How to correct errors in your life table data file

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TWOSEX-MSChart can be used on Windows and Mac system

- TWOSEX has been used on Windows XP, 7, 8, 10. In most cases, there will be no problem.

- If you use Chinese or non-ASCII codes in the folder names, you may encounter some problems. But you can always find a solution for that. Only in extreme cases, you may have to re-install your operating system.

- On Mac computer, you have to use Windows operating system to run TWOSEX.

Possible errors

1. If you used Chinese, Turkish, Farsi, German characters in your folder name, you might encounter problems. Please save your data file in a folder with pure ASCII name.

2. If you save your data file with long path, you may encounter problem, please save your data in a folder located on the Desktop. Note well! It must be in a folder.

3. If there are more than 400 insects, you might encounter problem. But, please try it first before contact Prof. Chi.

4. If there are more than 13 stages, you might encounter problem. Please try it first before contact Prof. Chi.

5. If you try to compare more than 20 treatments, you may encounter problems. Please try it first before write me.

"Project: Silverleaf whitefly at 25C"

"User: Ta-Chi Yang"

"25C"

50

3,6

F,Egg,L1,L2,L3,L4,Pupa,Female

M,Egg,L1,L2,,L3,L4,Pupa,Male

N,Egg,L1,L2,L2,L4,Pupa,Unknow

L0,L4

1,M,7,3.4,5,6,5,8,2,8,2,

2,F,7,2,3,4,5,8,6,4,12,9,5,8,0,1,3,-1,

3,N,7,2,4,3,4,3,6

4,F,6,2,3,4,5,7,19,0,0,2,20,,6,5,10,8,13,10,12,9,0,0,-1

4

Can you detect all errors?

"Project: Silverleaf whitefly at 25C"

"User: Ta-Chi Yang"

"Date: 2001.4.16.-2001.6.10.

50

3,6

F,Egg,L1,L2,L3,L4,Pupa,Female

M,Egg,L1,L2,,L3,L4,Pupa,Male

N,Egg,L1,L2,L2,L4,Pupa,Unknown

L0,L4

1,M,7,3.4,5,6,5,8,2,

2,F,7,2,3,4,5,8,6,4,12,9,5,8,0,1,3,-1,

3,N,7,2,4,3,4,3,6

4,F,6,2,3,4,5,7,19,0,0,2,20,,6,5,10,8,13,10,12,9,0,0,-1

Please make sure that you have prepared your data file using pure text editors: **WordPad, Notepad.**
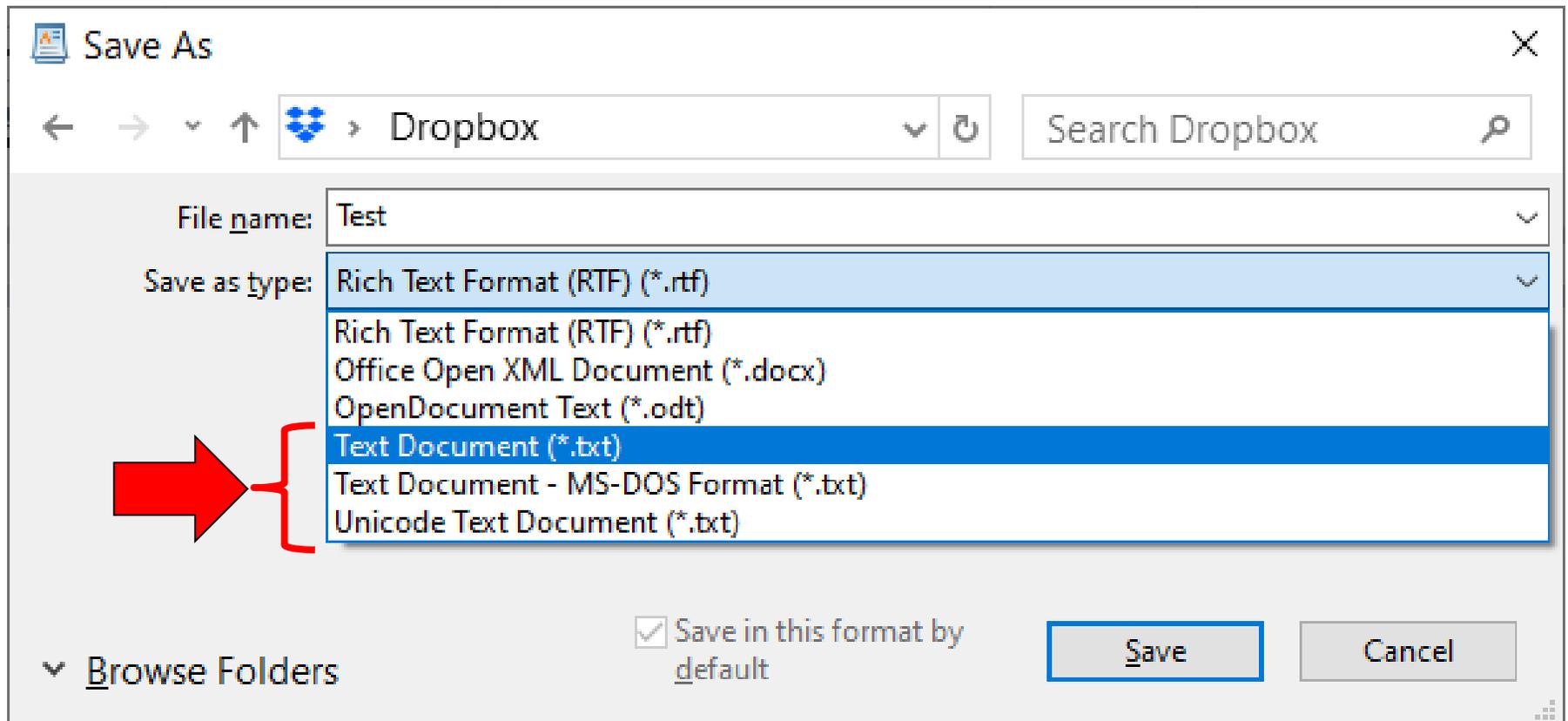
請確認你使用**WordPad, Notepad**寫生命表資料.
如果使用NotePad產生錯誤，建議使用WordPad.
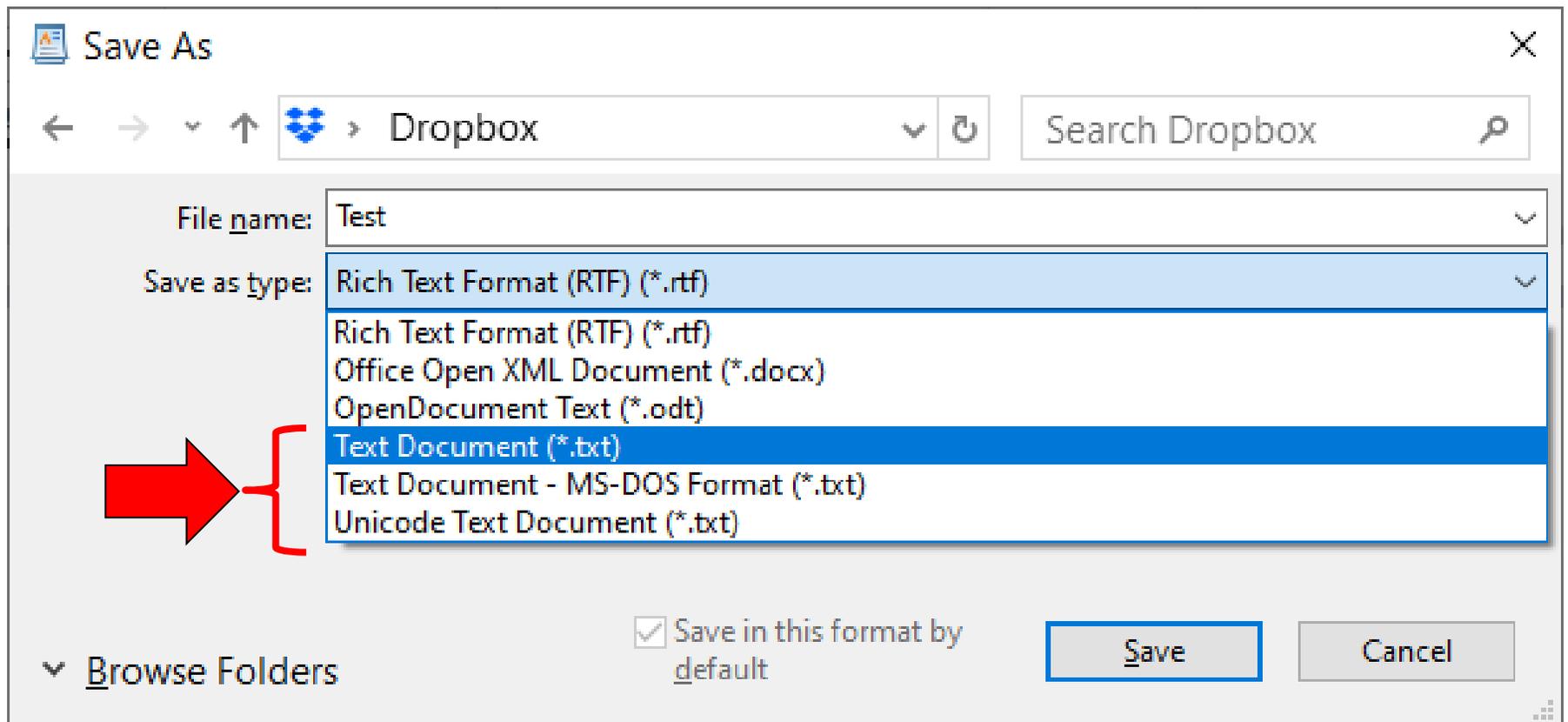
General life table data

Data format for **7** developmental stages

"Project: Silverleaf whitefly at 25C"

"User: Hsin Chi"

"25C" ➡ **Treatment code. As short as possible!**

50

3,7

F, Egg, L1,L2,L3,L4,Pupa,Female

M, Egg, L1,L2,L3,L4,Pupa,Male

N, Egg, L1,L2,L3,L4,Pupa,Unknown

L1,L4

Descriptive data and definition

1,M,7,3,4,5,6,5,8

2,F,7,2,3,4,5,8,6,4,12,9,5,8,0,-1

3,N,7,-7 ➡ **Individuals died in immature stages are N type!**

4,F,…….

Developmental time for each individual and fecundity for each female
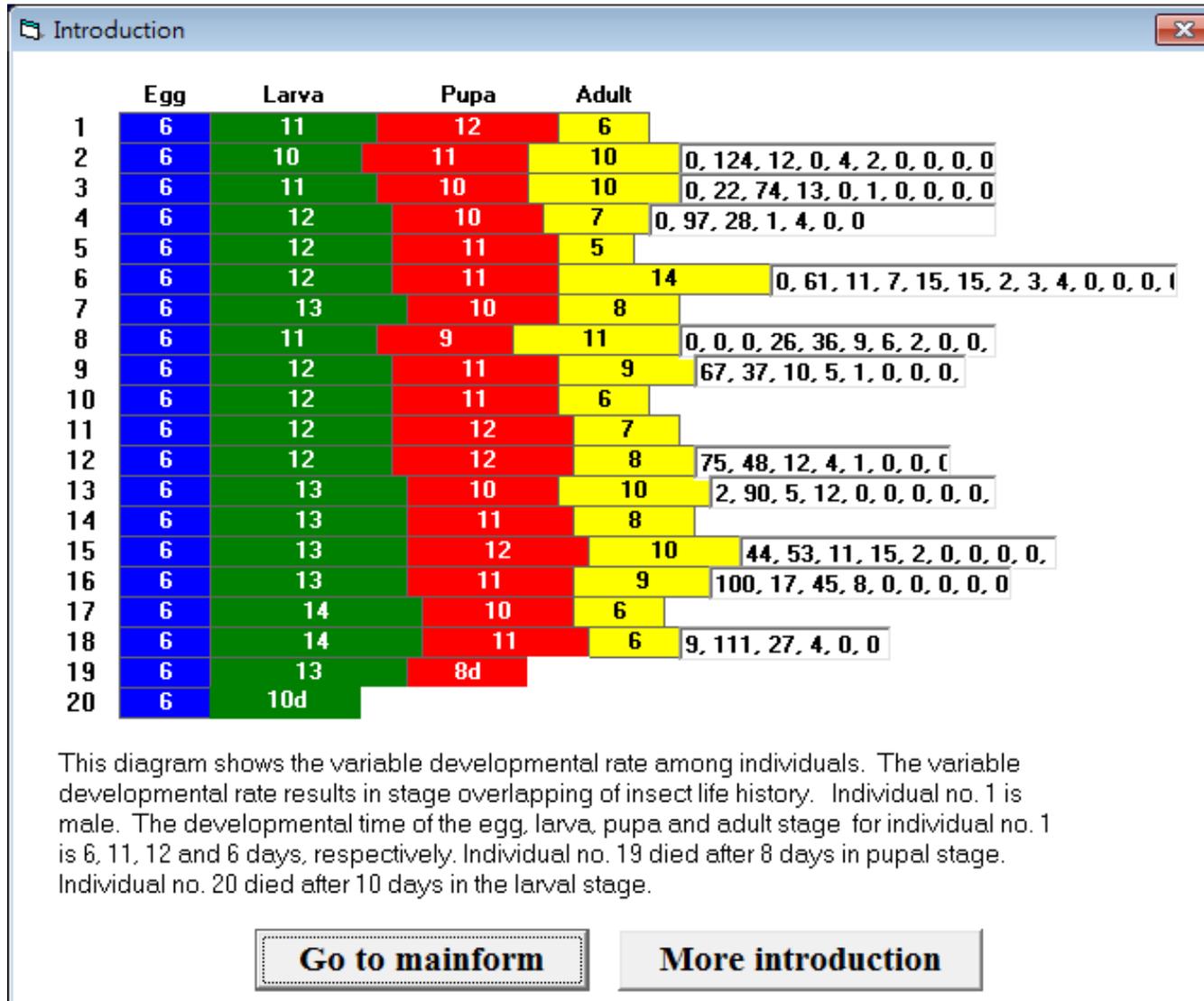
Data format for 7 developmental stages

Descriptive data and definition

"Project: Silverleaf whitefly at 25C"
"User: Hsin Chi"
"25C" ➡ Don't use "°C".
勿使用 "°C".
50
3,7
F, Egg, L1,L2,L3,L4,Pupa,Female
M, Egg, L1,L2,L3,L4,Pupa,Male
N, Egg, L1
L1,L4 ➡ This line asks the program to calculate the total larval duration. You need this line.

Developmental time for each individual and fecundity for each female

1,M,7,3,4,5,6,5,8
2,F,7,2,3,4,5,8,6,4,12,9,5,8,0,-1
3,N,7,-7 ➡ **Individuals died in immature stages are N type!**
4,F,…….

Data format for **2** developmental stages

Descriptive data and definition

Developmental time for each individual and fecundity for each female

"Project: Silverleaf whitefly at 30C"
"User: Hsin Chi"
"30C" → **Treatment code. As short as possible!**
50
3,2
F, Immature, Female
M, Immature, Male
N, Immature, Unknown
Immature, Female

1,M,30,8
2,F,29,6,4,12,9,5,8,0,-1
3,N,-7 → **Individuals died in immature stages are N type!**
4,F,…….

Data format for **2** developmental stages

"Project: Silverleaf whitefly at 30C"

"User: Hsin Chi"

"30C" ➡️ **Treatment code. As short as possible!**

50

3,2

F, Immature, Female

M, Immature, Male

N, Immature, Unknow

Immature, Female ➡️ You must have this line.

Descriptive data and definition

1,M,30,8

2,F,29,6,4,12,9,5,8,0,-1

3,N,-7 ➡️ **Individuals died in immature stages are N type!**

4,F,……

Developmental time for each individual and fecundity for each female

Data format for Parthenogenetic populations
孤雌生殖種群資料格式

Descriptive data and definition

"Aphis gossypii"
"Shally"
"25C" → **Treatment code. As short as possible!**
56
2,5
F,N1,N2,N3,N4,Female
N,N1,N2,N3,N4,Unknown
N1,N4

Developmental time for each individual and fecundity for each female

1,F,2,1,3,1,18,0,9,0,11,12, ...,-1
......
48,N,1,3,-1 → **Individuals died in immature stages are N type!**
......

Data format for Parthenogenetic populations
孤雌生殖種群資料格式 (三種型: F, M, N)

Descriptive data and definition

"Aphis gossypii"
"Shally"
"25C"
56
3,5
F,N1,N2,N3,N4,Female
M,N1,N2,N3,N4,Male
N,N1,N2,N3,N4,Unknown
N1,N4

沒有雄蟲仍可以寫這一行。It is OK to have this line, even you don't have male.

Developmental time for each individual and fecundity for each female

1,F,2,1,3,1,18,0,9,0,11,12, ...,-1
......
48,N,1,3,-1
......

Data format for **7** developmental stages with stage-specific rearing cost

"Project: Diamondback moth at 25C"

"User: Hsin Chi"

"DBM."

50

3,7

F, Egg, L1,L2,L3,L4,Pupa,Female

M, Egg, L1,L2,L3,L4,Pupa,Male

N, Egg, L1,L2,L3,L4,Pupa,Unknown

0, 0.2, 0.3, 0.5, 1, 0, 2, 1.5

L1,L4

> Not well! There are **8** data. 2 is the rearing cost of female and1.5 is the cost of male.

> The rearing cost for egg, L1, L2, L3, L4, Pupa, Female and Male adults are 0, 0.2, 0.3, 0.5, 1, 0, 2, and 1.5, respectively.

15

資料格式：**7** 發育階段與飼養費用

"Project: Diamondback moth at 25C"
"User: Hsin Chi"
"DBM"
50
3,7
F, Egg, L1,L2,L3,L4,Pupa,Female
M, Egg, L1,L2,L3,L4,Pupa,Male
N, Egg, L1,L2,L3,L4,Pupa,Unknown
0, 0.2, 0.3, 0.5, 1, 0, 2, 1.5
L1,L4

注意：有8個飼養費用。最後兩個是雌雄成蟲的飼養費用。

The rearing cost for egg, L1, L2, L3, L4, Pupa, Female and Male adults are 0, 0.2, 0.3, 0.5, 1, 0, 2, and 1.5, respectively.

Detailed explanation of data format

"Project: Diamondback moth at 25C"

"User: Ta-Chi Yang"

"DBM."

50 **(Number of eggs used at the beginning)**

3,7 **(Number of types, number of stages)**

F, Egg, L1,L2,L3,L4,Pupa,Female **(Female stages)**

M, Egg, L1,L2,L3,L4,Pupa,Male **(Male stages)**

N, Egg, L1,L2,L3,L4,Pupa,Unknown **(Unknown type)**

L1,L4 **(Special grouping: total time from L1 to L4)**

1,M,**7,3,4,5,6,5,8** **(Developmental time)**

2,F,**7,2,3,4,5,8,6**,**4,12,9,5,8,0,-1** **(Daily fecundity)**

3,N,7,-7 **(Died on 7th day of L1)**

4,F,6,2,3,4,5,7,19,0,0,2,20,9,6,5,10,8,13,10,12,9,0,0,-1

Don't use "o" or any non-ASCII code. 勿用中文。

Explanation of data format for TWOSEX

"Project: Diamondback moth at 25C"
"User: Hsin Chi"
"DBM."

These three lines are descriptive data. They must be enclosed in double quotes.

50 (Number of insects you used at the beginning of life table study)

3,7 (Number of types and number of life stages. Please don't change the number "3". If there are only four life stages, e.g., egg, larva, pupa and adult, you should write 3,4. If there are only two stages, e.g., preadult and adult, you should write 3,2)

File explorer preview can show your errors
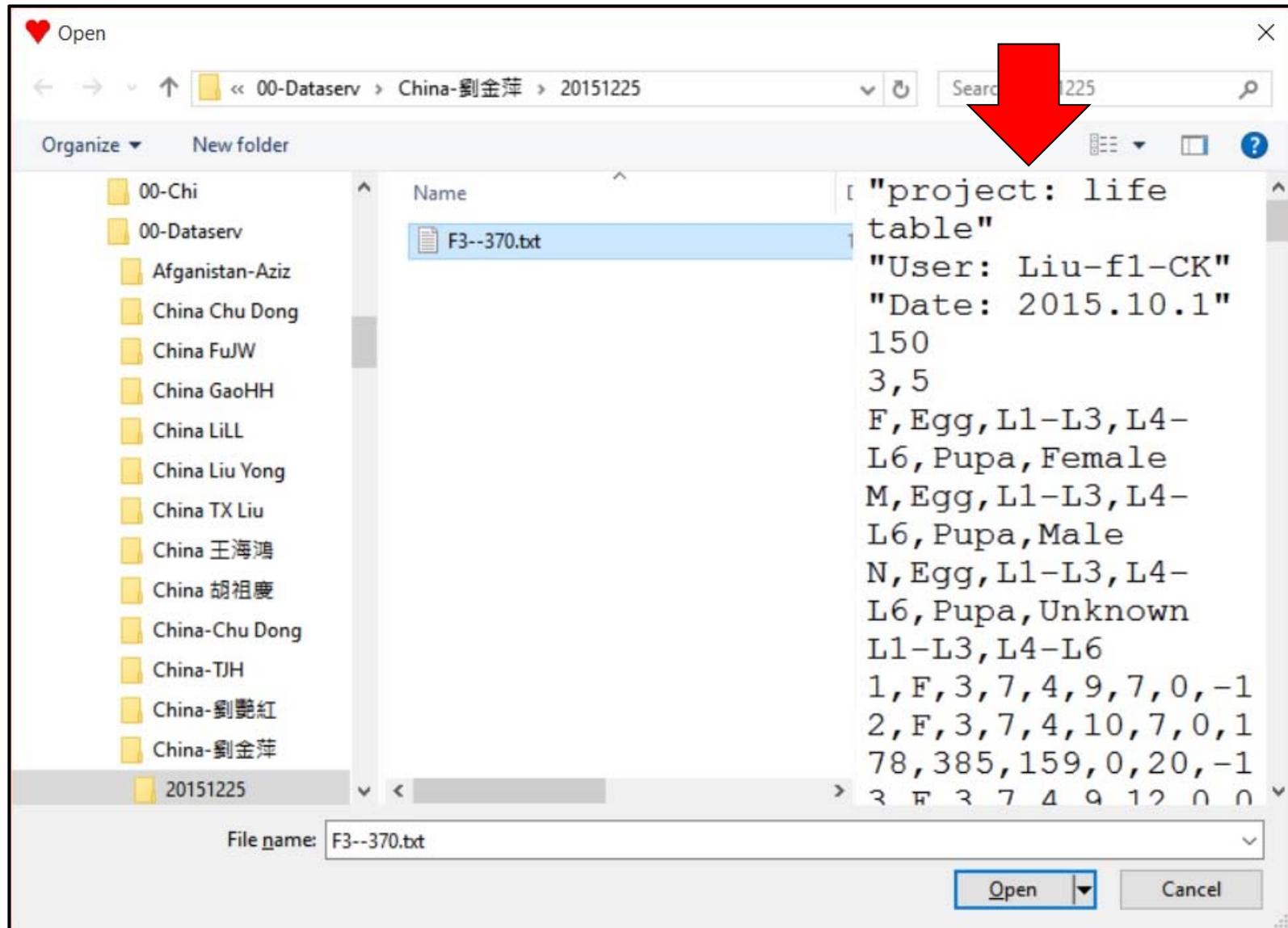
File explorer preview shows errors.
您可以在預覽視窗中發現錯誤。
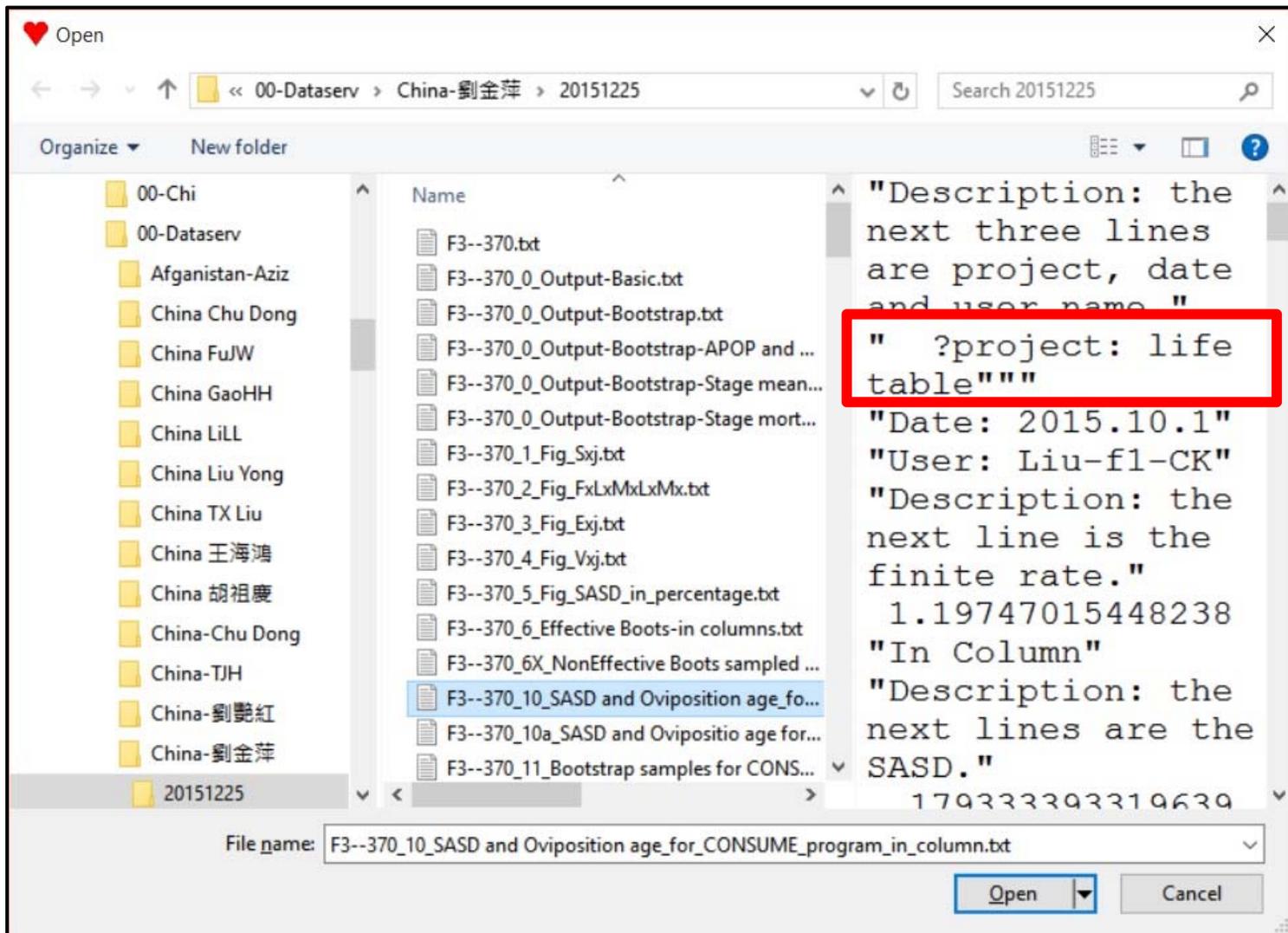
Sometimes TWOSEX can analyze your data. But some errors will prevent you to use the results for TIMING or CONSUME. 有時您可以用TWOSEX分析生命表，卻不能使用TIMING或CONSUME，這是因為生命表檔案中的中文字符導致錯誤。
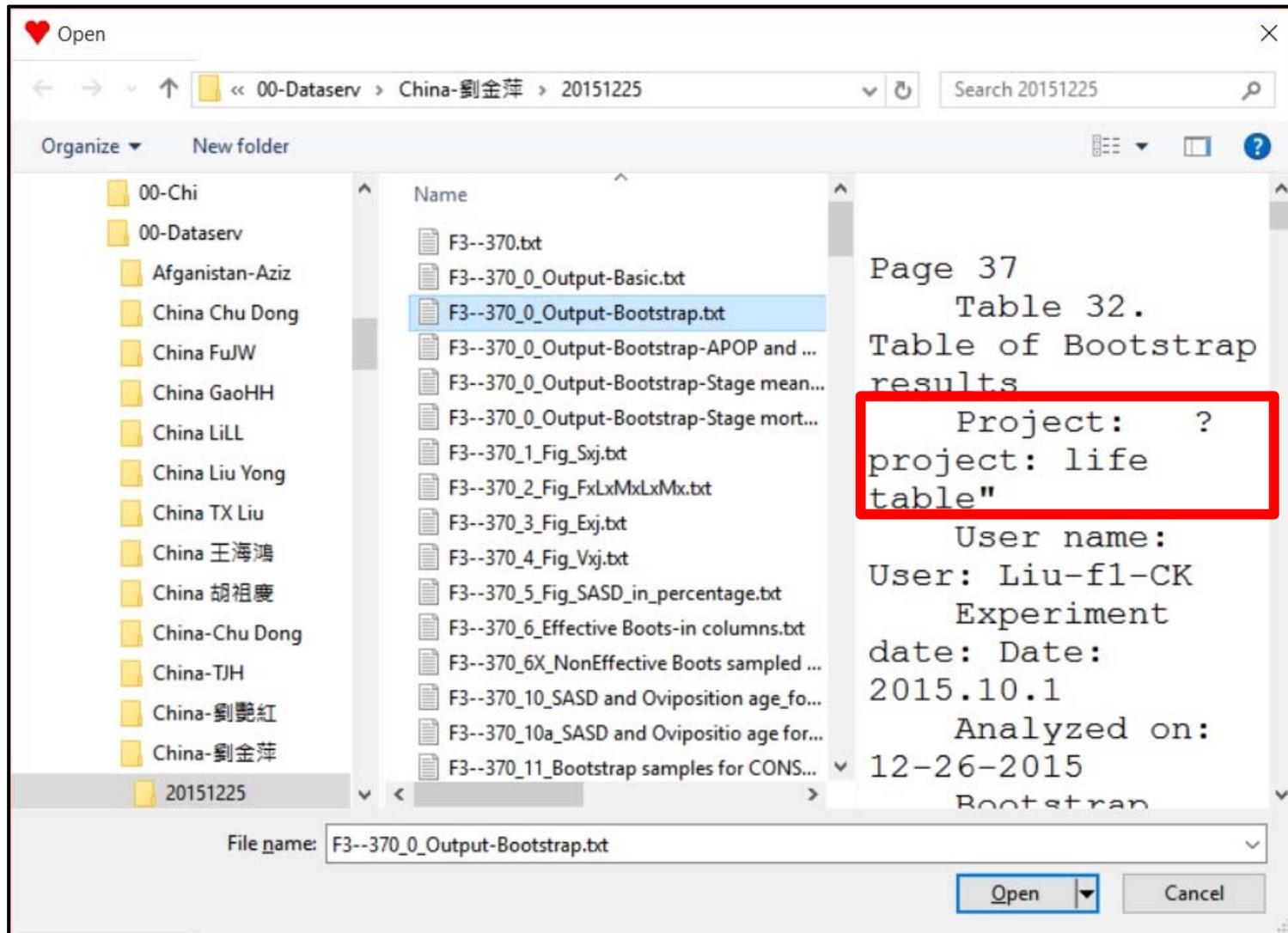
In general, if you prepare the data file using **Notepad**, there should be no error. 若您使用 Notepad撰寫資料檔，一般不會產生錯誤。
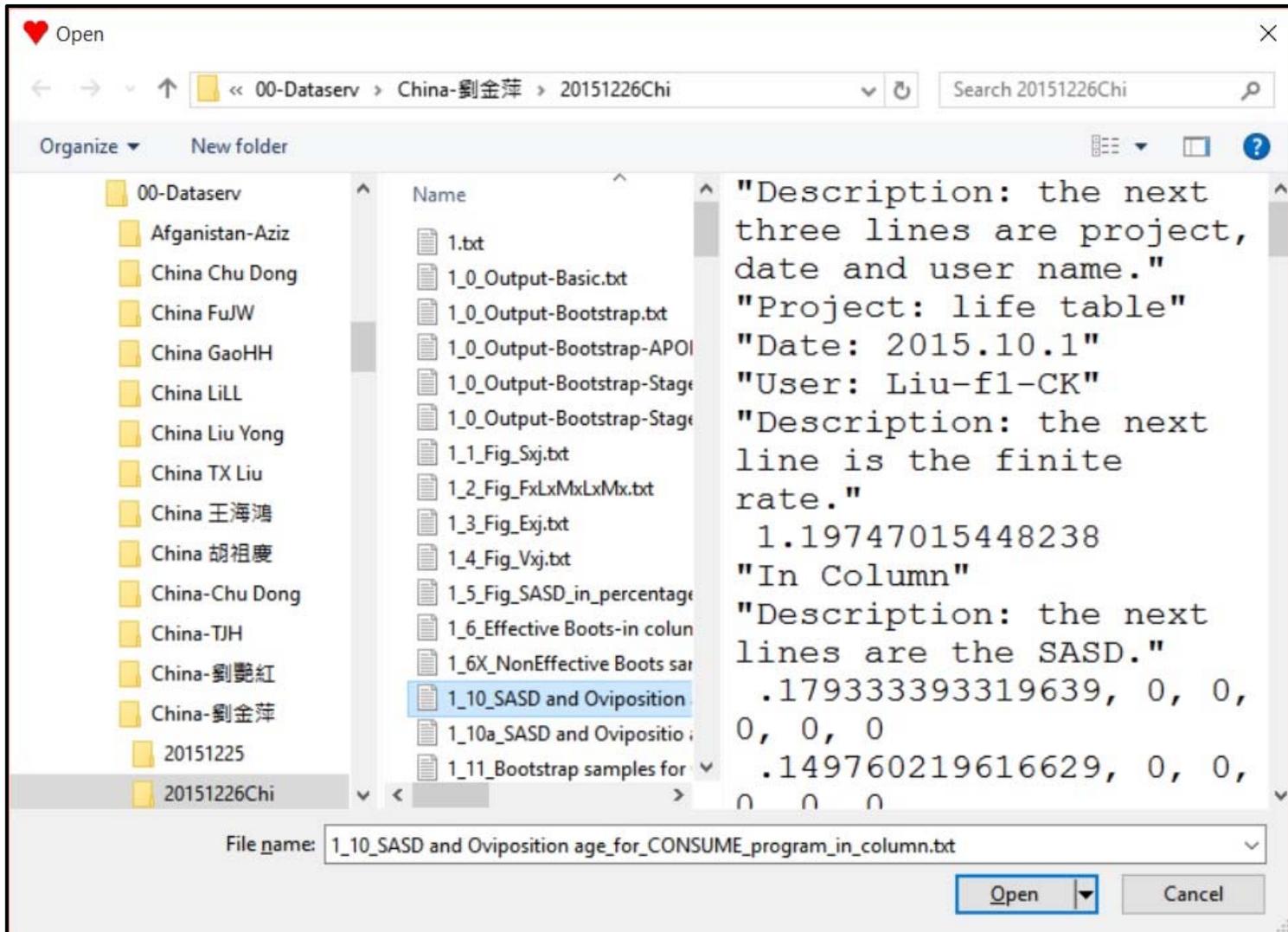
Coding error results in extra empty lines (this error can be easily detected in preview).

若有編碼錯誤，預覽視窗會顯示空行。
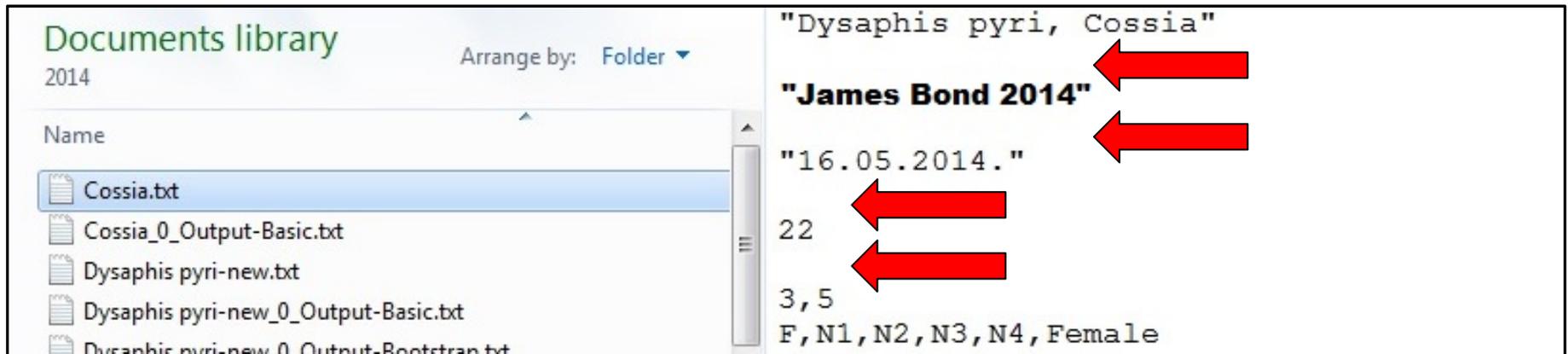
Correct format. 正確格式。
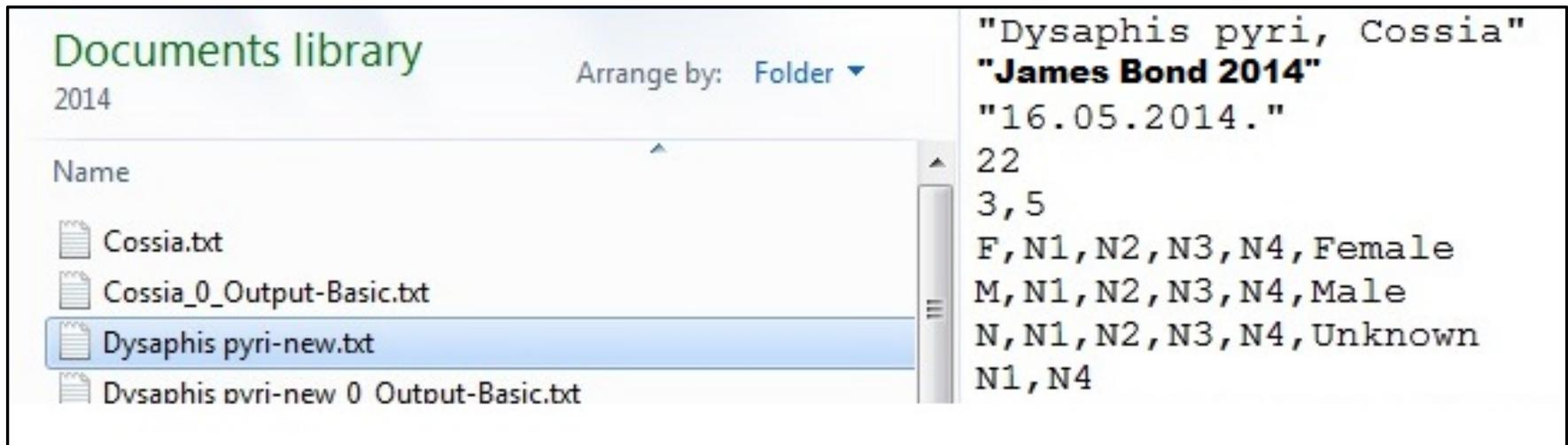
If you prepare data file using Excel, file explorer preview shows extra empty lines. 若您使用Excel撰寫檔案，預覽視窗會顯示許多空行。
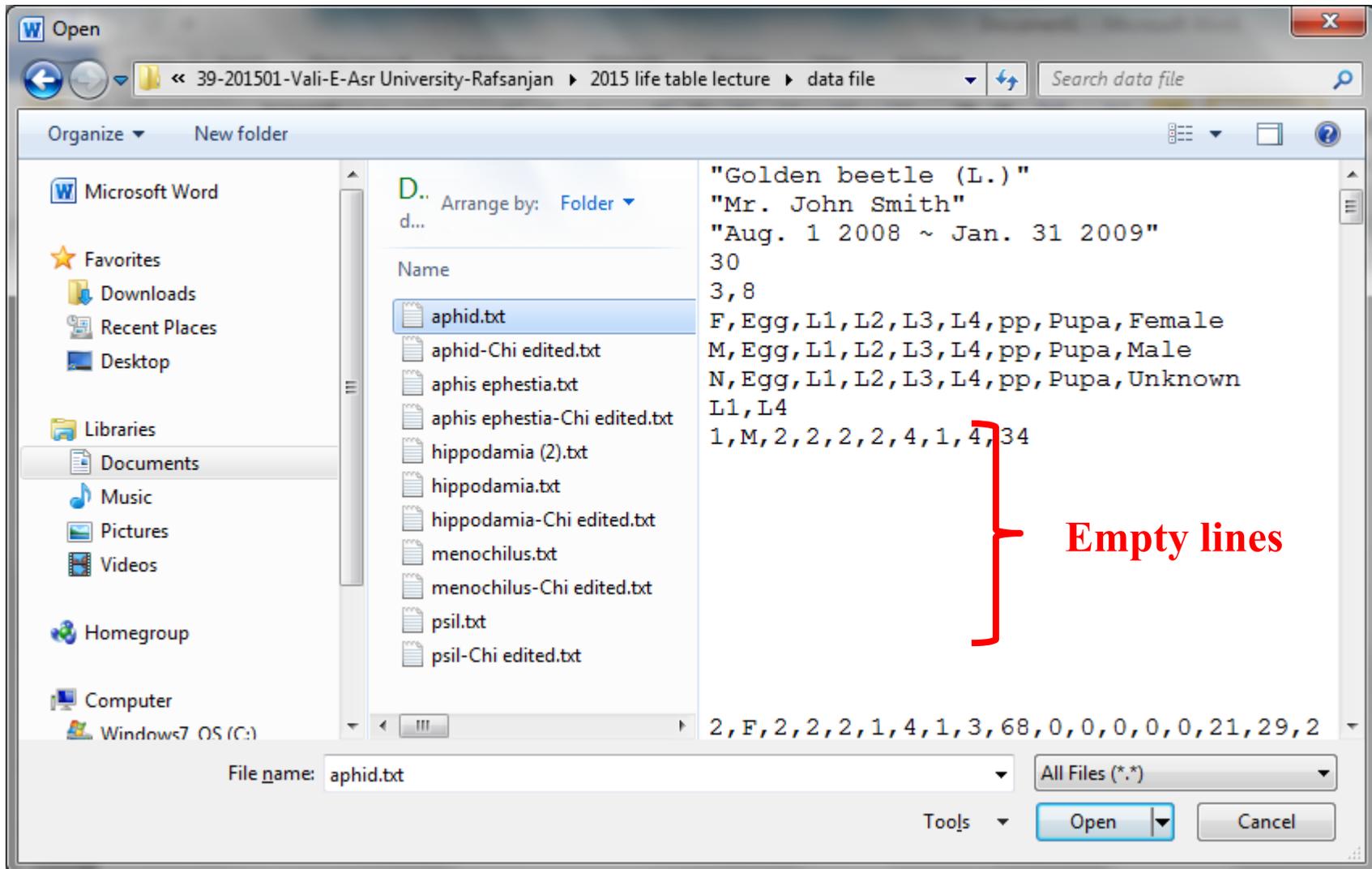
Show editing marks in Word.
用WORD開啟檔案可以檢查格式。

Tabs from Excel.
使用Excel撰寫檔案會有隱藏的Tab符號。
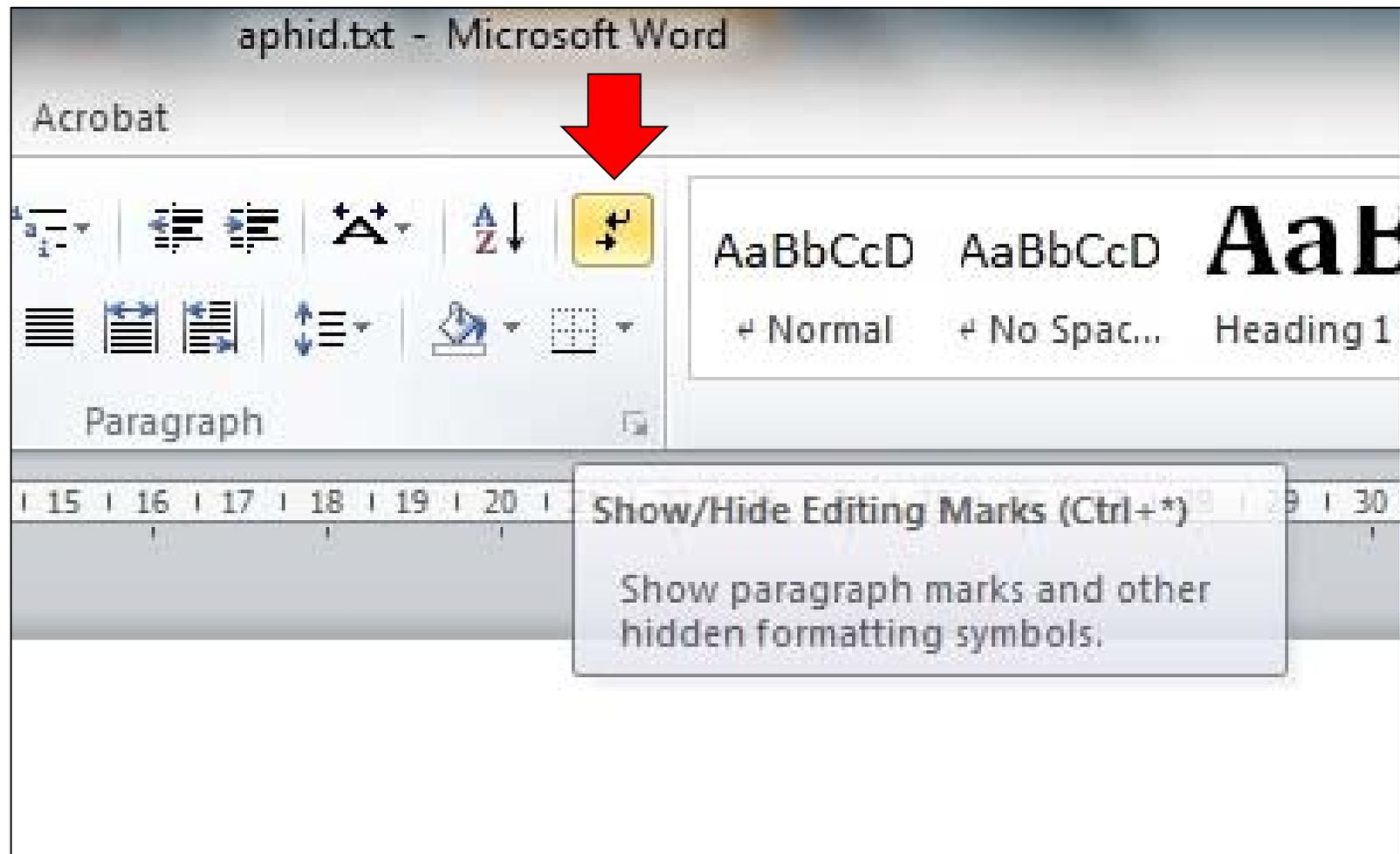
Open file in WORD and remove all **tabs**
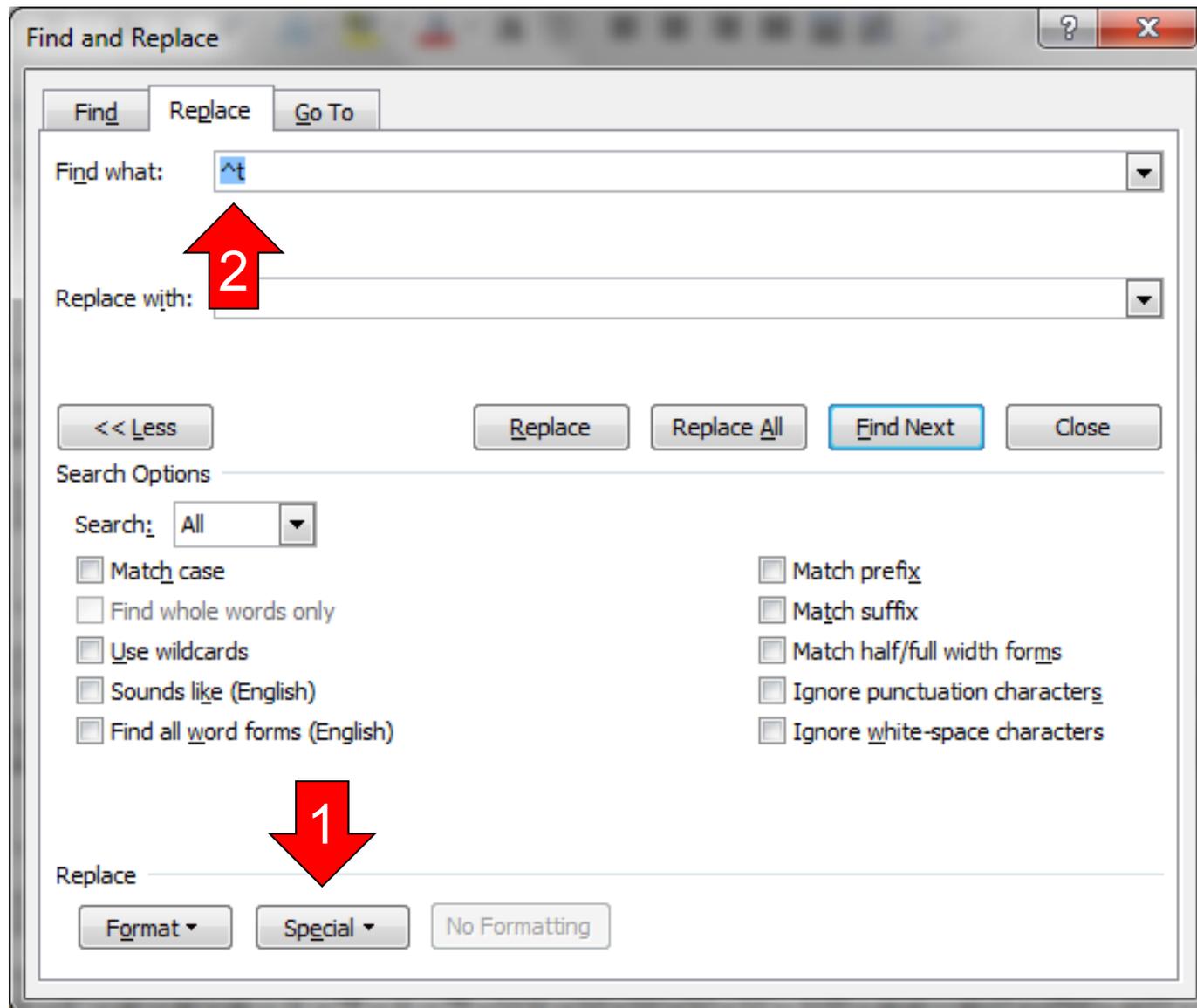
Errors result in more errors

If you used Chinese character in your life table data file, you might be able to use TWOSEX to analyze your data
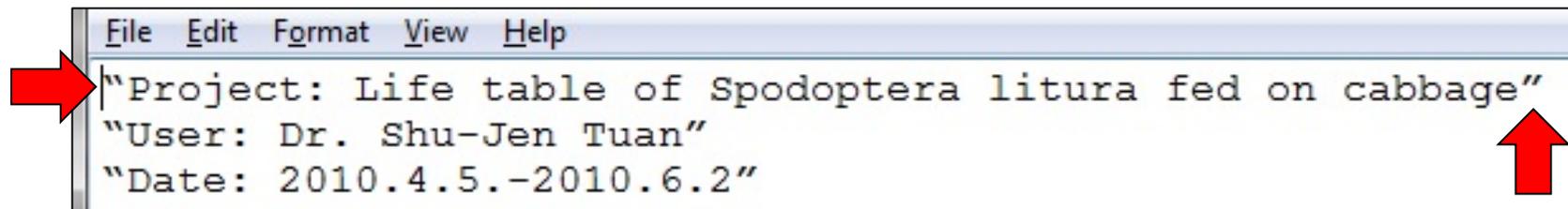

```
File  Edit  Format  View  Help
"Project: Life table of Spodoptera litura fed on cabbage"
"User: Dr. Shu-Jen Tuan"
"Date: 2010.4.5.-2010.6.2"
```

But there will be errors in the "Timing data file" prepared by TWOSEX. You will face problem when you use TIMING.
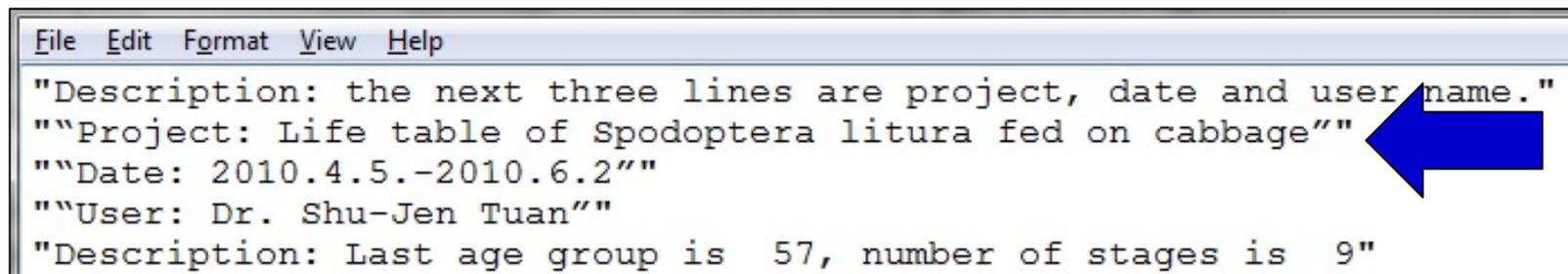

```
File  Edit  Format  View  Help
"Description: the next three lines are project, date and user name."
""Project: Life table of Spodoptera litura fed on cabbage""
""Date: 2010.4.5.-2010.6.2""
""User: Dr. Shu-Jen Tuan""
"Description: Last age group is  57, number of stages is  9"
```

If and only if the life table data file is correct, TWOSEX will prepare the correct file for TIMING.

使用正確的生命表檔案格式，才能產生正確的TIMING檔案格式。

Correct life table data file

```
File  Edit  Format  View  Help
"Project: Life table of Spodoptera litura fed on cabbage"
"User: Dr. Shu-Jen Tuan"
"Date: 2010.4.5.-2010.6.2"
```

Correct TIMING data file

```
File  Edit  Format  View  Help
"Description: the next three lines are project, date and user name."
"Project: Life table of Spodoptera litura fed on cabbage"
"Date: 2010.4.5.-2010.6.2"
"User: Dr. Shu-Jen Tuan"
"Description: Last age group is  57, number of stages is  9"
```

Errors result in more errors

Life table data

```
"Project: Life table of western flower thrips
1F:5M"
"User: Dr. Zhang"
"Date: 2016.5.16-2016.6.26."
```


Error in file no. 11.Bootstrap samples

```
"    ?Project: Life table of western flower
thrips 1F:5M""""
"Date: 2016.5.16-2016.6.26."
...ng"
...of effective bootstrap =100000"
```

Copy life table data (except the first three lines) to new notepad file (in English mode). Rewrite the first three lines. Rerun TWOSEX.

Corrected life table data

```
"Project: Life table of western flower thrips
1F:5M"
"User: Dr. Zhang"
"Date: 2015.5.16-2015.6.26."
```


File no. 11. Bootstrap samples without errors.

Don't use "," as decimal point

Check your data carefully!

```
"projec:R. Padi"
"User: Aida"
"Date:2018"
30
3,3
F,Nymph,Female
Nymph,Female
1,F,7,17,1,1,3,2,4,1,0,2,4,3,1,1,0,3,3,3,1,-1
..........................
13,F,7,9,10,1,0,4,0,0,0,0,0,-1
14,F,7,7,4,3,5,4,5,3,3,-1
15,F,7,8,9,0,1,5,0,6,0,0,0,0,0,-1
16,F,7,14,0,3,3,3,1,1,2,0,1,0,5,3,1,1,-1
```

Individual no. 15: Adult duration is 8 days.
But there are more than 8 fecundity!

Use your mouse to detect errors

If you use your mouse to drag over your data, you may see there are some "extra" spaces in your data file (this occurs when you prepare your data file using Excel or Word). You have to delete them.
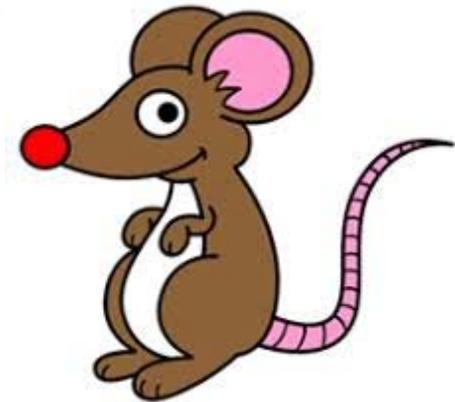
Use "." as decimal symbol

Control panel → Clock, Language, and Region → Region and language → Change keyboards or other input method → Formats → Format: English → Additional settings → Decimal symbol → "."

Why are text file line breaks wrong, after the file is transferred or edited?


```
20141229 (Chun-Yen) B d  life table W T.txt - Notepad                    —    □    ×

File  Edit  Format  View  Help

"B.d. life table test""Kido Huang""2014.09.02. - 2014.12.29."503,4F,Egg,Larva,Pupa,FemaleM,Egg,Larva,Pupa,Male
N,Egg,Larvae,Pupa,UnknownEgg,0,150,50Larva,2,550,50,50,45Pupa,5,165,50,50,50,50,50,50,50,50,50,38,2
Female,15,1079,25,25,25,23,23,21,20,20,20,20,20,20,20,20,20,20,20,20,20
20,20,20,20,20,20,20,20,20,19,19,19,19,19,19,19,19,19,19,19
19,19,19,18,18,18,18,18,18,18,18,18,18,18,18,17,17,17,17,1717,17,17,16,14,14,14,12,12,12,11,10,10,10,9,8,7,6,6,5,5,5,4
4,4,3,3,2,2,1,1,1,1Male,15,1083,23,23,23,21,21,21,21,21,21,21,21,21,21,21,21,21,21,21,21
21,21,21,21,21,21,21,21,21,21,21,21,21,21,21,21,21,21,21
21,21,21,20,20,20,20,20,20,20,20,20,20,20,19,18,18,17,17,1717,15,15,15,15,15,14,13,13,13,11,11,11,10,9,7,6,6,6,6
6,6,6,6,6,6,6,6,5,5,4,2,1,1Female,15,107
0,0,0,0,0,0,0,12,51,63,231,353,340,271,331,239,347,254,269,387,387,267,316,283,316,295,244
413,379,401,372,395,301,225,292,244,236,243,268,207,293,201,201,204,136,193,223
218,219,219,205,171,147,164,107,125,102,129,121,131,102,80,79,62,57,61,47
57,68,45,19,34,22,24,19,22,26,15,17,5,6,6,1,3,1,0,0,1,0,1,0,0,0
```

To avoid this problem, send your text file as zip or RAR file.
Reference: https://winscp.net/eng/docs/faq_line_breaks

Explanation of data format for TWOSEX

F,Egg,L1,L2,L3,L4,Pupa,Female *(F is the type code of "female". Egg, L1, …, Female are the stage codes of respective stages.)*

M,Egg,L1,L2,L3,L4,Pupa,Male *(M is the type code of "male". Egg, L1, …, Male are the stage codes of respective stages.)*

N,Egg,L1,L2,L3,L4,Pupa,Unknown *(N is the type code for individuals that died in the immature stages. Egg, L1, …, Unknown are the stage codes of respective stages.)*

L1,L4 *(This line lets you to calculate the total development time from stage L1 to L4. You must have this line.)*

Explanation of data format for TWOSEX

1,M,7,3,4,5,6,5,8 *(The first individual is male. The duration of egg, L1, …, adult are 7, 3, 4,…, 8 days, respectively)*

2,F,7,2,3,4,5,8,6,4,12,9,5,8,0,-1 *(The second individual is female. The duration of egg, L1, …, adult are 7, 2, 3,…, 6 days, respectively. The daily fecundities are 4, …, and 0 eggs, respectively. The "-1" denotes the end of fecundity data. You don't need to enter all zeros at the tailend.)*

3,N,7,-6 *(The third individual did not reach the adult stage. The duration of egg stage was 7 days. It then lived 6 days in L1 and died. The minus sign denotes "death")*

Good practice: Developmental time and fecundity on separate lines

建議將發育歷期寫一行，繁殖率寫在下一行。

You can write in the following formats:

4,F,6,2,3,4,5,7,19 **(developmental time)**
0,0,2,20,9,6,5,10,8,13,10,12,9,0,0,-1 **(daily fecundity)**

or
4,F,6,2,3,4,5,7,19
0,0,2,20,9,6,5,10,8,13,10,12,9,0,0,0,0,0,0,-1

or

<div style="background-color: yellow;">You can omit these zeros.
可以省略這些零。</div>

4,F,6,2,3,4,5,7,19
0,0,2,20,9,6,5,10,8,13,10,12,9,-1

Can you detect all errors

"Project: Silverleaf whitefly at 25C"

"User: Ta-Chi Yang"

"Date: 2001.4.16.-2001.6.10. "

50

3,6

F,Egg,L1,L2,L3,L4,Pupa,Female

M,Egg,L1,L2,,L3,L4,Pupa,Male

N,Egg,L1,L2,L2,L4,Pupa,Unknown

L0,L4

1,M,7,3,4,5,6,5,8,2 ?

2,F,7,2,3,4,5,8,6,4,12,9,5,8,0,1,3,-1,

3,N,7,2,4,3,4,3,6 ?

4,F,6,2,3,4,5,7,19,0,0,2,20,,6,5,10,8,13,10,12,9,0,0,-1

Attention!

Do NOT enter more than 30 data items in each line. Press ENTER at the end of each line.

建議：每行不要超過30個資料

理由：容易閱讀與偵錯

Are you qualified to use a computer?

- If and only if you can use your head and pencil to do the basic computation, then you are qualified to use a computer.

- Temel hesaplamaları yapmak için sadece ve sadece beyin ve kaleminizi kullanabilirseniz, o zaman bir bilgisayarı kullanabilmek için gerekli yeterliliğe sahipsiniz.

- Si y sólo si se puede usar la cabeza y un lápiz para hacer el cálculo de base, entonces usted está capacitado para usar una computadora.
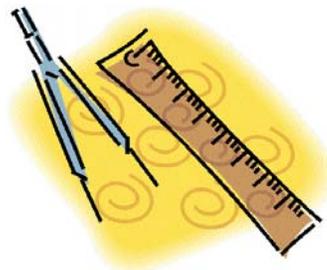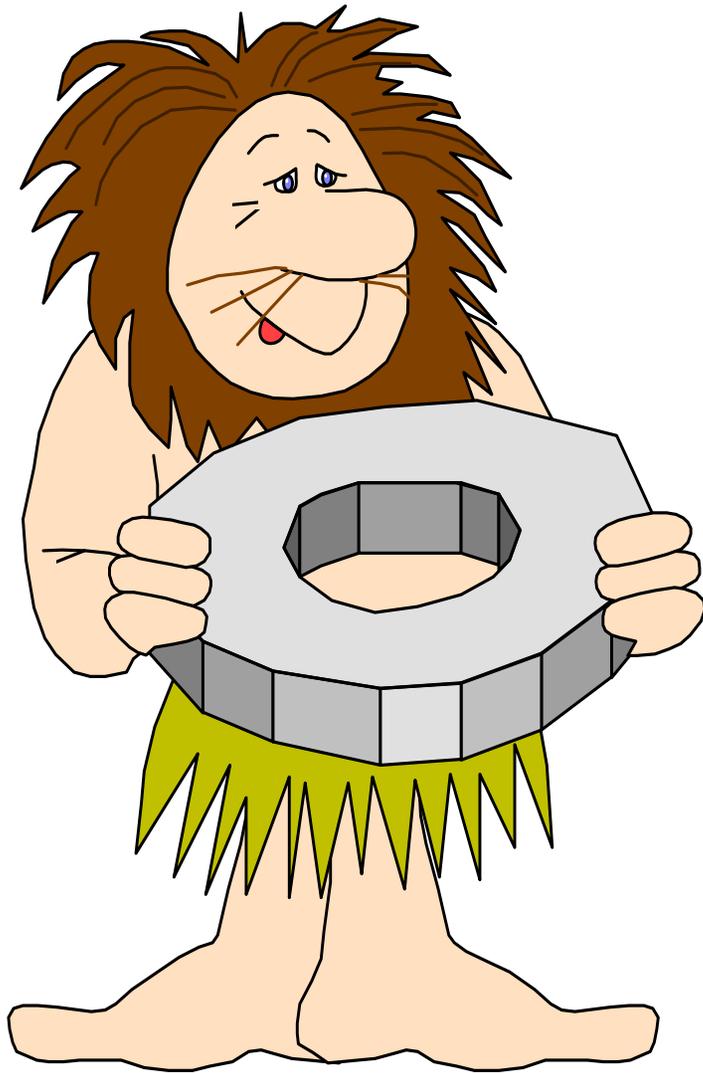
Teşekkür ederim!

سپاسگزارم

謝謝！

ขอบคุณครับ

Děkuji

Danke!

¡Muchas gracias!

Thank you!

ご清聴ありがとうございます！