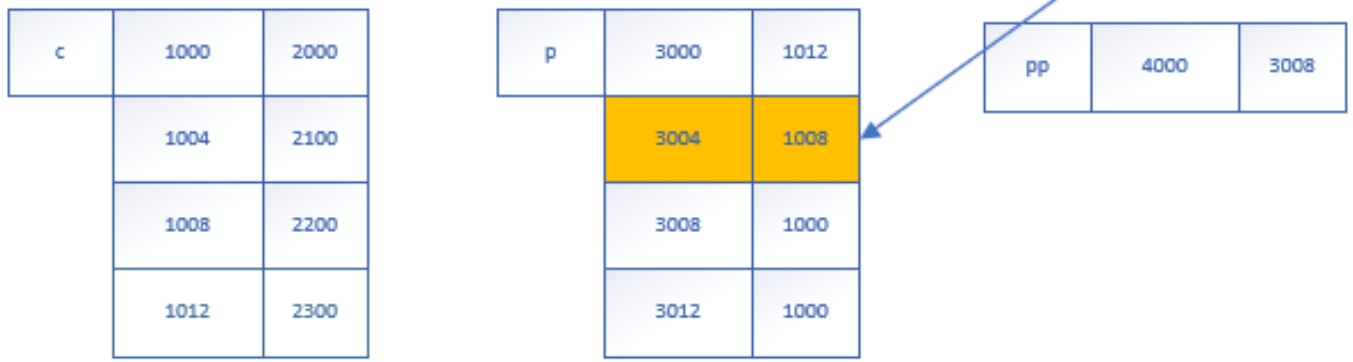
2200	Y
2201	o
2202	u
2203	\0

字符串常量"Not very"

2300	N
2301	o
2302	t
2303	' '
2304	v
2305	e
2306	r
2307	y
2308	\0

cout << (pp[-1][-1]+2);

pp[-1]



字符串常量"John learn C++ language"

2000	J
2001	o
...	
...	
2020	a
2021	g
2022	e
2023	\0

字符串常量"Be well!"

2100	B
2101	e
2102	' '
2103	w
2104	e
2105	l
2106	l
2107	\0

字符串常量"You"

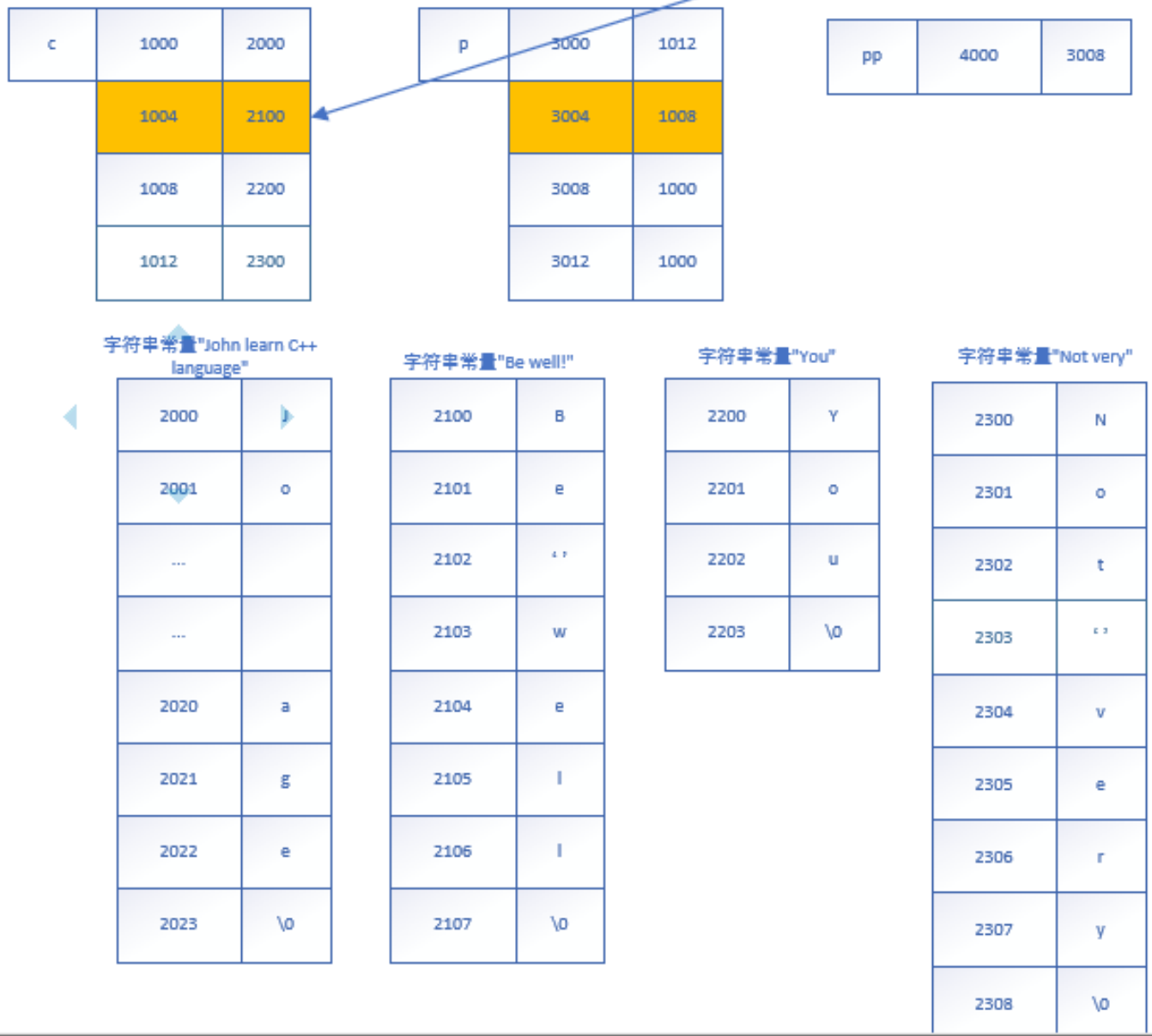
2200	Y
2201	o
2202	u
2203	\0

字符串常量"Not very"

2300	N
2301	o
2302	t
2303	' '
2304	v
2305	e
2306	r
2307	y
2308	\0

cout << (pp[-1][-1]+2);

pp[-1][-1]



cout << (pp[-1][-1]+2);

pp[-1][-1]+2

cout << (pp[-1][-1]+2);

输出2102位置的字符至遇到尾0，输出结果为well（前有空格）

c	1000	2000
	1004	2100
	1008	2200
	1012	2300

p	3000	1012
	3004	1008
	3008	1000
	3012	1000

pp	4000	3008

字符串常量"John learn C++ language"

2000	J
2001	o
...	
...	
2020	a
2021	g
2022	e
2023	\0

字符串常量"Be well!"

2100	B
2101	e
2102	' '
2103	w
2104	e
2105	l
2106	l
2107	\0

字符串常量"You"

2200	Y
2201	o
2202	u
2203	\0

字符串常量"Not very"

2300	N
2301	o
2302	t
2303	' '
2304	v
2305	e
2306	r
2307	y
2308	\0

- 总的输出结果为：
- You learn C++ language very well!