

## Kickouts : How to deal with them

This is an extension of **Section F6** in your *TimeTabler* Manual.

See also '*The Timetabler's Cookbook*', sections 11.6, 12.10, 10.6, 7.1, and articles in the KnowledgeBase in the SupportCentre, and HelpMovies 39, 41, 42.

If you reach a situation where an activity cannot fit into any time of the week, ie. a 'kickout', then the machine will beep and the display will show that there are no possible starting periods. All dots:

Classes for this lesson:		Why?	Right-click for more choices										<input type="checkbox"/> Small font	<input type="checkbox"/> Show entire Year																	
	Mon	2	3	4	5	6	Tues	2	3	4	5	6	Wed	2	3	4	5	6	Thur	2	3	4	5	6	Frida	2	3	4	5	6	
Click:	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.	.

You have a 'kickout'. In every period, the staff, or the students, or both, are not available.

**You should always deal with a kickout immediately** (unless it is just a 'What if...?' trial run), especially if the kickout is in upper school.

The reason for this is that if you leave it while the rest of the 'jig-saw' is being built, the harder it will be to find a place for this difficult activity to fit in.

You have several options, described on the following pages (not necessarily used in this order). Look through these tactics to find those that suit your style of working and your current problem.

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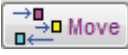
# 1. Using FIT

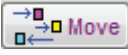
This is the simplest and quickest way to look for a solution. If you find a solution this way then it will cause the least damage or change to your original intentions.

- a) Use the **FIT** command to find a solution (if one exists).  
See Section F5, Flowchart K10, and HelpMovie 42.



You can use the Bookmark feature to save any solutions which are poor-but-possibly-acceptable.

- b) The  button is a variation of FIT. The difference is that **FIT** keeps the same lesson data even if you have altered it in the schedule to be different from the Batch, whereas with **Move** the selected activity reverts back to the original activity as entered in the Batch.



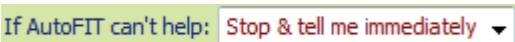
- c) If there are no green or blue solutions in **FIT** then you may wish to consider some of the red solutions. Depending on the type of subject and the age of the students, red solutions are sometimes acceptable.

It may be best to look first at those with a **5** on the first line only.

Solutions that show **5o** or **o5** [in yellow] indicate a solution with 2 singles on the same day but forming a Double. For some subjects this may be more acceptable than 2 separate singles on the same day ...but other teachers may prefer 2 singles, perhaps am & pm.

- d) If you have used AutoFit on Level 4 (say) and end up with some kickouts, then you can either:

- i) recall the 'ignored' kickout item (see E14) and re-try with AutoFit on Level 10 (say).  
The snag with this is that if you were using the 'Fully-Auto' method then more activities were placed **after** the kickout, making it less likely that you can find a solution now.

This can be avoided by using: 

or (and this is usually better):

- ii) return to the start of this run (ie. close the schedule without any saving; or re-load from a Backup you saved earlier) and re-run it with AutoFit now on a higher level (eg. Level 6).

- e) Another useful way is to note the details of the kickout activity (or activities).

Then return to the start of the run (by closing the schedule without any saving; or re-load from a Backup you saved earlier).

Then for this new run, select and Assign the kicked-out activity **first** (or early).  
(Use the Filter to find the activity quickly, if necessary.)

Sometimes this may resolve the problem; or else shift the problem to another subject area, where it may be easier to solve the problem (eg. by 'stealing' from the 6th Form, see page 6).

- f) The FIT command will find all the solutions where an activity moving into a new position displaces *one* activity which then has to move elsewhere. By itself it cannot deal with a situation where two or more *adjacent but different* activities need to be displaced to make room for one activity to move in. However you may be able to find such solutions if you really need them: if the problem activity is really a double period, you can split it into two singles in the data-batch, then use the FIT command on one of the singles and then look at the solutions to see if any *two* of the listed moves will empty *adjacent* periods, to allow the problem double to move in. If so, use Flowchart K9.

- g) If you are desperate then you could try the effect of switching off Locking altogether (via Schedule->Global Locking) so all your Locked items can now move!



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## 2. Finding out what the problem is

- a) You can investigate to find out what is causing the problem, and how big a problem it is.

The simple way to do this is to use the **Class Timetable Strip** and the **Staff Timetable Strip** for the problem activity.

See Section E12 if you are working on the Priority List Screen,

and Section E16 if you're using the Visual Builder Screen:

Classes for this lesson:		Right-click for more choices																													
Click:	Mon	2	3	4	5	6	Tues	2	3	4	5	6	Wed	2	3	4	5	6	Thur	2	3	4	5	6	Frid	2	3	4	5	6	
11B	RR	DW	FE	↑	↑	↑	RPa	Sci	RR	↑	↑	↑	MJ	CC	Tech	↑	↑	↑	RPa	Sci	↑	↑	↑	↑	ABe	Ga	MJ	FE	↑	↑	↑
11AB	↑	↑	↑	↑	↑	↑	AJo	↑	↑	↑	↑	↑	JHa	↑	↑	↑	↑	↑	JHa	AJo	↑	↑	↑	↑	AJo	↑	↑	↑	↑	↑	↑

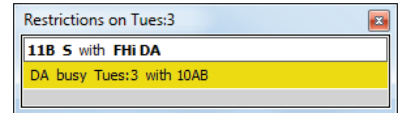
  

Teachers for this lesson:		Right-click for more choices																													
Click:	Mon	2	3	4	5	6	Tues	2	3	4	5	6	Wed	2	3	4	5	6	Thur	2	3	4	5	6	Frid	2	3	4	5	6	
FHi	11C	PSE	10C				11C						11A						11A												
DA	11C	PSE	10A				11C						10A						10AB						11C						

Click **on a dot** on the top row (see E13) to see a Report which tells you **why** the lesson cannot be fitted:

Click along the row of dots to see:



- if there is a time of week that is almost free, and
- what needs to be done to free it entirely.



If you are looking to place a Double lesson, the first places to look for are:

- Is there a blank that could take a Single period of this activity? or
- Is there a Single already placed?

and can you find a way to make any of these grow into a Double period?

- b) You can also use the Class Timetable Screen (F14) and the Staff Timetable Screen (F12). For example, if you want to see when Teachers AA, BB, CC and DD are all free, go to the Staff TimeTable Screen  and click on the  button and select these teachers.

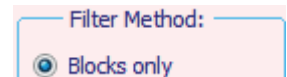
- c) The summary Staff (F12) and 'master' Class and Staff **Printouts** (section J) can be helpful.

- d) If you wish to see what actions have led up to this present problem situation, perhaps with a view of unpicking some of them, view the **Log** in the blue window or print it out (see F10).

- e) If you look at the Class Timetable Screen you may see that too many 'pure class' lessons have been placed before all the Blocks have been assigned, *leaving no spaces for the Blocks*.

You may have to Unassign some of the pure class lessons.

You can focus on assigning the Blocks by using the **Filter** to select them:



- f) **Testing your Batch**

Often it helps to clarify your analysis if you do a *separate* parallel Schedule **just** for the Year-group causing problems, so that you can see if it is a problem in the way it is specified in the Batch (rather than due to clashes with teachers already assigned to other parts of the timetable).

See also Step 32 in the QuickStart Guide, and the 'Testing Batches' article in the KnowledgeBase in the Support Centre.

You can call this separate schedule 'dummy' or 'test' and delete it afterwards.

As well as loading in (a copy of) the Batch (see E3) with the problem activity, remember also to load (a copy of) your Fixed Points Batch. You can delete these copies afterwards.

If you get any kickouts in this dummy timetable, analyse them to see why they are happening, even in this simpler timetable.

- g) During 'What if...?' trial runs you may wish to ignore the problem for the time being and continue scheduling.

Generally it is **not** wise to ignore an activity, because it will be harder to fit in later. See E14.

The ideal time to solve the problem and fit in a Kickout is at the moment that it happens.

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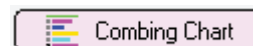
### 3. Looking deeper into your data

Check & Validate

If you haven't already done so, check that there is not some total mathematical impossibility in your data.

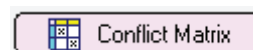
There are 2 main ways of doing this:

- a) Use the **Combing Chart** (see D23) on each faculty/department, and in particular on the departments represented in the problem activity. Then look for teacher-swaps that will shrink the Combing Chart.



You can click to change a Teacher on this screen to see if the teams can 'comb' down better (but think carefully when you click the Close button, about whether you want to Save any such changes or not!).

- b) Use the **Conflict Matrix** (see D24). Check the problem class against other classes that have been already assigned in the schedule, and look at the clashes shown in the grid. If you can pin-point a problem here then look for ways to solve it, eg. by teacher-swaps.



As with the Combing Chart you can click to change a Teacher on this screen to see if you can reduce the conflicts (but think carefully when you click the Close button, as to whether you want to Save any such changes or not!).

- c) For **Part-timers**, look at the restrictions you have placed on them (see H2–H8).



For example, suppose Part-timer XY is in school only on Monday and Tuesday.

If teacher AB is fully committed on these days, or AB is another Part-timer and away those days, then an activity like 7A D AB XY cannot be placed.

And even 7A SSSS XY would be impossible in a 5-day week without breaking DayBlocking.

In general it is bad news to have any Part-timers as members of a Teacher-team (eg. in an Option Block or a Maths block). **TimeTabler** provides analyses and reports to help you identify problems.

See the articles on features for Part-timers in the KnowledgeBase:



See also page 133 in *'The Timetabler's Cookbook'*.

- d) If there are more '5' positions on the WeekLine (on the Priority Screen) than you expect, then you may have forgotten that you have applied **Global DayBlocking** (D9), or you've accidentally used the **same** Global DayBlocking code **twice!**

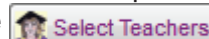


This simple mistake can easily make the timetable impossible!

Use the Global DayBlock Checking Screen (see **D27**) to check this:

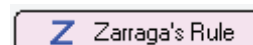
Global DayBlocking

- e) While timetabling lower school you may get a kickout of a pure class lesson, that FIT can't find a solution for. If so, look at the timetables of all the staff due to teach pure class lessons for this class, by going to the Staff Timetable Screen and using the **Select Teachers** button.



This will probably show that **none of the staff is free**, and hence FIT cannot find a solution. So you will need to look for a Teacher-Swap. For example, by listing the free teachers in a period, see section 4 (a) (ii) on page 5.

- f) You can also use the **Zarraga's Rule Screen** (see D28) which can give you useful information, though this is notoriously difficult to interpret.



The simplest way is just to look at the 'Teachers affected' column. The higher the number, the more likely that the teacher will be hard to place, because they have the most interactions, by being in parallel teacher-teams (eg. in upper school) as well as in serial teams of teachers (eg. in lower school). The simplest way to alleviate this is to swap the teacher between 2 lower school classes, so they have the same teaching-load but fewer interactions.

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## 4. Making changes to your data, including Teacher-swaps

a) **Alter your activities-data** (see D17, F8, F14), to find more solution-space. For example:

i) **Split a Double-period into two Singles (or vice versa).**

eg. if the problem activity was 7A D KJ you could return to the Batch (see also K7) and change it to 7A SS KJ (= 2 singles, DayBlocked)

or change it to 7A S KJ and 7A S KJ (on 2 rows, so they could go on the same day). See also FlowChart K7 in the Manual.



Although 2 Singles normally give more flexibility than a Double, it depends on how many Double time-slots there are in your timetable cycle (see section 7.8 in 'The CookBook'). You may also find it helpful to change a D-Double into a d-double (see D3).

ii) **Change the Teacher for a pure-class activity (eg. in lower school), or change one or more members of a difficult teacher-team (eg. in upper school).**

To pin-point which changes might be helpful, see sections 3e or 3f on page 4.

The first tactic is usually to make a Swap of teachers between lower school classes in a way which keeps the same teaching loads but frees up some solution-space (see page 4).

To see **who is free**: right-click **List Free Teachers** on the Class Timetable Screen (F14):

The following Staff are Free on Tues: 4		
Teacher / Main Subject / Current work-load		
AG (Mr Gray)	EN	4
AW (Mr Wright)	PH	12

To see **who else teaches this subject, including 'second' subjects**: use the Teacher Inspector, and then click on its 'Subjects' tab.



b) Note: To alter (in the Batch) an activity *that has already been placed*, first use the **Unassign** button on the Class Timetable Screen (see F16, D17 and K7).



c) If you had blocked-off a **Part-timer**, and now need to make them free to solve a problem, you can do this *either* on the Staff Timetable Screen (tick to show the palette) *or* on the right-click menu on the 'Teachers for this lesson' row of the Visual Builder Screen.

d) Remember to check the Staffing **Loads** if you have made any staffing changes. If you've given a teacher an extra lesson to teach, remember to pay them back ...or else you may find that they are over-committed, and that may easily cause a kickout.

You can check the current loads via:

e) Another tactic when faced with a kickout especially multiple ones in lower school: you can unassign all the activities within the batch, and then change the 'difficult' activities within the batch to use Pool Teachers, and reassign the batch. Having got a fit, then look at ensuring continuity of teacher (using, if necessary, some of the other tricks, eg. steal from the Sixth Form or S6).

f) In **later** stages of scheduling, if you just want to alter the Schedule only (and not the Batch) you can go to the Edit Details Screen (F18, F20) and use the button.

Generally speaking, it is best **not** to do this, particularly in early stages of scheduling. It is always best to make changes in the Batch, as in (b).

g) If you have a 'Sixth Form' (Y12, Y13) [or in Scotland S6] and if the Teacher that you need is teaching the Sixth Form in this period, you may find it useful to temporarily 'steal' this teacher so that the problem activity can be placed. You can often solve the resulting Sixth Form problem by looking at the option (elective) choices of the students, looking for 'illegal' but possible combinations. *For example*, perhaps French and Physics could be taken by a student on the original plan but in fact no-one is doing both, so they can now be scheduled at the same time. See the next page, and also section 12.10 in 'The Timetabler's CookBook'.

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## 5. Special tricks in the 6th Form, including Out-of-Block (OOB)

Schools with a 'Sixth Form' (Years 12-13, or S6) usually have more flexibility for solving their timetable than 11-16 schools. There is more data to handle, so it may look more complex, but you can find solutions and flexibility in the 6th Form that you cannot find lower down the school.

Among reasons for this added flexibility are:

1. Teaching Groups are often 'split' between two (or more ) teachers. For example, the students have 5 periods of History, 2 periods with Mr Smith and 3 with Mrs Jones.
2. Students at this age normally do not have lessons for the full timetable cycle, and sometimes the curricular structure does not fill the full cycle, or it is filled up with 'minority time'.
3. Staff and students are more likely to be amenable to solutions outside the normal school day. For example, a small Music group may survive by having some lessons before or after normal school, or in the lunch hour. You may need some diplomacy to get agreement for this.
4. It is often possible to move lessons 'out of block' ('OOB'). For example, although Physics is in Block A, one or more lessons may be placed in Block C's time, because *for this particular cohort of students*, Physics does not clash with any subjects in Block C. Or perhaps it is acceptable for the Physics to be placed in 'minority time'.

### Best Sequence:

When timetabling a school with a Sixth Form it is a normal temptation to start scheduling with the oldest students (Year 13, Upper Sixth). This is often a mistake.

(Except in Scotland where normally S6 / S5 / S4 (+S3?) are normally all scheduled together.)

Logically it might be better to start by scheduling the largest (fixed) teams of teachers ...and these are usually in Year 11, followed by Year 10.

And you can do this knowing that later, when you start scheduling the Sixth Form, you should be able to use the 4 aspects of flexibility listed above.

For more details see Sections 12.10, 12.8, 11.6, 7.1 in The Timetabler's Cookbook.

### Practical ways to use each of the 4 aspects of flexibility above:

#### 1.

To take advantage of the flexibility offered by 'split teaching', which allows more 'musical chairs' moves in FIT, use Container Blocks, as explained in Worked Examples 3, 4, 5, 9 in Section I in the **TimeTabler** Manual. See also section H25 and the HelpMovies on this topic.

#### 2.

If your curricular blocks do not take up the full timetable cycle, then you can add some 'Spread' to one or more of the Container Blocks.

If one Block is particularly tight, then add more Spread to that one.



See Section 12.6 in 'The Timetabler's Cookbook'.

To add some Spread to a block in **TimeTabler**, see section H25, part 4, in your **TimeTabler** Manual.

#### 3.

To allow for periods outside the usual working day, add extra periods when you set up the School Day on the School Structure Screen (see Section B5 in the Manual).

Then use the Class Availability Screen (see H14) to block off some periods for classes in the main school, but leave the extra periods available for Sixth Form lessons.

If you have already started the schedule then with care you may be able to add extra periods using Schedule  Check & Tidy  Add a Period. Then block off unwanted periods for classes in the main school on the Class Timetable Screen (see F15).

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#### 4.

#### Moving lessons 'out of block' ('OOB')

There are 2 ways to do this, see the 2 examples below.

It needs some explanation first. The key points here are that:

- (i) Lessons (activities) labelled with a Container ID of 'A' can only go in Container Block A. They cannot go into any other Container Block.
- (ii) For a lesson to be placed in Container Block C it must have a Container ID of 'C'. If it has a Container ID of 'A' it cannot go in Block C.
- (iii) So, to place a lesson 'out of block' you will have to change its Container ID to the appropriate letter (or, more dangerously, switch off containers, see below).

#### Example 1

Supposing you have a Physics activity in one of your batches like this:

12D SSSSS KJo 'A'

[ie. on the 4th (D) row of Container Block 'A', 5 Singles with teacher KJo.]

Supposing you have placed the first 4 Singles [and so they will be greyed-out if you view the activity in the Batch, D17]. But you cannot find a time-slot in any of Block A's times to place the 5th Single.

Suppose by inspection you find a suitable time-slot that is in Block C.

You might find this by :

- (a) clicking on the 'dots' on the time-line, to see the Report, as explained in Sections E12-E13 of the Manual, to see if the teacher is free, and
- (b) Checking the Students' list of Subject Choices, to check if any of the students taking this subject (Physics) are also taking any of the Subjects in Block C (in this example), or it might be in 'minority time'.

Assuming that all is well, and so the 'out of block' move is possible, you need to change the Container ID for the 5th Single (only) from 'A' to 'C'.

To do this you need to go back to the Batch, and find the original activity, which was:

12D SSSSS KJo 'A'

and change it so that it now shows (on 2 rows):

12D SSSS KJo 'A'

12D S KJo 'C'

Now the last Single can be placed in one of the time-slots that was reserved for Container Block C.


If instead you were wanting the 5th Single to be placed in a time-slot that isn't part of a Container Block (eg. in a period before/after normal school hours), then the 2 rows should look like this:

12D SSSS KJo 'A'

12D S KJo

ie. the 5th Single does not have a Container ID, so now it can be placed anywhere outside a Container.

#### Example 2

Alternatively, there is an easy (and sweeping) way to simply allow yourself to place these lessons anywhere ...which is simply to switch-off Container Blocks (CB) temporarily (at Customize Menu  Use Container Blocks) ...just while you make these manual changes – and then switch them back on again.

Switching-off CBs is an easy way out, if you just want to put a group that should be in CB 'A' into another CB (or no CB) ...but we suggest you use it only at the **end** of scheduling, because if you carry on scheduling after that, you will get lots of "." (lesson can't go here) on the Visual Builder Screen, even though you seem to be adhering to the CB rules! If you look at the reason, it will say that the spread of a CB has been exceeded (not because of your proposed move now, but because of the 'illegal' changes you made when CBs were off). So it can make it hard to schedule CBs thereafter.

**Note:** If you later Export to an MIS, the OOB lessons may cause an error message. To fix this, see the article in the KnowledgeBase called 'Exporting out-of-block lessons to an MIS'.

**Using these methods can often give you a surprising degree of flexibility in your timetable ...and they are an effective way of dealing with kickouts and solving kickout problems.**