

Introduction to Redirects



Text and illustrations by Joe Harris
Technical advice and many corrections by
Scott Sharpe and Grant Cody

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INTRODUCTION

Maintaining a good rope angle is one of the basics of tree climbing. When your anchor point is directly above you, movement is easy and your climbing line offers good support. As you climb level with your anchor point, the rope offers less and less support, and you become increasingly at risk of a dangerous pendulum swing. Redirects are a way of temporarily providing a climber with a better rope angle, without removing and re-setting the main anchor point.

This document is an attempt to summarise and illustrate some of the more common re-directs. A brief mention of natural redirects is included, but the main focus is on artificial redirects.

Redirects are illustrated and briefly described, then scored out of a possible five in four different categories, eg:

2.1 BASIC REMOVABLE REDIRECT

Removable; Retrievable		Describes key features of the redirect
Friction	☹ ☹ ☹	(More points = less friction)
Simplicity	☹ ☹ ☹ ☺	(More points = easier to set up and use)
Gear	☹ ☹ ☹ ☺	(More points = less dedicated gear required)
Retrieval	☹ ☹	(More points = easier to remove; less likely to get stuck)

These ratings are the result of personal opinion and are by no means definitive. Different combinations of equipment and ropes may well be giving other climbers very different results with the same redirect. The sole aim of this scoring system is to provide climbers who are unfamiliar with a particular redirect the opportunity to consider some of its strengths and weaknesses before deciding to invest in yet more equipment!

It is also important to consider that each of the redirects is perfect – for a particular use. Many of them require nothing more than a footlocking prussik and an extra karabiner, which is something to consider when thinking about the gear that stays on your harness throughout every climb.

The list of redirects given here is not at all exhaustive. Several redirects were not included due to being needlessly complex or just a slight variation on one of those listed already. If you use a good redirect that you think should be included in this list, then **PLEASE GET IN TOUCH!** Sharing your good idea is a great way to help fellow climbers throughout the industry, and you would of course get all the credit. In addition, redirects submitted before the Victorian Tree Climbing Competition on Oct 23rd 2010 will be eligible for inclusion in the Redirect Challenge (see next page).

Email redirect plans to joe.elsewhere@gmail.com or codza@bigpond.com

TAKE THE REDIRECT CHALLENGE!

The VTIO is offering a one-off prize of A\$300 for the best **new** redirect plan submitted by Saturday October 23rd 2010. The winning redirect must not already be included in this list, but may be a variation thereof. The ideal redirect would be: **(1) retrievable** without disconnecting from the system; **(2) quick and easy to set up**; **(3) usable with a minimum of dedicated gear**; and **(4) as close to friction-free as possible**.

To enter, email a plan of your redirect to Hjoe.elsewhere@gmail.com or Hcodza@bigpond.com

What's this all about?

Redirects are a fantastic tool in climbing, allowing a proficient climber to dramatically improve rope angle for a particular part of the tree, and thereby allowing quick, smooth access to the ends of otherwise challenging limbs. The only reason that they are not in common use is that the existing redirects (described on the following pages) are generally too time consuming to install or too bulky to carry, and almost all require the disconnection of the climbing system in order to restore the main anchor point.

The **Ropeman Redirect** (pg 12) offered great friction control and was **retrievable** without disconnecting the climbing system. As the only thing that passed through a fork whilst removing the redirect was the tail of the strop, it was almost impossible to get it stuck. A major drawback was the necessity to use a separate retrieval line or to connect the redirect to the tail of the climbing rope. Unfortunately the lack of a stopper knot meant the redirect was vulnerable to being disconnected by an unexpected pull on the retrieval line, and this redirect is no longer considered acceptable for use in climbing.

What are we looking for?

The ideal redirect would be quick and easy to set up, and require a minimum of dedicated gear. Aim to fit the whole system into a chalk bag, or something similar. It should be as close to friction-free as possible. Most importantly, the redirect should be quickly **retrievable** without having to disconnect from the climbing system. Not requiring a separate retrieval line or the use of the tail would be a plus, but is not essential; if a retrieval line is used it must not be possible to accidentally disconnect the redirect by pulling on the line. Finally, removing the redirect should be nice and smooth – no karabiners getting stuck in tight forks or lines getting tangled.

Locked Retrieval Line Rule

If a retrieval line is used it must not be possible to disconnect the redirect by an accidental pull on the line.

Even redirects which require a great deal of force to disconnect when under load will not be accepted if the retrieval line can be actuated by an accidental pull.

1 NATURAL REDIRECTS

Using a natural redirect is nothing more complicated than climbing through a fork or crotch which happens to be over the part of the tree where you wish to go. It requires absolutely no equipment, and of course there is no difficulty with removing your high-point when you wish to leave the tree. So why use anything else?

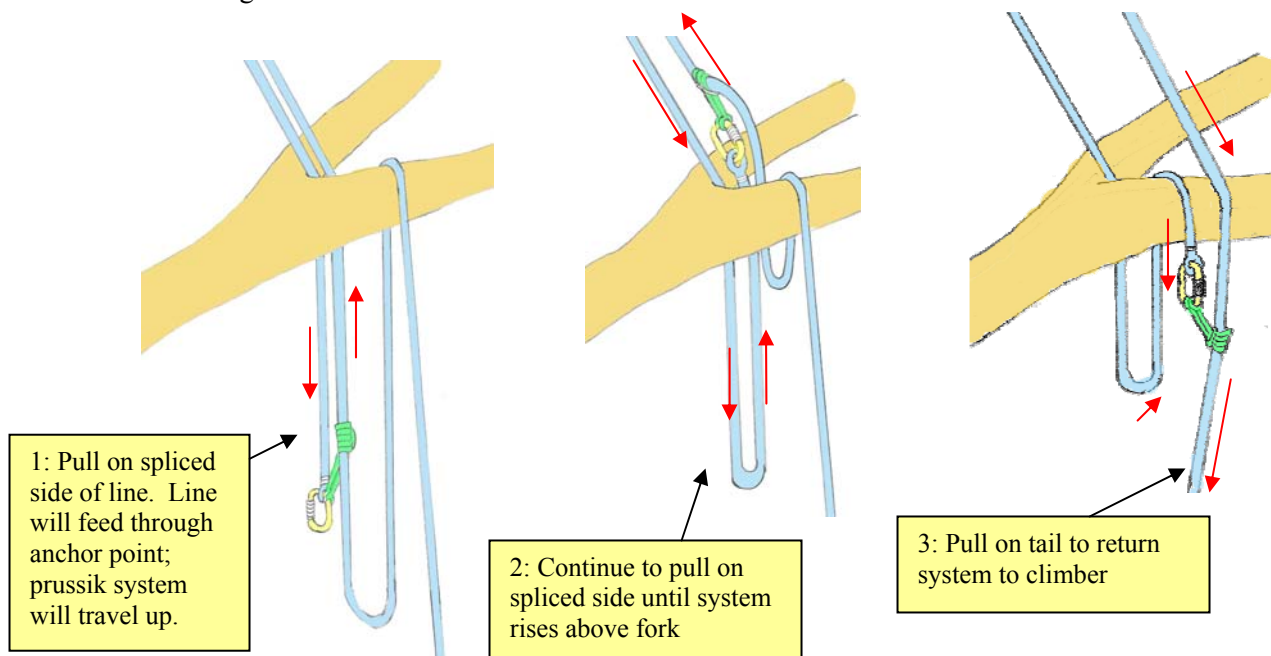
There are a few good reasons for the use of artificial re-directs. The first, and probably most important, is **friction**. Redirecting the climbing line over even a smooth eucalypt fork greatly increases the friction that the climber must deal with, particularly if the two sides of the line cross or tangle. Another problem with natural redirects is that, unless you work against your line, you have to pass the entire tail of your line through the fork ahead of you. Most artificial redirects can be set on the line above you, so that you gain the redirect without having to reposition the tail of your line.

If you don't mind working against your line, it is possible to **relocate the prussik** (see next page) in order to pass the climbing line back out of the fork without losing the original anchor point, but this requires forward planning and enough spare line! Otherwise you have to climb all the way back out of the fork to regain your original anchor point. Many artificial redirects are **retrievable** (it is possible to remove your rope from the redirect without losing the main anchor point) with much less difficulty.

1.1 RELOCATING THE PRUSSIK

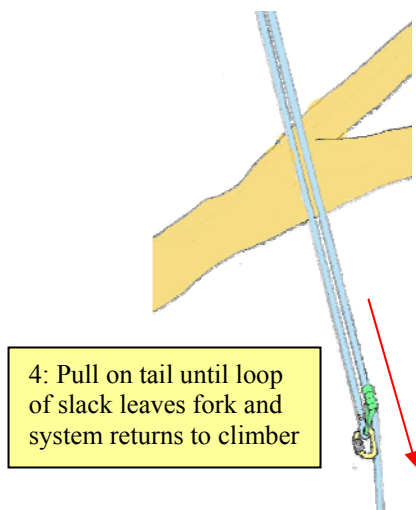
This is often described as *redirecting the prussik*, which is confusing as it is quite a different technique from the other redirects described here. Relocating the prussik is a technique for sending the climbing system back through a natural redirect or over other architecture in the tree to regain an original rope line.

In the pictures below, the climber (not shown) has used a natural redirect. He is now relocating his prussik in order to regain his original rope line without having to climb back through the fork.



Caution

This is a very powerful technique giving a great range of options beyond the use illustrated here. With sufficient forward-planning, this can be used to send the climbing system to a new section of the tree without having to climb back over intervening branches. As with any technique that involves the disconnection of the climbing system, however, there is the risk that something will become caught and the climber will be left without his climbing line. Plan ahead for this possibility!



In addition, climbers using a micro-pulley to tend their prussiks, or any similar equipment or technique, should be sure to **secure the karabiner to a marlinspike hitch in the prussik side of the line** before beginning this process. Failure to do this may result in the prussik travelling up the line away from you rather than returning to your hands!

2 SIMPLE ARTIFICIAL REDIRECTS (FIXED)

Artificial redirects can be quick to install, are (generally) much smoother running than natural redirects and can be installed without climbing through tight forks or passing line over branches. The two redirects shown in this section are **fixed**; in other words you have to climb back to them in order to remove them. On the plus side, neither requires much in the way of gear, and they are both very quick and easy to install.

2.1 BASIC REDIRECT

Fixed

Friction	☹ ☹
Simplicity	☺ ☺ ☺ ☺ ☺
Gear	☺ ☺ ☺ ☺
Retrieval	N/A

As can be seen from the picture to the right, this redirect requires very little equipment. It is quick to set up, quick to remove and extremely reliable.

Ingredients:

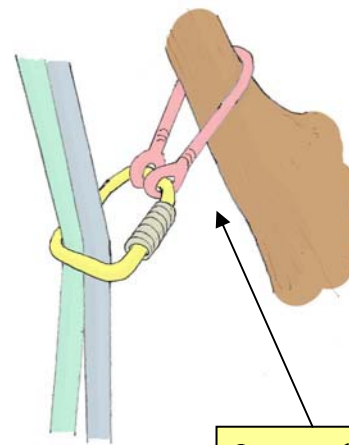
Short strop (footlocking prussik, tape sling, prussik loop etc)
 1 Karabiner

Advantages

Simple
 Quick to set and remove
 Requires almost no gear

Disadvantages

Fixed
 Lot of friction



Improve this by choking the strop around the branch so it doesn't wander up and down

Please note that any karabiner used as part of a life-support system (this includes redirects!) must require a minimum of two discreet actions to prepare the gate for opening

Different Coloured Line?
 Many of the illustrations show two different coloured lines passing through the redirect. These are intended to represent the same climbing line; the greener coloured part of the line will always be the spliced end of the climbing line.

 For some redirects it is **very important** that the redirect is set with the correct sides of the line passing through the redirect as illustrated.

2.2 BASIC PULLEY REDIRECT

Fixed

Friction ☹ ☹ ☹ ☹ ☹

Simplicity ☹ ☹ ☹ ☹

Gear ☹ ☹ ☹

Retrieval N/A

Just the same as the first fixed redirect, but the addition of a double pulley makes a huge reduction in the amount of friction experienced.

Ingredients:

Short strop (footlocking prussik, tape sling, prussik loop etc)

1 Karabiner

1 Double Pulley

Advantages

Simple

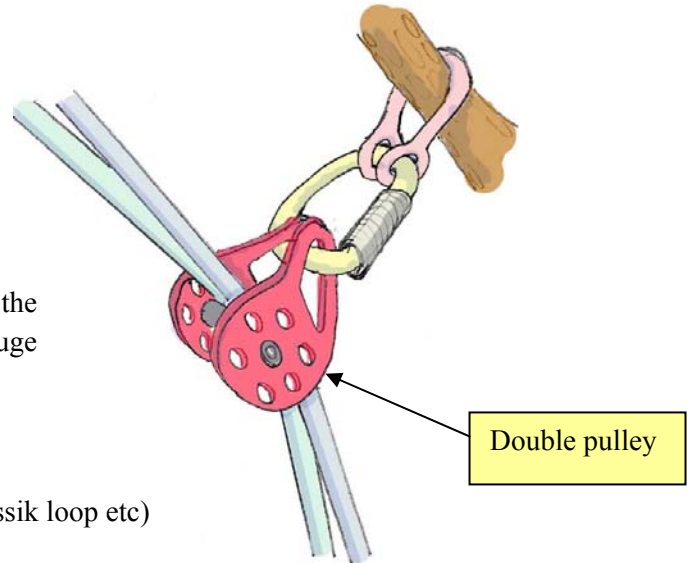
Fairly quick to set and remove

Requires little gear

Great friction control

Disadvantages

Fixed



3 SIMPLE ARTIFICIAL REDIRECTS (REMOVABLE/RETRIEVABLE)

The redirects shown in this section are designed to come out without the climber having to return to them. They are **simple** because they require only fairly basic gear which you might have on your harness anyway. **Removable** means they pull out automatically once you have disconnected from your rope and are pulling out your main anchor point; **retrievable** means that it is possible (with additional setup) to remove the redirect whilst keeping your main anchor point.

3.1 BASIC REMOVABLE REDIRECT

Removable, retrievable

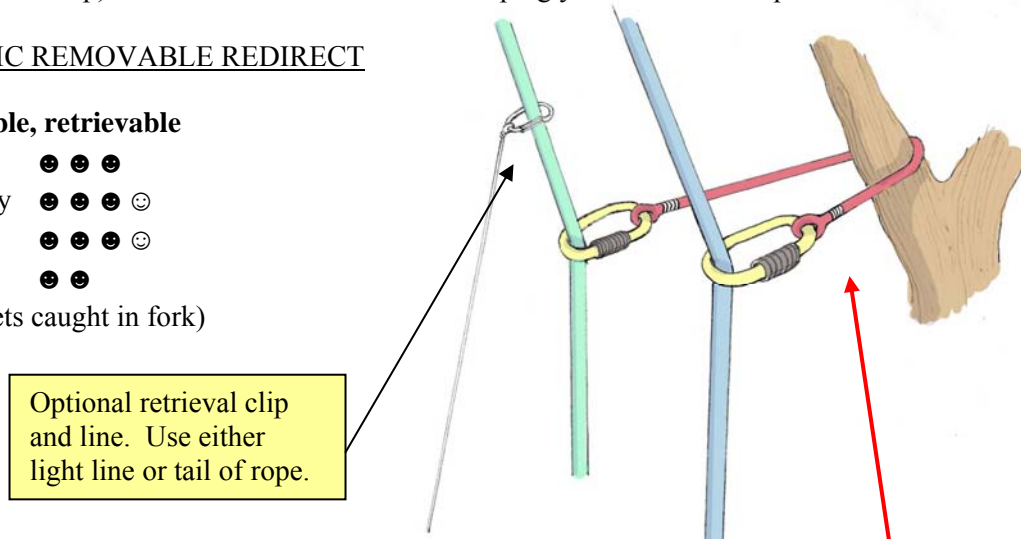
Friction ☹️ ☹️ ☹️

Simplicity ☹️ ☹️ ☹️ 😊

Gear ☹️ ☹️ ☹️ 😊

Retrieval ☹️ ☹️

(‘biner gets caught in fork)



Another quick-to-set, simple and fairly effective redirect. It is **retrievable** with the addition of the clip shown above, which is fastened above the redirect to the spliced (green) side of your line. As you pull out the spliced end of your line, it passes through the karabiner and frees the redirect to flip out of the crotch and slide down your line to you. The splice catches on the clip and can be pulled back to you, restoring your main anchor point. The main problem is that the **removal requires a karabiner to pass through the crotch, which can get stuck.**

WARNING

When set like this on small, smooth branches, particularly when the rope makes an acute angle at the redirect, an abrupt pull on either side of the line can cause this redirect to flip around the crotch, pulling a loop of line across the branch and around the crotch. On small branches wrap strop around branch to reduce chance of this occurring. (See redirects below)

Ingredients:

- Short strop (footlocking prussik, tape sling, etc)
- 2 x Karabiner
- Optional retrieval clip, optional light retrieval line

Advantages

- Simple
- Removable**
- Fairly quick to set and remove
- Requires little gear

Disadvantages

- Moderate friction
- Lines can separate, **redirect can flip around branch**
- Removal requires ‘biner to pass through crotch**

3.2 BASIC REMOVABLE PULLEY REDIRECT

Removable, retrievable

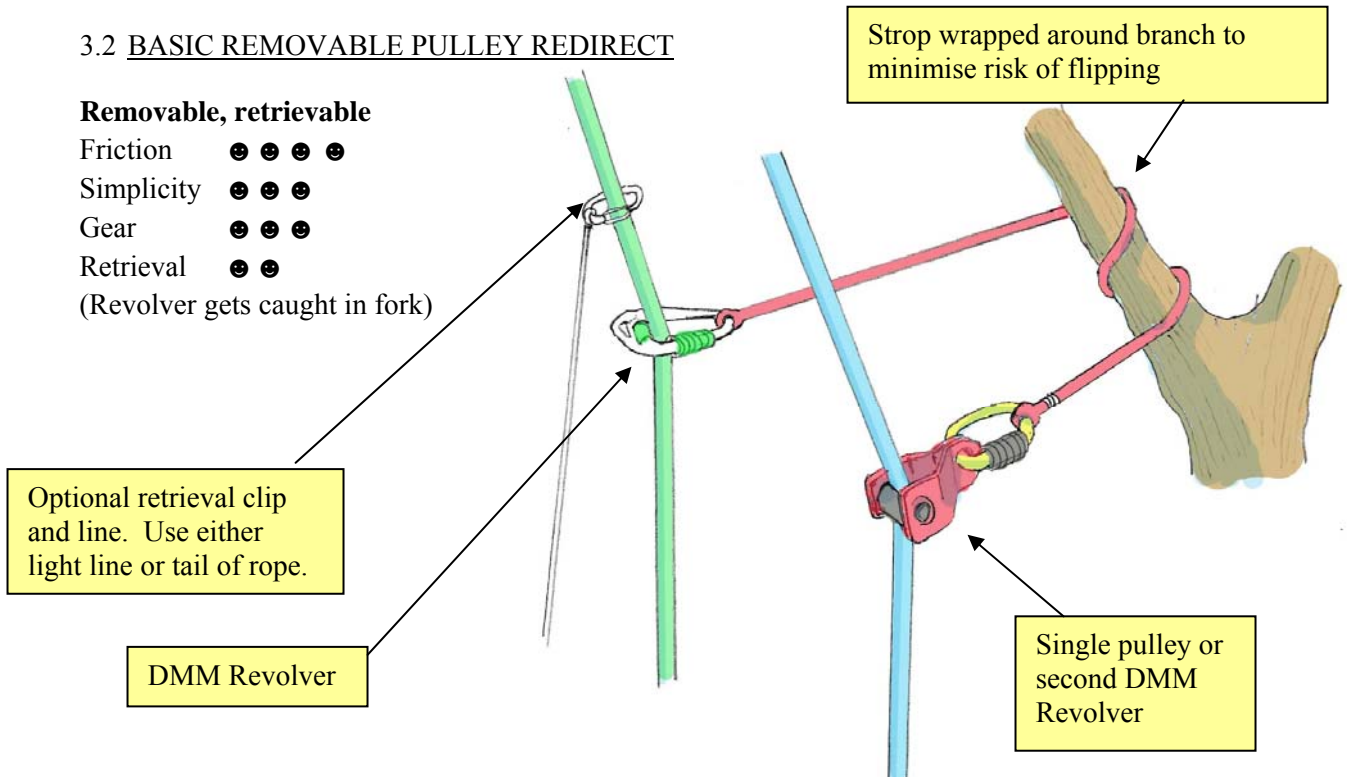
Friction ☹️ ☹️ ☹️ ☹️

Simplicity ☹️ ☹️ ☹️

Gear ☹️ ☹️ ☹️

Retrieval ☹️ ☹️

(Revolver gets caught in fork)



Almost as quick to set as the most basic of artificial redirects, but with nice smooth rope-running and the option of removability or retrievability. As with the previous redirect, the main problem is that removal requires the DMM Revolver to pass through the crotch, which can become stuck.

Ingredients:

Short strop (footlocking prussik, tape sling, prussik loop etc)

1 x DMM Revolver

1 x pulley and karabiner, or second DMM Revolver

Optional retrieval clip, optional light retrieval line

Advantages

Fairly simple

Removable, Retrievable

Fairly quick to set and remove

Not too much friction.

Disadvantages

Removal requires 'biner to pass through crotch

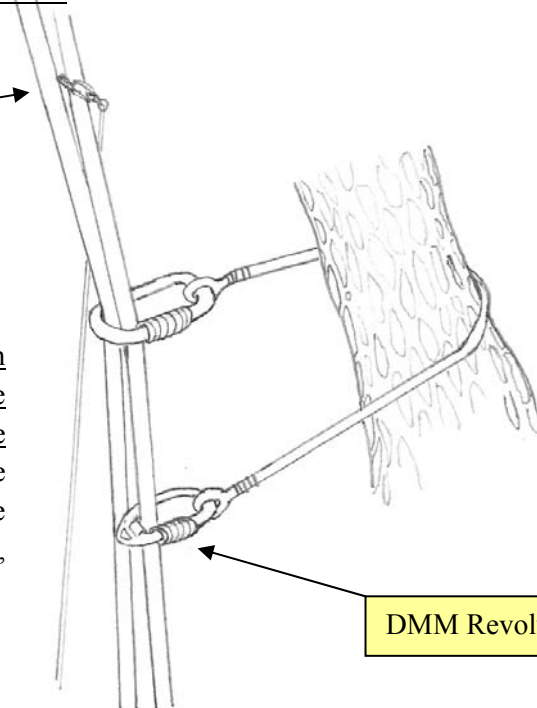
Lines can separate

Sometimes wraps slip and hitch

3.3 BASIC REMOVABLE REDIRECT VARIATIONS

Optional retrieval clip and line. Use either light line or tail of rope.

In this variation, note that both lines pass through the top karabiner, but only the spliced side of the line passes through the DMM Revolver at the bottom. This variation holds the two sides of the line together, and prevents separation or the problem of the redirect flipping around the branch, at the cost of increased friction.



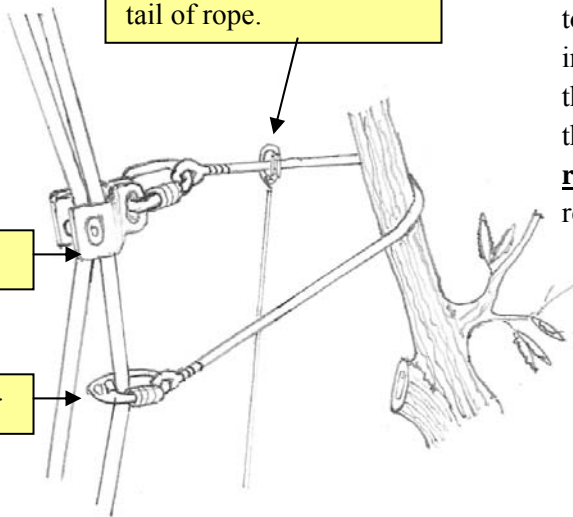
DMM Revolver

Retrieval clip and line. Use either light line or tail of rope.

The variation on the left uses a double pulley to capture both sides of the line at the top instead of a karabiner. This greatly reduces the friction, but unless your splice will pass through the double pulley, this variation is **not removable** without the addition of the retrieval clip and line.

Double pulley

DMM Revolver



4 COMPLEX ARTIFICIAL REDIRECTS

The redirects in this section are described as **complex** because they either require fairly dedicated gear, or are time-consuming and complicated to install. On the plus side, all offer fantastic smoothness and retrievability.

Deciding whether to invest in and start to carry and use a custom-spliced redirect can be difficult, particularly if you need to arrange for someone else to splice it for you. In general, the **double-revolver redirect** shown on the next page either equals or far out-performs any of the other redirects shown so far, in almost every category (except the amount of gear required). It comes into its own in a situation where you will be working for some time in an area of the tree where the only perfect redirect is a really tight, hard-to-get-to fork, but you will want to continue work in another section of the tree later. The double-revolver redirect is easy to set, safe and secure, and reliable to either retrieve or remove along with your main anchor point before returning to the top of the tree using the access line.

Whether or not it is worth investing in and carrying this custom-spliced redirect will depend on how often you find yourself in the situation above. Many climbers never use redirects (Tom Greenwood recently claimed to have only used artificial redirects six times in his entire sixty-five year climbing career) but it is surprising how often they can make a difficult climb much easier and faster once you have them on your harness and are familiar with their use.

4.1 DOUBLE REVOLVER REDIRECT

Removable, retrievable

Friction	☹ ☹ ☹ ☹
Simplicity	☹ ☹ ☹ ☺
Gear	☹ ☹
Retrieval	☹ ☹ ☹ ☺

A great redirect whose only real drawback is the necessity of having a large piece of custom-spliced equipment on hand when you want to use it. It is quick and easy to install, and works well as a **removable** redirect if you don't attach the optional retrieval clip. It is this flexibility (to be used as either a **removable** or a **retrievable** redirect) along with the smoothness of climbing on two pulleys that makes it such a success.

To use as a **retrievable** redirect, simply attach the clip to the spliced side of your rope above the redirect, and then attach your tail or a separate line to the eye at the bottom of the redirect.

Ingredients:

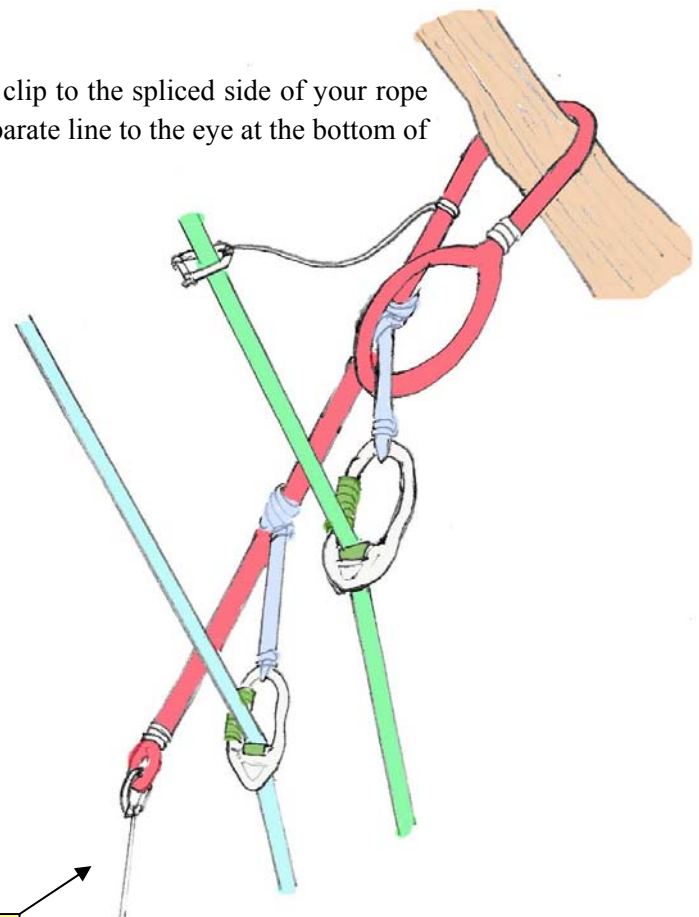
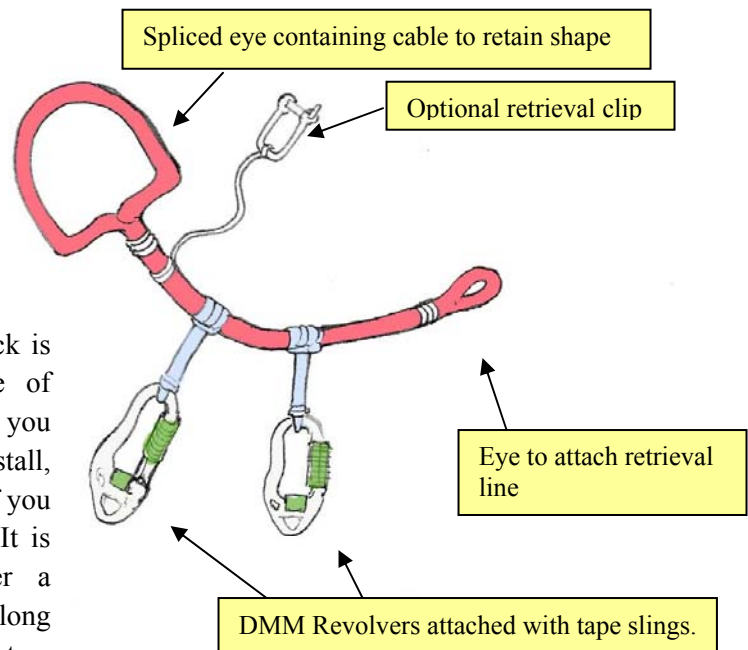
Custom-spliced redirect
2 x DMM Revolvers + tape slings or prussiks
Optional retrieval clip, optional light retrieval line

Advantages

Minimal friction
Retrievable, Removable
Rarely gets stuck
Simple to use
Lines don't separate or wander

Disadvantages

Requires disconnection to retrieve
Dedicated, custom-spliced piece of gear



Credit is due...
This excellent redirect was
designed by Grant Cody

Retrieval clip and line.

4.2 POSITIONED-TAIL REDIRECT

Retrievable, Remote-Set

Friction	☹ ☹ ☹ ☹ ☹
Simplicity	☹
Gear	☹ ☹
Retrieval	☹ ☹

Based on the old 'Ropeman' redirect (see next section), but instead of being set on a separate stop, it is set on the tail of the climbing line. This makes it potentially **extremely time-consuming to set and retrieve**.

The main advantages are that it is very low friction, it does not require the disconnection of the climbing system in order to be retrieved, and it can be **set remotely**, by throwing the tail of the climbing line over the target crotch, building the redirect, and then pulling on the tail to slide the redirect into position.

Ingredients:

- Double pulley & karabiner, + Tape sling or similar
- ART 'Positioner'
- Retrieval clip and light retrieval line

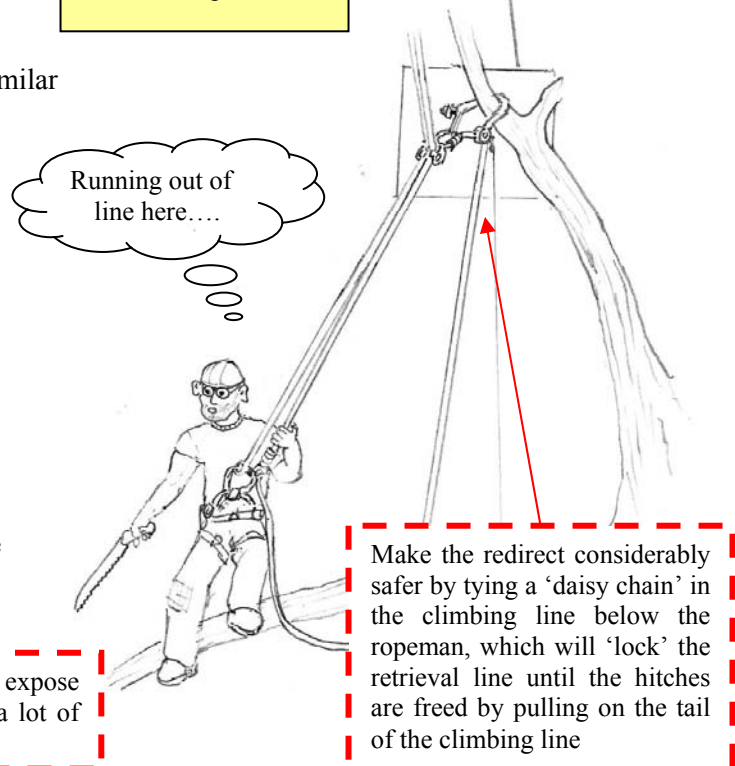
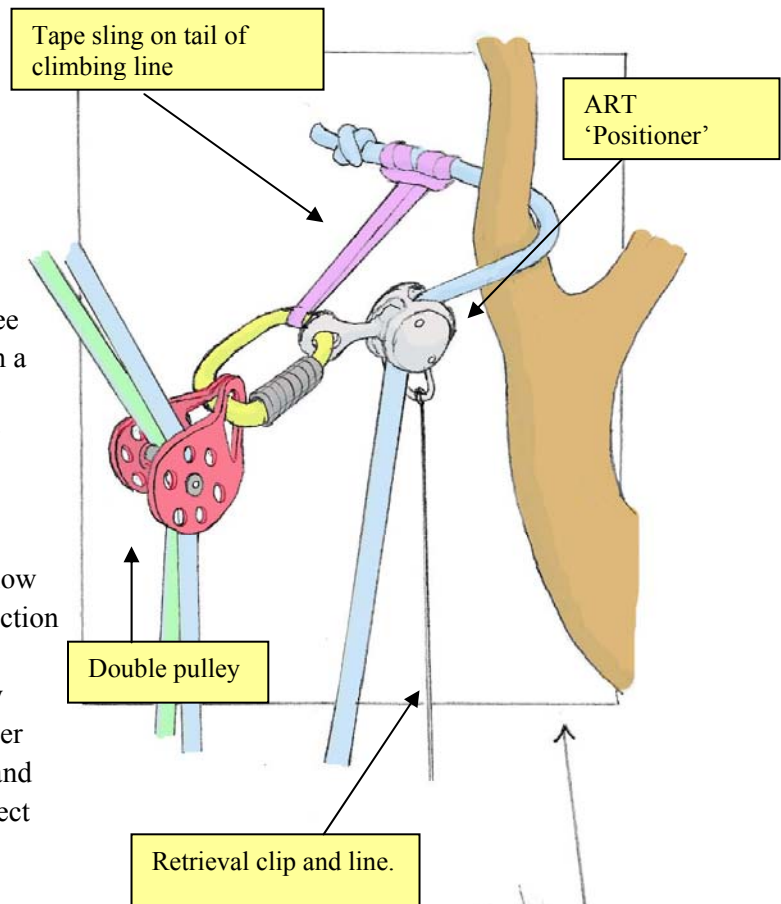
Advantages

- Minimal friction
- Retrievable**
- Retrievable without disconnecting**
- Rarely gets stuck
- Adjustable and can be **set remotely**

Disadvantages

- Not removable without access to retrieval line
- Extremely gear-heavy and complex**
- Time-consuming to install**

Although technically legal, this redirect could still expose the climber to a fall in situations where there is a lot of slack between the climbing system and the redirect



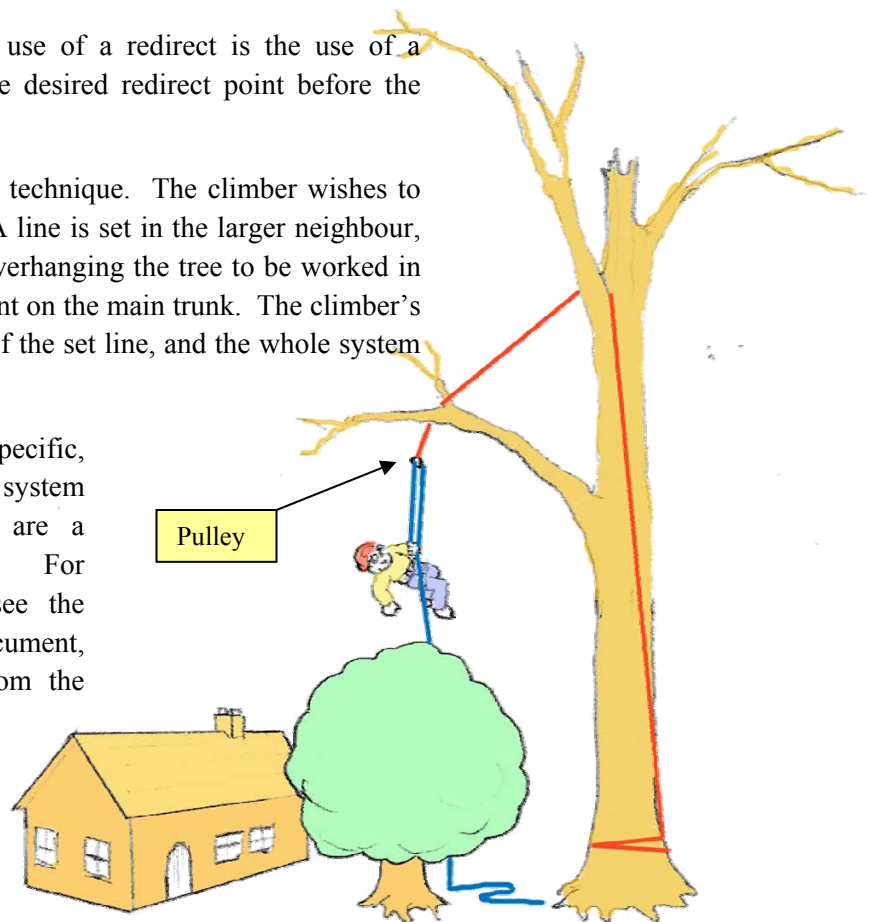
5 ADDITIONAL LINE REDIRECTS

Whilst not redirects in the traditional sense, it is possible to redirect your climbing line using a double pulley attached to the splice of a separate line, which is then thrown over the crotch where you wish to redirect, drawn into position and tied off (similar to the **positioned tail redirect** on pg. 13, but using a separated line instead of the tail of the climber's rope. The only real advantage of this approach is that the redirect can be **set remotely**, without the climber having to go anywhere near the redirect point.

Another possibility which avoids the use of a redirect is the use of a separate line which passes through the desired redirect point before the climber's pulley is attached.

The picture on the right illustrates this technique. The climber wishes to work in the smaller of the two trees. A line is set in the larger neighbour, which runs through a fork on a limb overhanging the tree to be worked in before passing over a sturdy anchor point on the main trunk. The climber's line is attached to a pulley on the end of the set line, and the whole system is then hauled into position.

Although the use given here is fairly specific, setups like this which attach a climbing system to a separate (usually static) line are a powerful and versatile technique. For coverage in greater detail, please see the relevant sections in the VTIO document, [Single Rope Technique](#), available from the VTIO website.

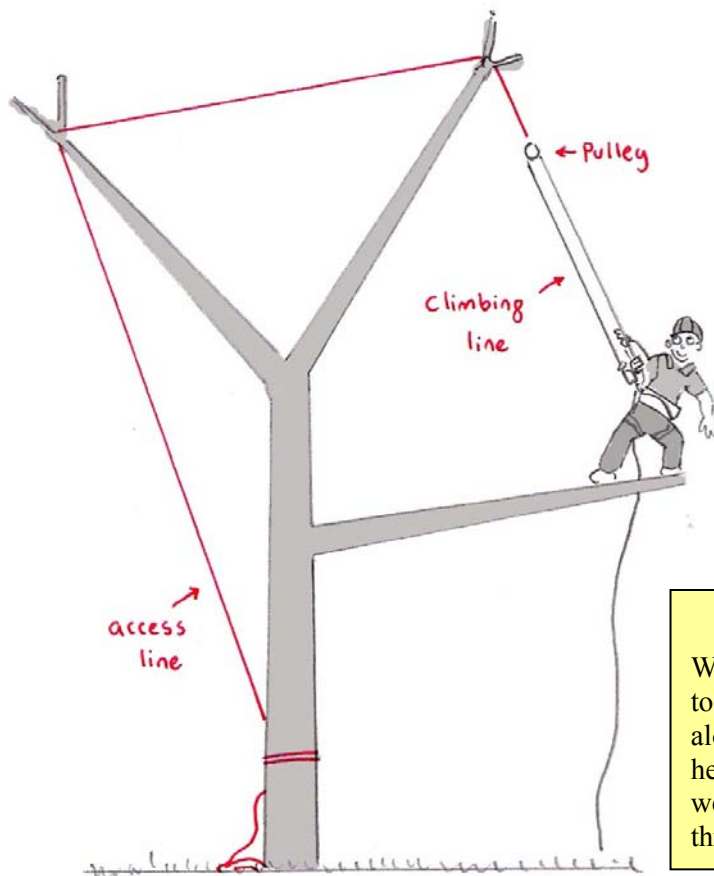


(ADDITIONAL LINE REDIRECTS, CONTINUED)

A further option given by the technique of attaching a climbing system to a separate line is shown in the picture below. The climber is exploiting the angle formed between two anchor points to climb safely out along a branch.

In this instance, the setup shown is considerably better than the use of either of the two upper forks by itself. In addition, it is superior in terms of both the force generated on the tree and the friction experienced by the climber than the option of setting in the left-hand fork and redirecting in the right hand fork.

Setups like this which use an understanding of **force vectors** to improve climbing safety and efficiency are very powerful tools, but require a thorough knowledge and familiarity to use well. Climbers unfamiliar with the use of vector forces in climbing and rigging may be interested in the VTIO introductory document, [Working the Angles](#), available on the VTIO website.



Warning

Whilst this is a powerful technique to access the particular branch along which the climber is heading, it becomes extremely weak if used to continue to climb through the rest of the tree.

6 THE M-RIG, V RIG AND VARIATIONS

A brief mention of these techniques has been included in a document on redirects because they can be used to fulfil a similar function, and because many climbers in the industry are not aware of how powerful a technique they can be.

The V-Rig and M-rig (setups pictured below using DMM ‘Hitch Climber’ pulley) are ways of smoothly ‘double-crotching’, or using two separate high-points. The M-rig in particular is very quick to set up and can allow smooth and safe movement along an otherwise tricky branch... in some ways just like a redirect.

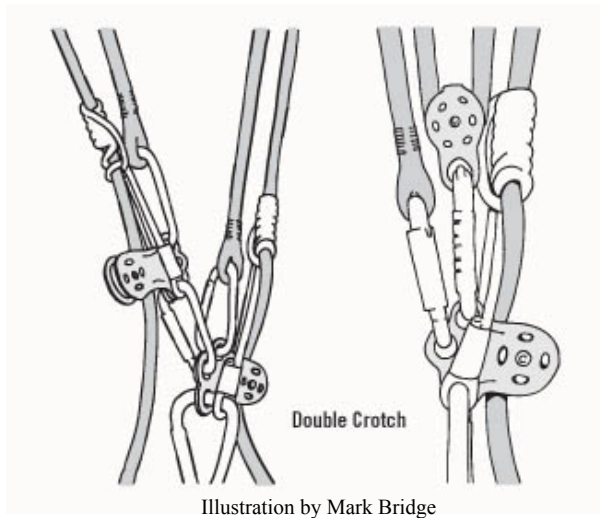


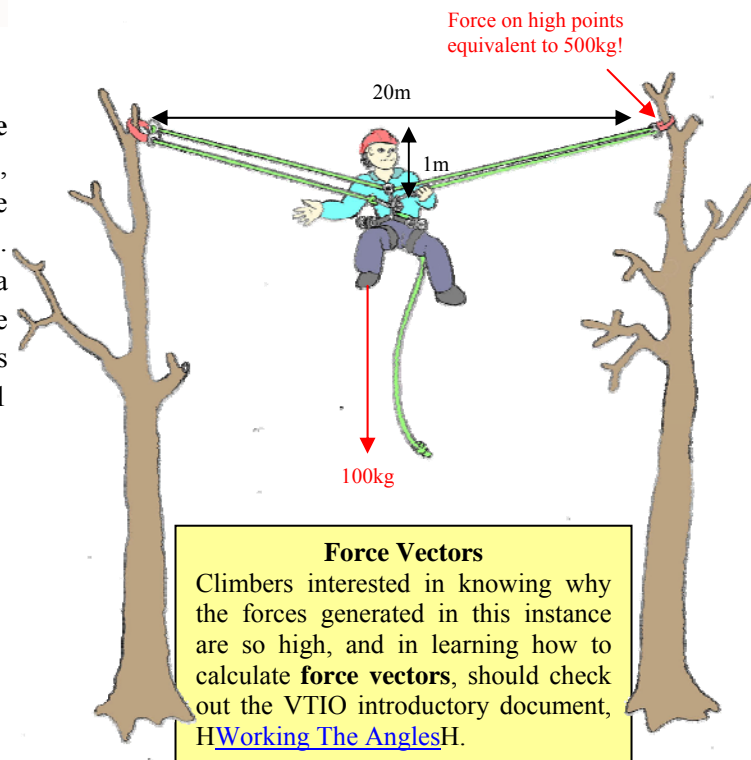
Illustration by Mark Bridge

Using the M-Rig

Setups like this which exploit the enormous versatility of the hitch-climber system are extremely strong techniques for movement in the canopy. Interested climbers should check out [Hthe hitch-climbers guide to the universeH](#), available on the Treemagineers website and elsewhere.

Climbers should however be aware that **very large forces can be generated whilst double-crotching**, specifically when the climber traverses from one crotch to another whilst level with the anchor points. In the unlikely (and not to scale) illustration below, a 100kg apprentice has been sent to try and traverse from tree to tree. At the precise mid-point of his traverse, he is 10 metres from either tree, and only 1 metre below his high-points.

Although it is inaccurate to discuss forces in terms of kilograms, **suffice to say that the force generated on each high point is the equivalent of a 500kg sideways pull.**



Force Vectors

Climbers interested in knowing why the forces generated in this instance are so high, and in learning how to calculate **force vectors**, should check out the VTIO introductory document, [HWorking The AnglesH](#).

7 OBSOLETE REDIRECTS

The redirects in this section are described as **obsolete** because they are no longer acceptable for use in ISA-format climbing competitions. But does this mean that you can't use them at work?

According to the VTIO climbing guidelines, *“The VTIO recognizes the importance of the industry-wide forum on equipment and equipment-usage that is offered by the International Tree-Climbing Championships (ITCC), and formally recognizes the decisions made in that forum as representing an agreed standard set by the industry as a whole.”*

In other words, you can't use them at work, or at least we think you ought not to. The reason is that the redirects in this section have a vulnerability mentioned earlier in reference to the Ropeman Redirect: an accidental pull on the tail of the climbing line or on the separate pull-out line can cause the redirect to open, particularly if this pull is applied whilst the redirect is momentarily not under load.

It is not unusual to hear climbers claim that particularities of their application or the unique awareness with which they climb allow them to safely use equipment or techniques which would be dangerous for the rest of the industry. It is true that every tree is as different as every climber, and (to quote the VTIO climbing guidelines again): *“The Victorian Tree Industry Organisation (VTIO) recognises that although working in trees is an inherently dangerous activity, comprehensive prescriptive regulation of best practice is unfeasible as the unique challenges posed by each tree mean that no single universal approach can be successfully prescribed. In addition, the differing skill sets and experience of each individual climber allow for a number of different valid approaches to each tree.”*

In the case of redirects, the three given in this section have the great strength of being able to retrieve them without disconnecting from your system. This makes them in one way much safer than the other retrievable redirects previously shown. So, particularly given the paragraph above, why are we saying that you shouldn't use them? If highly skilled and aware climbers are using these redirects in safe environments, then it won't be too long before all sorts of climbers are using them all over the place. And soon after that someone will swing a branch in further than they expected, tangle it in their retrieval line, disconnect their redirect and fall into space.

Instead of this scenario, the VTIO would like to encourage the highly skilled and aware climbers to work on developing a convenient, compact redirect that is **not vulnerable to accidental disconnection**, and does not require the disconnection of the climbing line to retrieve.

Locked Retrieval Line Rule

No redirect will be considered acceptable for use in climbing if it is possible to disconnect the redirect with an accidental pull of the retrieval line

7.1 ROPEMAN REDIRECT

Retrievable

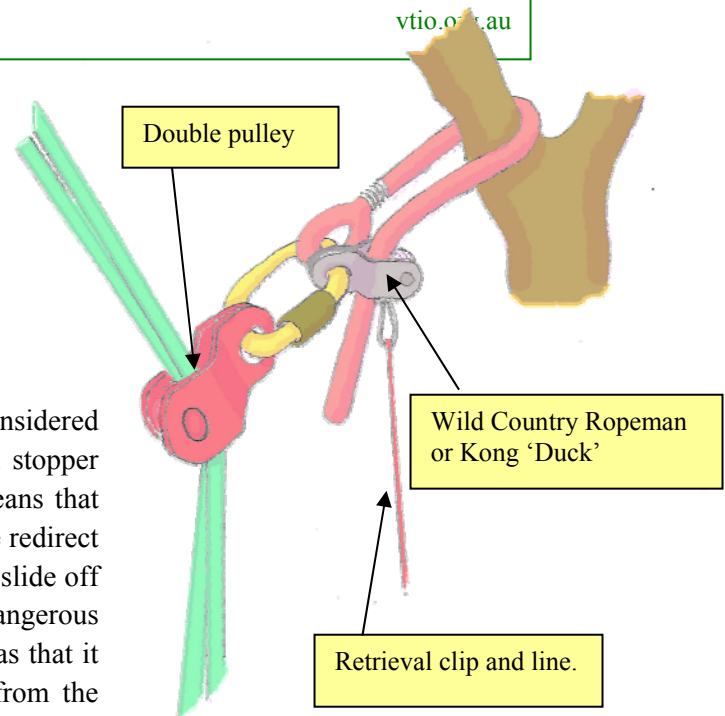
Friction ☹ ☹ ☹ ☹ ☹

Simplicity ☹ ☹

Gear ☹ ☹

Retrieval ☹ ☹ ☹ ☹

The Ropeman redirect is no longer considered acceptable for use in climbing. The lack of a stopper knot on the strop passing around the crotch means that an inadvertent tug on the retrieval line whilst the redirect was not under load could cause the Ropeman to slide off the line, exposing the climber to a potentially dangerous fall. The enormous advantage of this redirect was that it was retrievable without having to disconnect from the climbing system.



Please see discussion of the merits of this system on page 4.

Ingredients:

Short strop (footlocking prussik, tape sling, prussik loop etc)

Double pulley & karabiner

Wild Country 'Ropeman' or Kong 'Duck'.

Retrieval clip, optional light retrieval line or tail of rope

Advantages

Minimal friction

Retrievable

Retrievable without disconnecting

Rarely gets stuck

Disadvantages

No longer allowed

Not removable without access to retrieval line

Fairly gear-heavy and complex

WARNING

This redirect is no longer considered acceptable for use in climbing

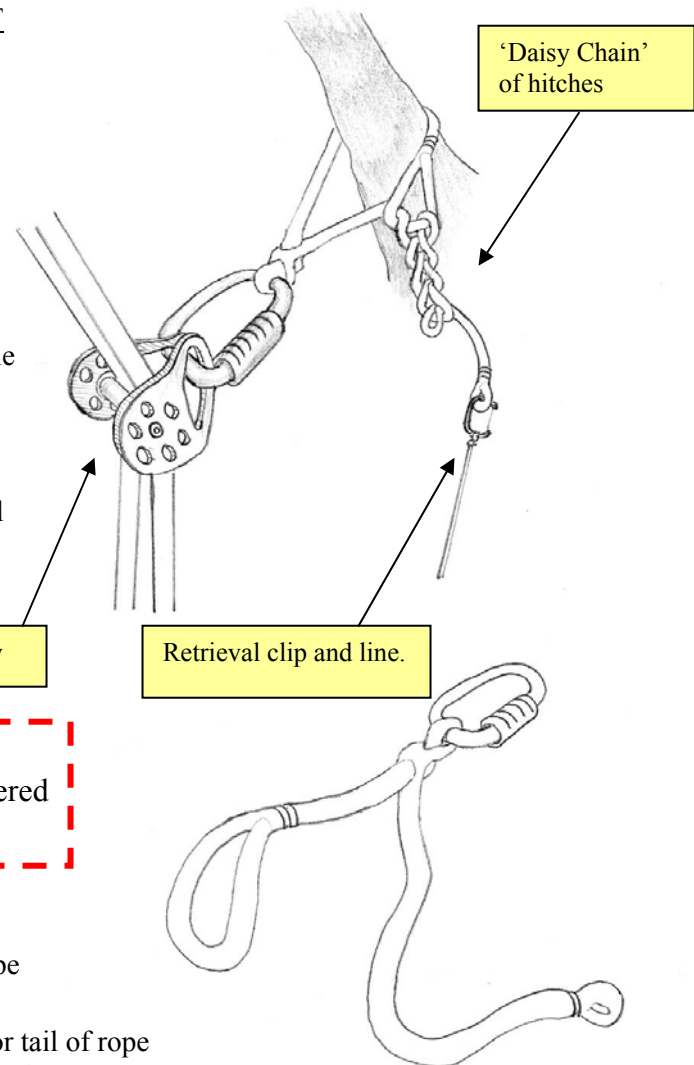
7.2 ZIPPER (DAISY CHAIN) REDIRECT

Retrievable

Friction	☹ ☹ ☹ ☹ ☹
Simplicity	☹ ☹ ☹
Gear	☹ ☹ ☹
Retrieval	☹ ☹ ☹ ☹

A simple and effective retrievable redirect whose only disadvantage was the need to tie a series of hitches when setting it up.

Could also be installed using the tail of the climbing line, or set as shown using the tail of the climbing line in lieu of the retrieval line.



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Ingredients:

- Short strop as pictured to right or tail of rope
- Double pulley & karabiner
- Retrieval clip, optional light retrieval line or tail of rope

Advantages

Minimal friction

Retrievable

Retrievable without disconnecting

Simple

Disadvantages

No longer allowed

Tying hitches a bit time-consuming

Not removable without access to retrieval line

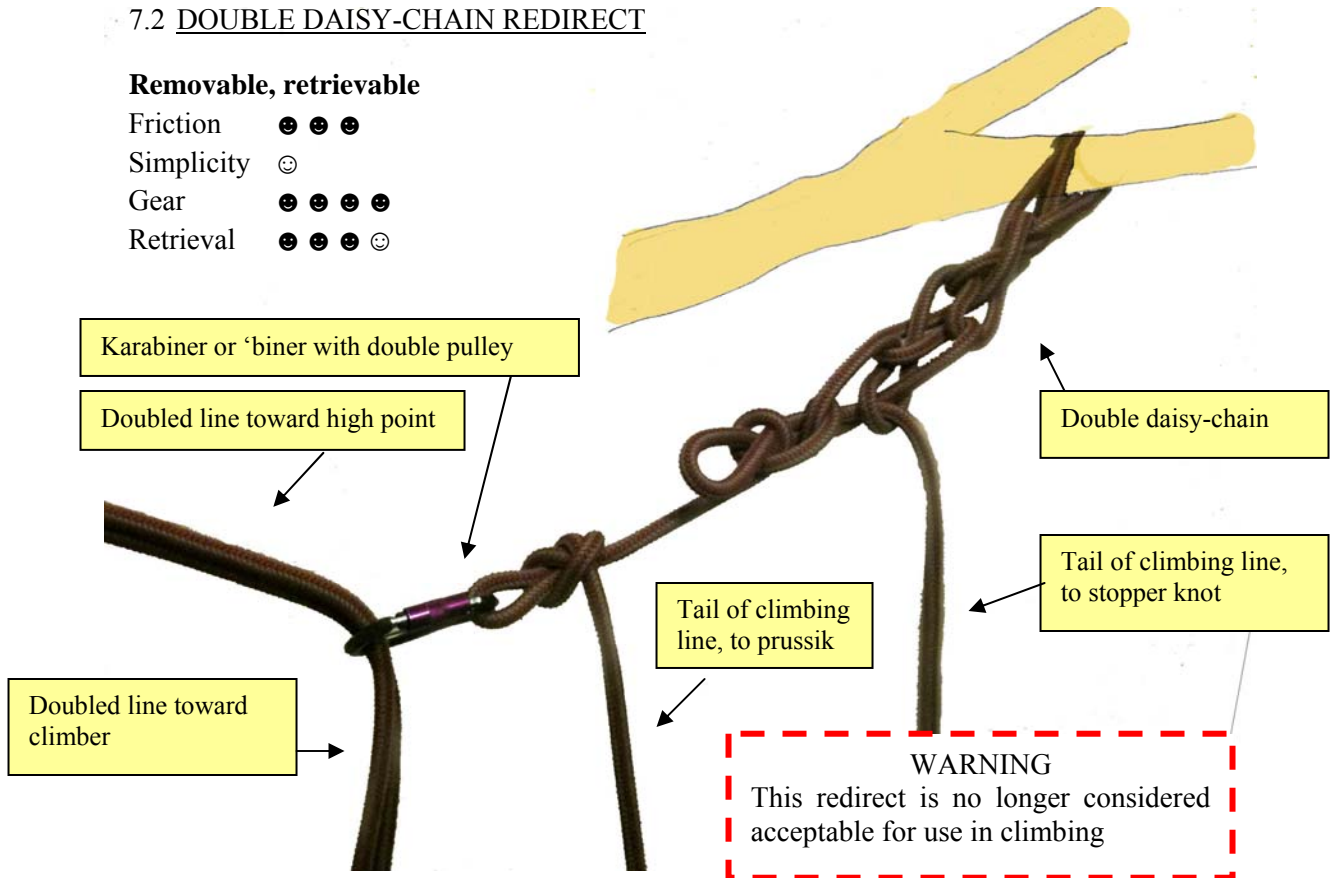
Hard to install with any tension in climbing line

Note: It is possible to make this redirect acceptable by a number of means. One easy technique is to build the redirect as described above with a separate strop (pictured), and then pass the tail or a bight of the tail of the climbing line through the final loop of the daisy chain. This method ensures that the retrieval line cannot actuate the redirect until the climber has prepared the redirect for removal by pulling the tail of the climbing line out of the daisy chain. Similar to the 'positioned tail' redirect on page 14, this technique is **time consuming and complex to install, and requires access to two separate lines in order to retrieve.**

7.2 DOUBLE DAISY-CHAIN REDIRECT

Removable, retrievable

Friction	☹ ☹ ☹
Simplicity	☺
Gear	☹ ☹ ☹ ☹
Retrieval	☹ ☹ ☹ ☹



A difficult-to-draw redirect introduced to Australia by legendary competition climber Bernd Strasser. Built on a bight of the tail of the climbing line; requires alternating pulls on either end of the line away from the redirect in order to disconnect. As such, this redirect would pass the 'Locked Retrieval Line Rule'. However, in a situation where the climber was suspended in space below the redirect (particularly if the rope is redirected at an acute angle), and a sustained pull was placed on the stopper-knot end of the climbing line, the loops of the daisy chain could sequentially fail until the redirect disconnected.

Advantages

Minimal friction
Retrievable
Retrievable without disconnecting
 Almost no gear

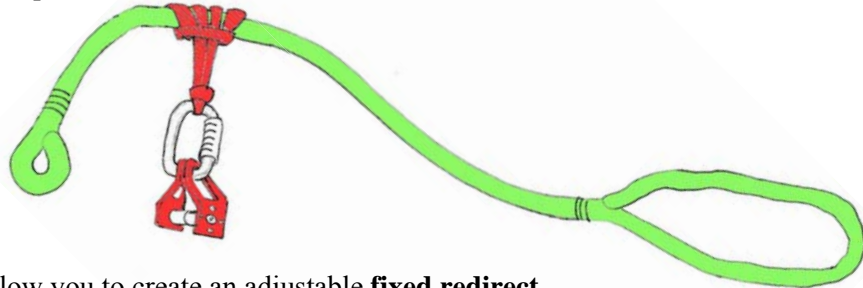
Disadvantages

No longer allowed
Setup complicated and time-consuming
 Not removable without access to retrieval line
Installation relies on correct estimation of bight size

8 FOOTNOTE – USES FOR A FOOTLOCK PRUSSIK

After discussing all of this specific gear, it may be reassuring to learn that a high proportion of it can be built with very little equipment. Although the **double-revolver redirect** is significantly better in most categories than any of improvised redirects that can be made from the footlock prussik, it does mean carrying more gear.

Check out the setup pictured. A dyneema tape-sling has been used as a prussik to connect a double pulley to a footlock prussik.



This simple setup will allow you to create an adjustable **fixed redirect**.

Attach a DMM Revolver to one end of the footlock prussik to allow several different types of **removable redirect**.

Clip a retrieval line or the tail of your rope to the other end or to the tape sling (see page 11) for a **retrievable redirect**.

You can even build a redirect which is **retrievable without disconnection**, using a bight of your climbing line and a separate retrieval line. For details of this trick, see the text box at the base of page 20.

The same setup can be used to build an in-line anchor, an adjustable cambium saver (with DMM Revolver) or to actuate an injured climber's prussik in a rescue. The great thing about this setup is that you will probably have at least some of it on your harness already: just throw in the tape sling and double pulley and you're ready to go.