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Final Cut Pro

from Apple, Inc.

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Final Cut Pro is a digital video editing software package that, is now popular among professional film editors. Since its release in 1999, a number of major feature films have been created using Final Cut Pro, including *Cold Mountain* (2003) and *The Curious Case of Benjamin Button* (2008). Now it is also gaining some currency among language documentation and revitalization practitioners for its ability to integrate documentation materials such as recordings and transcriptions into stand-alone media forms such as videos or DVDs. In this respect, Final Cut Pro fills a gap in the current range of documentation tools. This review gives an overview of how to create a DVD using Final Cut Pro, and shows how to use it to make recordings and associated annotations more accessible to speakers in communities where media players are now commonplace. It also demonstrates that Final Cut Pro is a way not only to package pre-existing material, but also to enrich documentation efforts by creatively layering video footage, additional sound such as voiceovers or songs, and subtitles in the traditional and vernacular languages.

Final Cut Pro is not very intuitive to begin using; however, it does not differ greatly in functionality or format from other popular editing software, such as Adobe Premier. It also comes with the usual set of opaque terminology—for example,"slugs" and "rendering"—which, although common to all editing programs, can slow down the first-time user. The program itself consists of four windows: the *browser* in the far left, where the media files and subclips are organized, the *viewer*, where cutting takes place, the *timeline* along the bottom of the screen, where subclips, subtitles, voiceovers, and music are edited together, and the *canvas* which gives a view of the timeline at any particular time.

Creating a subtitled DVD or video using Final Cut Pro consists of four main steps: capturing the media, creating subclips, editing subclips onto the timeline, and producing a DVD. Producing the final DVD also requires a DVD rendering program, such as iDVD. These four steps will be outlined in the following paragraphs.

Making a Final Cut Pro file, and ultimately a DVD, begins with creating a project file (File>New Project) and scratch disks (Final Cut Pro>System Settings>Scratch Disks). The scratch disks must be set to direct Final Cut Pro where to put media and render files. All files, including the project file and its associated files, must end up in the same folder. Getting this first step right is vital if one is to avoid having media entangled in other unrelated folders. The next step is to digitize the recording. If a video file already exists, it can be imported directly into Final Cut Pro; however, it needs to be in .mov format, and it must be placed in the "Capture Scratch" folder in the project folder. Capturing the footage involves connecting the camera to the computer and "capturing"" the footage. A camera with a Firewire connection is required, because Final Cut does not recognize USB devices. This is something to keep in mind when buying a video camera. Sony cameras are unproblematic

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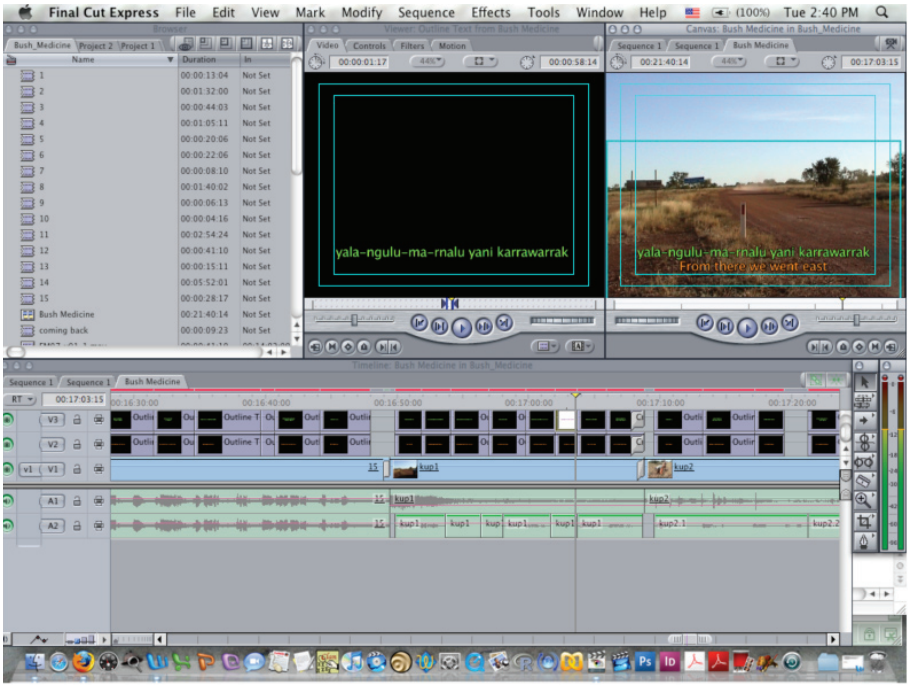

FIGURE 1: Final Cut Pro windows

in this respect. However, other major brands produce some models of camera that do not have a Firewire option. "Capturing" footage from VHS is simultaneously a digitization process, and so will also require an analogue-digital converter (see below). During the capturing process Appletalk, Bluetooth, and wireless connections should be turned off to avoid "dropped frames," which results in the sound and the video becoming misaligned. To avoid line noise, the camera should also be running off the battery rather than being plugged in. Once the video is "captured" it will appear in the Browser window. All other media that will be used to create the DVD, such as still photos or additional sound for voiceovers, can be imported here.

Once all of the required media are available in the browser window, editing can begin. This process involves creating subclips from the digitized media. Note that, though Final Cut Pro is an editing program, it does not actually edit the original recording. Instead, it creates time code tags that tell the program where to look for a subclip within the actual media file. This process is entirely consistent with language documentation programs, which aim not to alter the original recording in any way. Creating clips involves opening the recording in the viewer window and positioning the cursor where required to create subclips. It is a good idea to leave some scrap seconds on either side of the subclip to allow later editing transitions such as dissolves. These subclips then appear in the browser window with the same name as the original file. Because a large number of subclips will be created from the original file, it is important to label the subclips in a transparent and sequential manner. For

example, it is useful to label the subclips beginning with a number followed by the theme. Additional sound can be edited and labelled in the same manner.

The next step is to edit the subclips together and create subtitles and transitions on the timeline. A blank timeline will already exist, but in order to create subtitles and voiceovers more audio and video layers are required (Final Cut>User Preferences>Timeline Options). After creating a new timeline with the additional audio and video layers, the subclips can be dragged directly onto the timeline. They can also be dragged onto the canvas window for simple editing transitions, such as cross-dissolves. These transitions can also be added later. Subtitles are created using the viewer window (light-colored and outlined text, 28-point font, and line width 3 are recommended). The subtitle can then be positioned on the second video layer on the timeline. The most efficient way to subtitle an entire film is to copy and paste new subtitles to save the settings (e.g., font and positioning) from the previous one. Once the new subtitle has been copied and pasted, the text of the subtitle can be changed through the viewer window. Dual language subtitling, created in the same manner using the third video layer, may be used to include the vernacular language. Single language subtitling is available in ELAN to some extent; however, including subtitles in both the traditional and vernacular languages provides the additional benefits of aiding language revitalization and promoting literacy. Unfortunately there is no direct way to transfer transcriptions from other software such as ELAN into the subtitling module in Final Cut Pro, but they can be copied manually from the original transcription rather than retyped. It may be more efficient to do this using Title Exchange, which maps between XML (and therefore theoretically ELAN) and Final Cut Pro. The exact mechanisms of this have not been tried by the author, but could prove to be a time saver. Finally "slugs" containing titles and acknowledgments can be added to the beginning and the end of the timeline in the same manner as subtitles.

Once the footage, subtitles, and additional material such as voiceovers have been edited together, the timeline can be rendered and exported. Depending on the technology available in the language community, a DVD or a video may be more suitable. Videos are created within Final Cut Pro using the "Print to video" option. They are created in real time and require a video recorder and an adaptor such as a Canopus analogue-digital converter, though in fact your video camera can be put to this use. Creating the DVD requires exporting the timeline as an uncompressed .mov file. Note that this file can look quite poor on the computer screen, particularly the subtitles. However, this on-screen look does not reflect the final quality of the DVD. The .mov file is then imported into iDVD, which is free Mac software. iDVD compresses the .mov file using an MPG2 ratio, the standard in commercial DVD production. It also creates a ready-to-use front end for the DVD. Because iDVD is made for amateur home video users, many of the front ends are related to family events such as births and marriages. Other, plainer options are available, nonetheless. The creation of the first DVD can take the computer many hours, and is "dead time" in this respect. Depending on the power of the computer's processor, it can be left to process and burn the first DVD overnight, or you can do other work on the computer while it creates the DVD. However, subsequent DVDs are quick to produce.

The result of this process is a media object that can combine different forms of documentation such as video, audio, photos, and transcription, which are associated with one event—for instance, a narrative telling or a procedural text. Indeed, one of the most fun-

damental advances of language documentation tools has been to marry sound, video, transcription, and other annotations. Almost all software packages now perform this function to varying extents. For example, Transcriber, CLAN, and ELAN take the audio or video recording as the basis for adding layers of linguistic and non-linguistic annotations such as the transcription, translation, and gestural and contextual information. Toolbox treats the transcription as the primary reference point but also allows sound linking (cf. Andrew Margetts, this issue). This ability to link annotations with recordings has enriched language description. One of the drawbacks to these tools, however, has been the limited accessibility of the end product, which remains tied to the software that created it. Accessibility can be measured in a number of ways. Most obviously, many language communities do not have access to computers. Even where computers are available, the complexity of documentation software and the lack of transparency of their front ends may render the material inaccessible to non-expert users. Additionally, computers may be available only in schools and government offices. In confining documentation products to these contexts there is a risk of institutionalizing the documented material. And regardless of where computers are available, the internet bandwidth may be so narrow that it is not possible to stream media available only through online archives.

In contrast, the end product of a program such as Final Cut Pro is a stand-alone media object: a video or DVD that is not reliant on the software that created it, and which takes advantage of cheaper and more commonly found technologies, such as DVD players. Final Cut Pro can both bring recorded material into the home and create educational products that can be used for more formal revitalization or maintenance efforts. For example, many Indigenous communities in the United States and Australia have limited access to computers and the internet; televisions and DVD players, however, are commonplace in homes. Additionally, many small Indigenous media organizations exist which provide broadcasting services to individual communities or clusters of communities. These organizations can provide another avenue for expanding audiences by broadcasting the documented materials. In this respect, Final Cut Pro has the potential to broaden the audience for the recorded material by making it accessible to more of the language community.

Final Cut Pro may also play a greater role in a project than merely editing together footage as an afterthought to the documentation process. Smaller projects within the larger documentation project can be designed around the video or DVD end product. For example, this software can be used to enrich narratives with additional visual or auditory context. Many stories include travel or different places and have associated songs. These can be recorded separately, in addition to footage of a speaker recounting the story. The footage of the story-telling event and of the places can then be knitted together to produce a visual narrative that is rich in context. Final Cut Pro can also be used to produce rich procedural texts. For example, speakers engaged in traditional tool making may be too busy with their work to comment in detail on the activity while it is taking place. This footage may be played back to speakers later to elicit a more detailed procedural text which can then be edited into the footage as a voiceover.

Despite its advantages, there are drawbacks to using Final Cut Pro. The main disadvantage of any professional editing package is the investment in time. First, it takes time to learn to use, although this is a drawback of any new software. Linguists involved in language documentation work are already faced with a plethora of software, and the thought

of learning how to use yet another tool can be a deterrent. Second, using Final Cut Pro adds time to the documentation process even for expert users. With a pre-existing transcription it can take approximately two more days of work to create a twenty-minute, fully subtitled DVD including additional voiceovers. None of this is generally counted in official documentation or academic work allocation. Nonetheless, time spent creating the DVD can save time later. For example, language communities often request material sporadically in the years following the documentation work. Unless a high-speed internet connection is available, giving the community access to archives where the recorded material is held, the linguist who made the original recording remains the main point of dissemination. This means that linguists are periodically faced with trawling through large amounts of material looking for the best and most representative recordings. The DVD is more likely already to be a culmination of the best material, and once a DVD is created it is quick and easy to burn additional copies. In the end, this is less work for the linguist, and it also means that communities receive copies of materials more quickly.

Another problem with Final Cut Pro is that it is commercial software, which is expensive and creates proprietary formats. The professional program comes as a part of the Final Cut Studio suite, which costs around US$1,200. The non-professional version, Final Cut Express, is recommended. It has all of the functions the amateur linguist user requires, and costs just US$199. Final Cut Pro creates project files in a proprietary format (.fcp) that cannot be opened by other editing programs. However, it does export the end product in all other standard non-proprietary formats (except MPG2, which needs to be bought separately as a conversion tool) that can be archived in the same manner as digitized raw footage. Similarly, the DVD project file created by iDVD needs to be updated with each new installment of iDVD. This can take around half an hour. Again, this file is specific to the software.

All in all, Final Cut Pro is a useful tool for the linguist who has the time and the inclination. By and large, however, the benefits are mostly felt by the language community. Final Cut Pro has the potential to make language documentation more widely available to the communities by bringing documentation efforts out of an institutional context and into homes.

Pros:	The ability to create an accessible language resource; the ability to include dual language subtitling and to overlay the original footage with additional associated materials such as voiceovers.
Cons:	The time to learn to use and the time to use; the cost of the software; the reliance on proprietary formats.
Primary function:	The creation of DVDs.
Platforms:	PC: Not available for PC users. Consider Adobe Premier instead. Mac: OS10.4.10 (Minium requirements: 1.25 GHz G4, Intel Core Duo or Xeon Processor, 1GB RAM) Unix: Not available for Unix platform.
Available online from Apple:	http://www.apple.com/finalcutstudio/finalcutpro/
Reviewed version:	Final Cut Pro 5 and Final Cut Express 4.0.1
Application size	240 MB

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