

A Widescreen Primer

a guide to widescreen on home video for those who can't define "anamorphic"

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Part One - Just What Is Widescreen And Why Do I Need It?

Introduction

The purpose of this article is to explain in clear, understandable terms exactly what widescreen is, how it affects the consumer, and how it works in the context of the home video environment. By necessity, this article is aimed more at the novice home theatre user than the dedicated enthusiast, but more advanced readers may wish to read it anyway as a refresher.

The Shape Of Films - They Are Generally A Lot Wider Than A TV Screen

The first thing one has to understand about widescreen transfers is that feature films are almost always wider than standard television screens. That is, the **aspect ratio** of the film (the ratio between the width and the height of the picture) is wider than a standard TV's width.

If you were to measure a TV screen, you'd note that the width of the screen is 1.33 times the height of the screen. In other words, a standard TV's aspect ratio is 1.33:1. This can also be expressed as an aspect ratio of 4:3, or four units wide by three units high.



From the beginning of cinema to the middle of the twentieth century, films were projected in this same ratio, which is why America's National Television Standards Committee defined the shape of the television screen this way in the 1950s. One slight problem resulted from this, however. The fact that there was little perceived difference between television and theatre saw theatre attendance in a state of decline, because audiences figured that there was no point in going to the theatre and paying to see something that they could watch for free in the comfort of their homes. Numerous ideas were proposed to win audiences back to the theatres, ranging

from the short-lived idea of three dimensional projection to the recent IMAX exhibitions (which are quite a cut above any documentary you'll see on television). The two ideas that have stood the test of time are multi-channel audio and widescreen projection, which is the one we'll be concerning ourselves with during this series of articles.

Although any aspect ratio you care to imagine can be used in cinematography, there are two aspect ratios which are commonly used in modern films, and that we will discuss in detail here: 1.85:1 and 2.35:1, both of which are significantly wider than the ratio of a standard television set.

1.33:1 Academy Standard Frame	This is the original shape in which movies were shown and the shape which was thus adopted by TV.
1.78:1 Digital Television Standard	This is the shape adopted for digital TV.
1.85:1	This is the narrower of the two common shapes used for films today.
2.35:1	This is the wider of the two common shapes used for films today.

So How Do We Squeeze A Wide Image Into A Narrow Television Screen? Panning & Scanning.

Films no longer fit on a television screen easily, a problem that has plagued home video since its very inception. There are two basic methods used to fit a wide image onto a narrow television screen, both of which involve compromises, advantages, and disadvantages. One involves modifying the shape of the image to fit the screen, which usually means a compromise in the content of the image.

This method is typically referred to as Panning & Scanning, and is a process in which an editor, not necessarily the same one who worked on the film, cuts out what they deem to be less important parts of the image in order to fit the resultant image fully onto a narrow television screen. While this method may look aesthetically pleasing to the less-educated eye, the results of this method severely damage the impact of the film, with numerous shots being made confusing or even nonsensical by this alteration. The wider the original aspect ratio of the film, the greater the impact of Panning & Scanning.

Panning & Scanning a 1.85:1 film



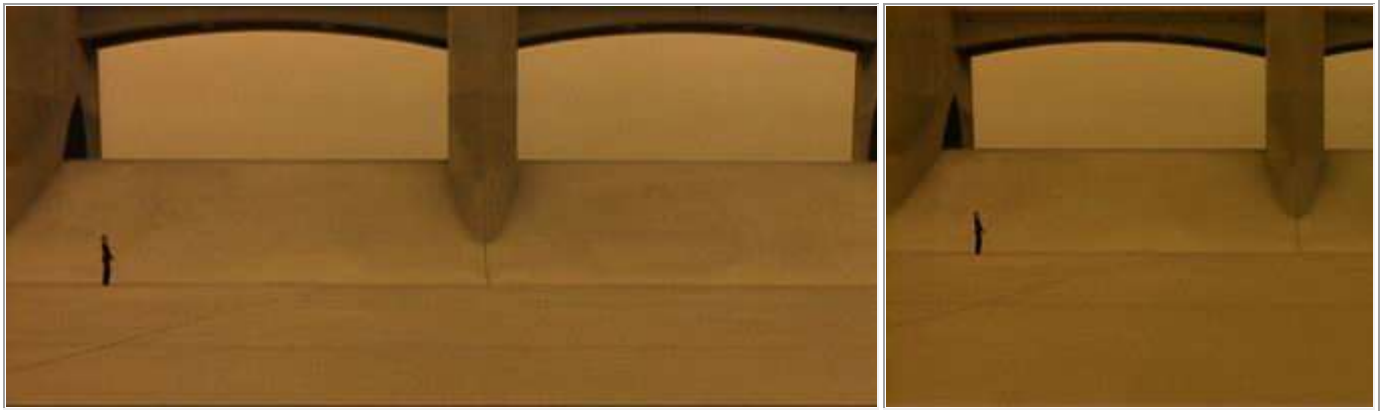
This is a still frame from the 1998 classic *Lock, Stock, And Two Smoking Barrels*. The film was originally presented in an aspect ratio of 1.85:1. Note the bag of golf clubs on the extreme right of the frame near **Frank Harper**, and the number of trees in the painting in the background.



This is the same still frame from *Lock, Stock, And Two Smoking Barrels* after having been cropped in order to fit onto a 1.33:1 television screen. The golf bag is now missing, as are a noticeable number of trees on both sides of the background painting. The result is a shot that looks and feels much more cramped than in its original form, and is not what director **Guy Ritchie** had intended.

Panning & Scanning a 2.35:1 film





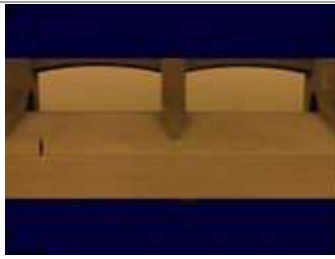


Both of the above examples come from the film **Gattaca**. Note the carefully composed widescreen shots on the left, emphasizing the smallness of the humans in relation to the enormous, carefully framed and symmetrical backgrounds. Both the scale and the symmetry of the backgrounds are destroyed by the panning & scanning process, decreasing the impact of these scenes.

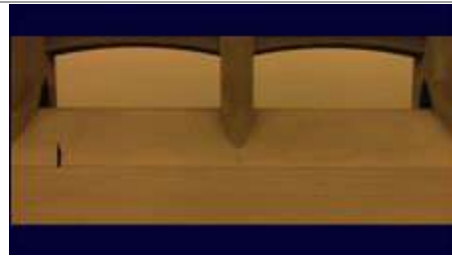
So How Do We Squeeze A Wide Image Onto A Narrow Television Screen? Letterboxing.

The other, much more preferable, method of making a wide image fit a narrow screen is to reduce the vertical height of the image so that it fits on the screen in its entirety. This method is called letterboxing, and its only drawback to the uninitiated is the necessary inclusion of black bars above and below the image. The advantage is that we are seeing the film in the aspect ratio that the director intended, rather than in an arbitrarily pared down version. This is a large part of the reason why televisions are being made wider. For now, here is a comparison table demonstrating what wide images look like when they are reduced in height in order to fit narrower television screens.

<div data-bbox="315 1192 643 1440" style="border: 1px solid black; padding: 10px; text-align: center;"> <p>1.33:1</p> <p>Academy Standard Frame</p> </div> <p data-bbox="337 1444 620 1478" style="text-align: center;">Standard TV shape.</p>	<div data-bbox="945 1192 1386 1440" style="border: 1px solid black; padding: 10px; text-align: center;"> <p>1.78:1</p> <p>Digital Television Standard</p> </div> <p data-bbox="1042 1444 1289 1478" style="text-align: center;">Digital TV shape.</p>
<div data-bbox="315 1486 643 1738" style="border: 1px solid black; text-align: center;">  </div> <p data-bbox="149 1738 812 1883">A 1.85:1 image, vertically shrunk in order to fit the 1.33:1 television screen. The entire image is preserved, with 28% of the original resolution lost.</p>	<div data-bbox="945 1486 1386 1738" style="border: 1px solid black; text-align: center;">  </div> <p data-bbox="831 1738 1507 1883">A 1.85:1 image, vertically shrunk in order to fit a 1.78:1 television screen. The entire image is preserved, and only a miniscule 4% of the original resolution is lost.</p>



A 2.35:1 image, vertically shrunk in order to fit the 1.33:1 television screen. The entire image is preserved, with 43% of the original resolution lost.



A 2.35:1 image, vertically shrunk in order to fit a 1.78:1 television screen. The entire image is preserved, and only 24% of the original resolution is lost.

In Closing... For This Part, Anyway

Now that you have been shown the difference between the wide image you see at the cinema and the narrow image shown on your TV set, with the resultant compromises to the original picture that this entails, we hope you'll have some understanding of why those "annoying black bars" are so important to home theatre. Rather than missing out on picture because of the "black bars", you are in fact gaining more picture.