

# Issues in Shot-Level Indexing of Moving Images: What Constitutes a Shot?

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## *Introduction*

The usefulness of cataloguing and indexing individual shots and sequences of moving images was recognized early on in the history of moving-image collections. Now, half a century later, the desirability of such activity is becoming ever more obvious as huge television archives and stockshot libraries accumulate. Another area in which shot-level indexes would be desirable is finished film and video products, especially those of a documentary nature. When we come across a book without an index we easily become annoyed because its usefulness is greatly reduced, the time we need to invest in using the document being greatly increased. While using the shot as the unit of documentation in information systems is desirable, the practice is not widespread. It is likely that the principal reason for this is the costs involved in creating the metadata. A catalogue record needs to be created for each shot, a running textual description needs to be written which is substantial enough to give the user a clear idea of the visual content of the shot, and extensive indexing needs to be done in order to provide access to the shot from all the possible entry points, including camera angles, geographical descriptors, some indication of the time, and of course subject description, to name a few. Because of the costs involved, many collections make do with summary descriptions of whole reels or whole products, and users are left to plow through them in the hope of finding what they need. Probably automation is the key to allowing shot-level access to moving image documents. My own research seems to indicate that it is possible to automate the subject access, using the textual metadata to generate the index. I'm anxious to finish collecting and analyzing the data being gathered for my present project, as the results will shed more light on this. Historically, and especially with text documents, subject access has been the most difficult part, the aspect that requires the most intellectual effort. Indications are that with shot-level indexing of moving images it may be the easiest part! More on this in a subsequent column.

## *What constitutes a shot?*

In a discussion of shot-level indexing, the first thing to be clear on is what constitutes a shot for purposes of storage and retrieval of moving images? We might note that in general, a shot is what is recorded between the time the camera starts rolling until the time it stops. This is a clean, unambiguous definition, but its application in the context of storage and retrieval systems for moving-image documents leaves something to be desired. To provide a context for discussion, let's assume that the indexing issues are not the same in shot-level

indexing of production databases as they are in shot-level indexing of a finished film or video product. This has to do with the fact that in the former case there can be multiple takes of the same shot, and that individual units are isolated from any context--they're not yet ABOUT anything-- whereas in the latter case a choice has been made of a single shot among the numerous takes, and since it is edited with other shots to tell a story of some sort, each shot has a context (the shots among which it is juxtaposed) from which it derives its meaning. The discussion here will focus on production databases, such as stockshot databases for film and video, and television archives. In such systems we want to identify the shot as the unit of documentation, but the definition of a shot needs to be extended to accommodate the particularities of cataloguing, indexing, storage, and retrieval. The fact that a shot can be as short as a frame or as long as a roll of film or tape gives us an immediate hint that dealing with its content is not a simple matter. More pertinently, however, is the question of multiple shots with the same subject matter. Creating a separate cataloguing record for each of a dozen takes of the same scene doesn't make any more sense than cataloguing each frame in a moving image shot. In addition, when shooting material for some production often additional material which may be of use is gathered, pending a decision on its use at the editing stage. Or, with a crew all set up on location in some unusual or hard-to-reach situation, camera operators may shoot material unrelated to the production explicitly for use as stock footage in some other context. Thus the stockshot librarian may find himself with multiple shots which technically are not takes of the same thing (e.g. the old church on the edge of the cliff), but which would have identical or similar cataloguing and indexing records in an online database. An easy way to get around both these problems (multiple takes and collocated shots with the same subject) is to build a field for this information into the data structure. A field entitled number of shots can record this information efficiently, and the user who finds something which seems of interest knows immediately how many possibilities she has to screen for possible use in her production. In building the data structure for the stockshot library at the National Film Board of Canada, an additional problem surfaced which is described here because it probably is present in existing systems elsewhere. The automated file was to be built from an almost fifty-year-old card file. The estimated time to convert the card file to the new system is 26 person-years. Since resources are scarce almost everywhere now, it was evident that the new system needed to accommodate the old system for some time to come. As background, the card system used a reel of shots compiled from the same source production as the unit of documentation. Thus one card represents one reel, and the shot descriptions appear as a running narrative. Since the basic unit of documentation was changed in moving to the automated system, it was necessary to break down the running descriptions and re-index each shot. The danger was a potential loss of information in subheadings which appear on the cards as reference points for the user, but which do not represent narrative of specific shots. Some of these are included as nugatory shots but are not indexed, while others are considered quasi-nugatory and are indexed because they contain information not available in the shot descriptions themselves. In summary, there are five cases of what can constitute a shot record in the database at the National Film Board of Canada:

1. Single: a single shot.
2. Multiple: two or more takes of the same material.
3. Combined: collocated (i.e. on the compilation reel holding the original negative)

shots with the same subject.

4. Nugatory: headings in the text of the visual synopses in the card file, which are included but not indexed, e.g. At the farmhouse .

5. Quasi-nugatory: headings in the text of the visual synopses in the card file, which are indexed to preserve the information content, e.g. Harvest festival activities. The shots listed after the heading are more precise and do not carry this general information.

In the National Film Board database, individual shots are assigned unique identifiers that are coded in such a way as to reconstitute the information as it would have appeared in the card file if a sort is performed on the ID number. In this way, users can work in both the card file and the database with a minimum of strain on their cognitive models of each system. Because of the particulars of the way they are organized, some other collections may not have a need for the last two categories identified here, and some collections may have other needs not identified in the National Film Board's collection. Designers of information systems for moving image collections need to make sure they clearly understand what the needs are, and respond to them in the data structure they build. In any event, the five categories given here were enough to address the needs of one large collection, and it is hoped that they can provide guidance for other situations. Of course, discussion of this question is invited, as it concerns us all. In future columns we'll look at other indexing issues that need to be addressed in building structures for moving image databases. I always say we should build to ideal specifications, and let the technology catch up later. In this way we create near-perfect metadata from the start, and don't need to keep going back and revising it with each upgrade to the hardware and software.