Point of View and Incremental Interpretation in Film

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POV order effects. It is a familiar convention of film and television to have the viewpoint of a shot represent the position and gaze direction of a character in the story. We call this the POINT-OF-VIEW (POV) convention, and term a shot having this interpretation a POV SHOT (Branigan 1975, Carroll 1993). We will describe such a shot as SUBJECTIVE, and call a contrasting, non-POV shot an OBJECTIVE shot. Almost any shot, out of its context in a film, could be either subjective or objective. But when a shot occurs in context, we are hardly ever in doubt as to whether or not it represents a character's point of view. What tips us off when the POV interpretation is intended?

Surprisingly, the ease of attaining the POV interpretation is affected by the order in which the glance and object shots occur. This is illustrated by the following short sequences, with stills below: https://vimeo.com/236153570. In the GLANCE-OBJECT ORDER, the woman's glance is shown first, and it is very natural and easy to interpret the shot of the chessboard as a POV shot from her vantage point (and thus that she is playing white in the game). This POV interpretation is much harder to get when the shot of the chessboard comes first instead, the OBJECT-GLANCE ORDER. Then natural interpretation is that the woman is standing behind the board in the position of one playing black, and hence the camera is not in her POV in the object shot. (These observations have been repeatedly confirmed in informal classroom surveys; we explore this question experimentally in other work.)

Glance-Object Order   **Object-Glance Order**

This ordering effect is prima facie surprising because both ways of ordering the shots seem to present the same overall narrative evidence to the viewer. Furthermore, no known filmmaking imperative tells us to put the glance first; and there are plenty of examples of films that employ either order consistently with a lucid POV interpretation. We may contrast this situation with an obvious asymmetry in temporal interpretation. The extremely natural interpretation of within-scene edits is that each successive shot advances narrative time. It is clearly part of the evidence for a particular order of events that the shots themselves came in that order. But the effect of order on subjectivity is not satisfactorily captured in this manner. Nothing about temporal order is naturally or iconically related to subjective vs objective interpretations.

Incremental interpretation. Every shot in a film depicts its own proper spatially organized situation, it's SHOT CONTENT; a sequence of shots expresses a SEQUENCE CONTENT. It is natural to think that sequence content is built up incrementally, as a film proceeds. We propose that this process involves the construction of a filmic DISCOURSE RECORD. This includes the set of events that have occurred so far in the film, along with a record of the characters, viewpoints, and actions which are salient at the time of interpretation. (Lewis 1979) The discourse record starts empty at the beginning of a scene, and incrementally grows when it is updated with each subsequent shot.

The content of of each shot in a film may be said to have a VIEWPOINT, an orientated location in space and time, relative to which it represents a scene. (Cumming et al. 2017) The viewpoint corresponds to the position of the camera, though in animation the "camera position" is purely notional. In addition to a shot having a viewpoint, characters depicted in shots also have viewpoints— a distinction crucial to the POV phenomena.

In linguistic discourse, a wide range of context-sensitive expressions depend for their meaning on elements currently represented in the discourse record. Anaphoric pronouns, for example, are typically grounded in antecedent elements of the discourse. We propose that viewpoints in film are essentially similar; in film, viewpoints are effectively a type of discourse referent. As each new shot begins, viewers relate the space it depicts to the model of the scene space we have constructed so far, by anchoring its viewpoint within that space. The first shot in a scene introduce a discourse-initial viewpoint. But for every subsequent shot, its viewpoint must be grounded in an antecedent viewpoint already available on the record, an interpretive default which we call VIEWPOINT GROUNDING.

(Viewpoint grounding) Except for a scene-initial shot, each camera viewpoint must be grounded in a viewpoint available in the discourse record.

But viewpoint grounding is not open-ended. Instead, we believe, there is a limited library of conventional VIEWPOINT CONSTRAINTS, or ways of grounding a viewpoint, which govern film interpretation. We follow Cumming et al. (2017) who identify the X-Constraint and T-Constraints as filmic discourse relations which impose spatial coherence on the content of film sequences. Here we interpret the X-Constraint here as a type of viewpoint grounding. And we conjecture that subjective POV is an alternative form of viewpoint grounding (Branigan 1975, Carroll 1993):

(X-Constraint) If the viewpoint v of a shot is grounded in the record by X-Constraint, then the screen-direction of a salient action line a relative to v is consistent with the screen-direction of a relative to a viewpoint v' available from the record.

(POV) If the viewpoint v of a shot is grounded in the record by POV, then v is spatially coincident with the viewpoint v' of a character (or glance) available on the record.

The two constraints crucially differ in the kind of viewpoints they use as sources of grounding. The X-Constraint relates the viewpoint of a current shot to the viewpoint *of a previous shot*. The POV constraint relates thew viewpoint of a current shot to the viewpoint *of a previously depicted character*. Thus updating with POV and with non-POV constraints put distinctively different demands on antecedent discourse.

Incremental interpretation and POV order effects. We propose that subjectivity is indirectly related to order, via a differences in the way different orders affect the evolution of the film's discourse record. The analysis follows linguistic analyses in the dynamic tradition, where each part of a sequential representation is interpreted in the context of an incremental record derived from those parts of the representation coming before it. Dynamic semantics (Kamp 1981; Heim 1982; Groenendijk & Stokhof 1991) was originally developed to handle asymmetries in the interpretation of pronouns, whose reference varies with the entities most recently and centrally discussed.

In the glance-object order, then the character's viewpoint will already be on the discourse record by the time the object shot comes to update the record, allowing the viewpoint of the object shot to be grounded in the character's viewpoint. (See figure at right.) In the object-glance order, on the other hand, the POV grounding cannot occur in the normal way, since at the time the object shot is presented, there is no character viewpoint in the record to be grounded to. A POV interpretation of the object shot, in the object-glance order, is only possible if we allow for the cataphoric, or forward-looking, grounding of its viewpoint. But such suspended grounding violates the viewpoint grounding default, and put unusual demands on memory, so should normally be dispreferred. Given this contrast, we expect to see the proportion of subjective shots drop in the object-glance order, keeping other variables fixed.

The preceding account helps explain why POV interpretations are difficult to achieve in object-glance orders, but easy to achieve in glance-object orders. It does not yet explain why the POV interpretation is strongly favored when easily available

Object shot updates in glance-object order

shot content

discourse record

X-Constraint grounding

POV grounding

Glance shot updates in object-glance order

shot content

discourse record

X-Constraint grounding

POV grounding

(in the glance-object order); we leave this question to further research. A broad lesson to be drawn from this investigation is that timing and salience matter, not just for the continuity and flow of edited films, but even for the understanding of the space that is built up out of discrete shots. Thus film interpretation should be modeled by a dynamic semantics not unlike the mechanisms sketched here.

References. Abusch, D. and M. Rooth. (2017). "The formal semantics of free perception in pictorial narratives." *Proceedings of the 21st Amsterdam Colloquium*. · Branigan, E. (1975). "Formal permutations of the point-of-view shot." *Screen*, 3(1) · Carroll, N., (1993). "Toward a theory of point-of-view editing." *Poetics Today*, 14(1). · Cumming, S., G. Greenberg, and R. Kelly., (2017). "Conventions of viewpoint coherence in film." *Philosopher's Imprint*, 17(1). · Groenendijk, J. and Stokhof, M. (1991). "Dynamic predicate logic." *Linguistics and Philosophy*, 14(1). · Heim, I. (1982). "On the Semantics of Definite and Indefinite Noun Phrases." PhD thesis, UMass. · Kamp, H. (1981). "A theory of truth and semantic representation." *Formal Methods in the Study of Language*, Pt. 1, 135. · Lewis, D. (1979). "Scorekeeping in a language game." *Journal of Philosophical Logic*, 8(3).