

Revisiting stativity in pictorial narratives¹

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Abstract. This paper revisits the issue of stativity in pictorial narratives, specifically those found in comics and manga. The standard model holds that the contents of a picture, as defined by geometric projection, are semantically stative and integrated via a Dowty-style narrative interpretation. Here, I propose an alternative interpretation of pictorial narratives. Under this account, most pictorial narrative cases remain stative, as is posited in Abusch. When pictorial narratives include movement lines, however, additional supplemental content generates an eventive interpretation of pictorial representations. This is not pragmatically enriched content. The content contributed by movement lines is treated as semantic because movement lines are non-veridical in the way projection-style pictorial interpretations must be. Ultimately I argue for a dynamic, non-stative interpretation of pictorial narratives that include movement lines.

Keywords: *pictorial narrative, narrative, semantics, stativity, comics*

1. Introduction

This paper revisits the issue of stativity in pictorial narratives, specifically those found in comics and manga. Dorit Abusch has formulated an invariant model to account for temporal succession in pictorial narratives (Abusch, 2014). That model holds that the contents of a picture, as defined by geometric projection, are semantically stative and integrated via a Dowty-style narrative interpretation. Her view has become a default position in the literature since. The way that we talk about these pictorial narratives, though, is by using aspectually eventive terms. This creates an apparent tension between the way we colloquially talk about pictures and the prevailing account of the semantics of comics. One way we might diffuse the apparent tension is by claiming that pictures are semantically stative, although they can be pragmatically enriched to eventive understandings. This is Abusch's claim, namely that eventive reading of individual pictures or panels is purely a matter of pragmatics. Countervailing intuitions, intuitions, in particular, about movement lines encoding real semantic content, gives us reason to revisit the issue at hand.

I clarify the base case (for the present purposes) which covers pictorial narratives without movement lines in section 2 by adopting Abusch's stative account. In section 3, I argue for a semantically eventive reading of pictures which include movement lines by first highlighting my intuitions about our understanding of pictures with movement lines and making room for these intuitions, proceeding from the base case. I then consider some implications for this account in section 4, including how understanding movement lines in this way affects our concept of panel integration. Finally, I give some concluding remarks and consider some objections. Ultimately, I argue here that although the Abuschian base case is sufficient to handle many pictorial narratives, comics and manga that include movement lines ought to be

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understood as representing aspectually eventive claims in the same way that conventional implicatures semantically encode two or more meanings.

2. Base Cases

The base case, for these purposes, will be one where the inverted geometric projection account from Greenberg is sufficient for handling narrative semantics of pictures (Greenberg, 2013). In this case, pictorial semantics are obtained by inverting projections from a specified point. This can be understood as the following.

- (1) **Stative Picture:** $\llbracket \bullet \rrbracket =$ the set of pairs, $\langle v, \sigma \rangle$, the viewpoints, v , and scenes, σ , projected to A via the picture plane at a convergence point, A , encoded in v .²

This is what I call the standard snapshot view, where a picture is stative because it provides a snapshot within time, from a specific viewpoint³. Intuitively, if a picture provides a snapshot in the relevant sense, it will be semantically stative. In this standard snapshot view, pictures are either completely stative, or subinterval statives. Schlöder and Altshuler note that even the subinterval property does not get Abusch the eventive descriptions inherent to many narrative progression accounts (Schlöder & Altshuler, 2023). In committing to a fully stative account, Abusch rejects the Aspect Hypothesis, which is defended by Kamp and Rohrer. The Aspect Hypothesis states the following.

- (2) **Aspect Hypothesis:** Aspectual information partially determines narrative progression: states are typically understood to overlap prominent discourse events. (Kamp & Rohrer, 1983)

In response to this, Schlöder and Altshuler propose a choice we must make.

- (3) **Schlöder and Altshuler's Dilemma:** Either (i) aspect interacts differently with narrative progression depending on the medium (so, the aspect hypothesis is true), or (ii) we should reject the idea that aspect is relevant to narrative progression (and then do everything with common sense reasoning).

The motivation for committing to (ii) (as Abusch and *partially* Schlöder & Altshuler do), is simple: they believe the Aspect Hypothesis is largely unsatisfying. Further, committing to (i) requires a nuanced answer to the issue of mixed-media narratives—which seems complicated, but possible. That is to say, though, the issue of mix-media narratives is outside the breadth of the topic at issue here, and so will not be addressed. So, although it does seem possible to commit fully to (i), it requires a more complicated semantic picture. For now, all we need is a

² More formally, this is understood as: $\llbracket \bullet \rrbracket = \{ \langle v, \sigma \rangle^{w,v} \mid \bullet \}$.

³ We should set aside a persuasive concern of this interpretation of the semantics of pictures raised in (Maier, 2019), namely the concern that many times we lack the ability to infer further properties of the viewpoint (especially in fictional cases). This seems to be a central issue for determining whether something is true in a fiction, although it seems tangential to the issue of whether or not Abusch's stative interpretation of pictorial narrative semantics can handle movement lines *per se*.

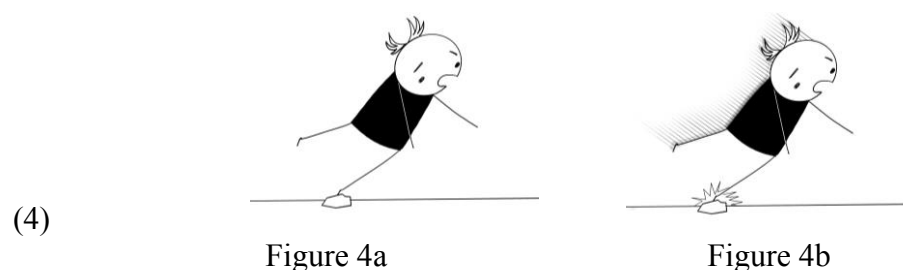
commitment to the belief that, in pure-pictorial narratives, it seems *plausible* that aspect interacts differently with narrative progression depending on medium. I will argue more fully for this in Section 4. For now, consider the way that viewers of pictorial narratives commonly have to return to previous panels to attend to different parts of the images, identify emotions on the faces of characters, and generate cohesive narrative meaning. We might think this repetition is a medium-dependent factor in how we understand narrative progression to occur.

If this intuition resonates, we should consider (i) more seriously, and should consider reviving the Aspect Hypothesis. For now, it seems sufficient to show that although it is intuitive that the base case (the purely stative image) is covered by Abusch's stative pictorial narrative schema, we need an additional schema to understand what is happening when there are movement lines present. The projection account works perfectly for a large number of simple images. However, when we consider more complex examples, we need additional semantic complexity to adequately capture narrative meaning.

3. Movement Lines and Events

As Abusch points out, a geometric projection account of pictorial representations has difficulty interpreting the semantics of movement lines (Abusch, 2014). She posits that movement lines are not *semantic* depictions of movement, but rather a pragmatic enrichment of a geometric projection of a state. The sentences depicted by pictorial representations are then, as a consequence, always *linguistically* stative. We might think this is a bit misleading, especially considering the way that we talk about these kinds of images in everyday life.

It seems that in at least some cases, pictures can depict events—in particular, pictures can depict events when they have movement lines. Although this is surely not the *only* scenario in which we can have an eventive interpretation of an image, pictures with movement lines will be the central kind of case I consider here. When thinking about movement lines within a geometric projection account of representation, we get a confusing result. Movement lines are not physically present when movement occurs. So there is something strictly depicted which is not really present. It's not obvious that the snapshot account can handle these cases. So, there are two related issues occurring in pictures with movement lines: (i) their stativity and (ii) their veridicality. Take, for instance, the following picture by (Daiphi, 2023).



Addressing (i), we can describe Figure 4a as depicting the state of affairs: {Phi is tripping over a rock}. The image in Figure 4a is veridical in the sense that everything portrayed would be visible should this be a real-life geometric projection. However, in Figure 4b, the addition of movement lines make the interpretation more tricky. Rather than an ambiguous {Phi is tripping over a rock} interpretation, I think we naturally describe the meaning of Figure 4b as {Phi trips

over a rock}. The difference between these two cases (and the reason we might describe one in stative terms or eventive terms) hinges on the presence of movement lines. These lines (as the name implies) indicate movement, and further clarify the specific nature of the interaction between the two objects within the image⁴.

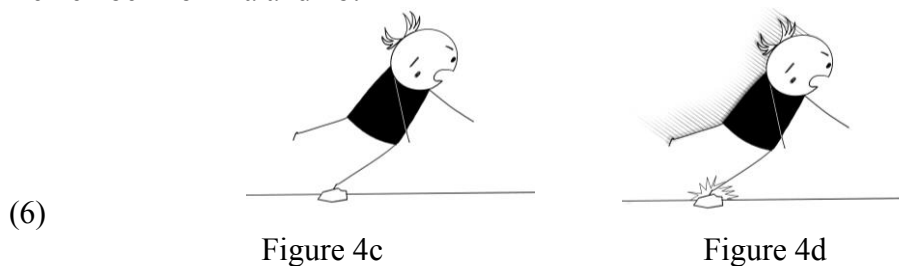
Addressing (ii), the movement lines are non-veridical, in that movement lines are not *literally* a visible aspect of a geometric projection. If this was a photograph taken of Phi tripping, movement lines would not be present. Maybe what is happening here is an artistic means to show something like a blurring effect we would see in a photograph. Even if we deny the veridicality point on a kind of blurring basis, it still would be the case that the blur effect indicates movement, and affects the way we ascribe meaning to the image. In short, even if you deny (ii) here, (i) is still quite convincing.

3.1. Movement Line Meaning

So, although the content in Figure 4a is intelligible *without* movement lines, the information communicated is far more informationally rich in Figure 4b with the addition of the movement lines. When there are movement lines, like those in Figure 4b, the lines provide supplemental content which, combined with the base case stative understanding, generate an eventive reading of the whole image.

- (5) **(Stative Picture):** $\llbracket \bullet \rrbracket =$ the set of pairs, $\langle v, \sigma \rangle$, the viewpoints, v , and scenes, σ , projected to A via the picture plane at a convergence point, A , encoded in v .
(Movement Lines): $\llbracket \bullet_m \rrbracket = \{e \text{ for all } e' \text{ in the spatial trace of } e', \text{ which includes a point in space indicated by the movement lines}\}$

The formal understanding, then, of movement lines is a set of points on the spatial trace, which correspond to points on the movement lines, given the movement lines within the image itself. The base case image is processed first, and represents some moment in time within the event's temporal projection, although it does not have to be the start-point for the spatial trace. Remember from 4a and 4b:



4a constitutes the base image, but 4b does not only project temporally forward. The movement lines both provides a spatial trace which shows viewers that Phi is tripping

⁴ There are different kinds of cases, like trajectory lines and emotive lines, which are similarly non-literal, but arguably at issue. I do not have the space here to consider these kinds of cases although they present an interesting wrinkle to this account. I have in mind here something like the “spidey sense” lines seen frequently in Marvel’s Spiderman comics, or trajectory lines which show where a character has come from or where they will land when they complete a fall.

forward and gives us an indication of where they were previously located as well as where they are going forward. We also get impact movement lines that highlight the impact of Phi's foot with the rock. These movement lines provide *disambiguating* information about what is occurring within the image.

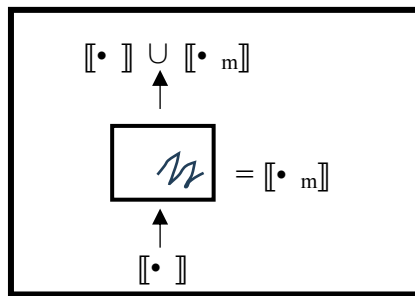
Notably, the lines aren't in-world. Instead, movement lines are conventional marks on a page. They conventionally *do* denote an event. The movement portion denotes a set of events (or even a single event of type *e*), namely, events whose spatial trace follows the movement lines. Some state along the spatial trace (although this does not have to be the starting state, or ending state) is denoted by **(Stative Picture)**. Remember here that **(Stative Picture)** is going to be the base case image, without movement lines. This process can be repeated should multiple sets of movement lines denote multiple simultaneous events⁵. Integrated together, we have a multidimensional eventive understanding of a picture.

To formalize this further, we can use Christopher Potts' framework for conventional implicature. Conventional implicatures are secondary entailments which can be used to communicate a variety of different expressive content or controversial propositions (Potts, 2004). The at issue entailment, or the content that is regularly asserted by the discourse (the "what is said" (Grice, 1975)) is supplemented with the conventional implicature, providing additional supplemental or secondary content. It is helpful to think of movement lines as a kind of conventional implicature, or some bit of secondary content which adds to the at issue entailments of the stative projection.

So, while we can understand the base image as providing semantic content, movement lines provide supplemental eventive propositional content which adds to the at-issue content given in a stative (Abuschian) pictorial narrative. Movement lines, therefore, *enrich* the stative, at issue content within a given pictorial to eventive propositional content, but notably this is not done pragmatically. The enrichment given here is semantically encoded by the movement lines themselves. Since we can understand conventional implicatures as semantically encoding a secondary meaning to an utterance, we can use the same kind of framework to the pictorial narrative case. So, we can understand the way movement lines provide additional meaning to the content of a picture as the following.

- (7) **(Stative Picture):** $\llbracket \bullet \rrbracket =$ the set of pairs, $\langle v, \sigma \rangle$, the viewpoints, *v*, and scenes, σ , projected to *A* via the picture plane at a convergence point, *A*, encoded in *v*.
(Movement Lines): $\llbracket \bullet_m \rrbracket = \{e \text{ for all } e' \text{ in the spatial trace of } e', \text{ which includes a point in space indicated by the movement lines}\}$
(Picture with Movement Lines): $\llbracket \bullet \rrbracket \cup \llbracket \bullet_m \rrbracket$; where both the base case meaning and additional semantic content are joined together to generate an eventive aspect.

⁵ More complex images, like those found in most manga, likely have a few separate layers of movement lines, indicating different kinds of movement occurring at once. This seems completely compatible with what I present here, although I am not (at this time) committing to one particular method of formalizing the separation of movement lines in complex, dynamic pictures.



This multidimensional semantics for pictures with movement lines allows the viewer of complex comics to be understood in a variety of different eventive propositions. Like Potts' claims in (Potts, 2012), although there is *an aspect* of pragmatic enrichment available to the viewer (in virtue of there being multiple secondary meanings) this does not require that all there is to these conventional implicatures is pragmatic enrichment⁶. We add, in these cases, additional information to the context set (e given from the spatial trace of the movement lines) in order to supplement the at-issue content from the stative picture. Together with the at-issue content, the movement lines provide the viewer with an eventive interpretation of the picture.

So, why can we describe Figure 4b in eventive terms? This is *not* because of pragmatic enrichment of stative geometric projections. Instead, we can do this because there are movement lines which encode the instructions to construct an eventive understanding of the image, just as conventional implicatures encode secondary meanings. These informationally rich "readings" of pictures help us to project forward or backward from the given base case geometric projection in order to conceptualize movement occurring.

4. Panel Integration and Narrative Understanding

Given that comics do not usually appear as individual pictures, but as collections of panels, I should also address panel integration and conventional implicature. Abusch sets out an algorithmic parsing structure for panels, but with the addition of movement lines functioning like conventional implicature, the parsing structure becomes more complicated. Under her account, this algorithmic panel structure is what gives pictorial narratives their distinct linear structure (Abusch, 2014). This streamlines the issue of temporal ordering for adjacent panels and pages in most cases. So, forming cohesive pictorial narratives is quite simple. We have a base temporal ordering schema which is pragmatically overridden in cases where there appears to be no temporal progression. Schlöder & Altshuler outline coherence relations to make sense of these kinds of images which do not neatly fit the temporal progression schema (Schlöder & Altshuler, 2023). Since these coherence relations are pragmatic, we should set their proposal aside for the time being.

Assuming the addition of movement lines as a conventional implicature is not outright rejected, One might rebut that even in the case of movement lines, we have ordered pictures with

⁶ Another way to reject pragmatic enrichment would be to treat movement lines as a kind of co-speech gesture. Although I do not pursue that idea fully here, it seems to be another viable interpretation of movement lines in pictorial narratives, should this view be rejected. For more on co-speech gestures in both conventional speech and sign language see (Ebert et al., 2022; Kita et al., 2007).

Revisiting stativity in pictorial narratives

individual focal points $\langle \alpha_1, \alpha_2, \dots, \alpha_n \rangle$ which *still* represent a flat, projected cohesive image. The problem with this arises when we get into more complicated and intricate pictorial narratives. If we think pictorial narratives convey only central, uniform information, then flat cohesive image sequencing is sufficient to understand what is going on in a panel.

That being said, more detailed and aesthetically rich panels, including those in serialized comics and manga, require *dynamic* interpretation, wherein the viewer does not have to fully ‘move on’ from the picture at hand to process to the next image. Eye tracking studies back this dynamic interpretation up. Notably Kirtley et al. have shown that when viewers are confronted with pictorial narrative panels, it is not uncommon for individuals to skip over full images and return to panels (Kirtley et al., 2023). Although I won’t go more into the specifics of these studies, the empirical data seems friendly to what I propose here.

Consider the following example.

- (8) In the following panel, Phi rears back to punch Chlo in the face. Chlo appears scared. Phi’s fist is thrown forward while Phi cries out triumphantly. We then see the punch connect, while Chlo’s glasses are broken and she spits blood. (Daiphi, 2023)



In panel-based examples, movement lines invite the viewer to temporally project forward and/or backward to construct an eventive reading of the image. Semantically this is formalized as a set of events, like in (**Movement Lines**). This is why viewing images like those in (8) can frequently produce a variety of linguistic descriptions that are eventive, while we may without fault, describe singular images in stative terms.

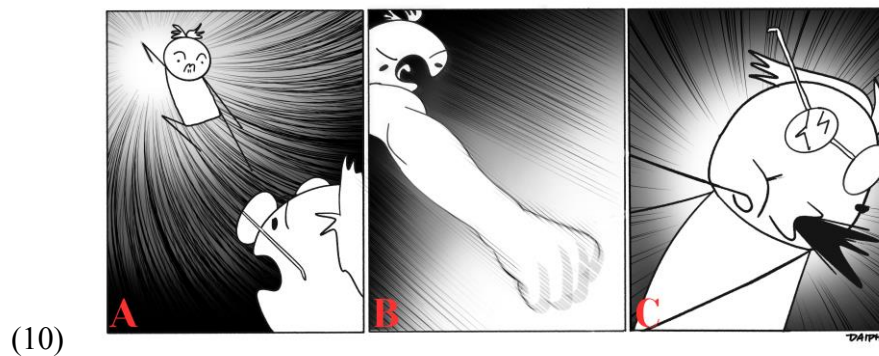
Assuming the puncher is named Phi, while the punchee is called Chlo, we can interpret the linguistic meaning of each picture, and the panel as a whole, in a few different ways.

- (9) a. Phi jumps up, ready to punch, while Chlo looks on in fear.
?Stative: Phi is jumping. Phi is about to punch Chlo. Chlo is shocked.
- b. Phi throws her fist down, punching someone.
?Stative: Phi is punching someone.
- c. The fist strikes Chlo, and she spits blood as her glasses crack.
?Stative: Chlo is punched. Chlo spits blood.
- d. Panel: Phi jumps up to punch Chlo. After the punch connects, Chlo spits blood as her glasses crack.
?Stative Panel: Phi is jumping up and is punching Chlo. Chlo is spitting blood.

Although the stative descriptions of these panels and images is not strictly incorrect, it is certainly less informationally rich than the eventive interpretation. Although there is something to be said for concise meanings for images, avid lovers of the comic and manga genres would likely reject a stative reading of this panel⁷.

This becomes more intuitive if an algorithmic panel sequencing account is supplemented with the dynamic account presented here. Under this view, an image is not interpreted once, like a sentence, and then integrated into discourse. We do not simply extract meaning and move forward. Instead, we process (i) the base image, (ii) the movement lines, and (iii) adjacent panels repeatedly to generate a cohesive meaning. We may, for instance, when looking at panels such as (8), go from left to right, then back to the first panel image, then continue left to right throughout the panel.

This is intuitive because when we generate cohesive narratives for panels, we do not merely process images in an algorithmic, linear, left to right fashion. The presence of movement lines and partial perspectives of the action given in the panel might require algorithmic panel sequencing to be broken in exchange for a more dynamic interaction with the images in panels⁸. Consider this labeled version of the panel from (8).



Recalling the various ambiguous meaning options provided in (9), there are ambiguities with respect to meaning that are resolved by looking ahead at panels and returning back. For instance, we could wonder what in particular Phi is doing in panel A. Evaluated in isolation, one could think that they are jumping up, they are jumping on a trampoline, or that they are preparing to pose like the well-known superhero Blade. Panel B gives us more insight as to what the intended meaning of A is. We might also ask what particular emotion Chlo is depicted as feeling in A. Perhaps she is relieved to see Phi coming to save the day. Perhaps Chlo is worried that Phi will injure themselves. After viewing panel C, we can return to A to resolve that ambiguity, and we can revise the meaning of the image. This panel is quite simple, though,

⁷ In truth, we likely don't need to turn to just avid comic and manga readers to find eventive interpretations of this panel. For more on this, see (Cohn & Maher, 2015). For now, this limited claim will do.

⁸ We can also presume that this is what occurs in the edge cases Abusch discusses. She mentions cases like from Ode to Kirihito, where the 'panel' lacks recursively divided blocks. Instead, in these cases, the individual panel parts are composed of different shapes which fit together on the page. See (Abusch, 2014).

in comparison with the more complex ones in most manga or comic books, so we might imagine this issue amplifying given more complex composition.

Therefore, while the base case is handled well by the algorithmic cross-panel ordering that Abusch outlines, formulating panel ordering with movement lines in the Abuschian method flattens the dynamic meaning that emerges when we break strict panel ordering to resolve ambiguities *within* and *across* panels. This seems in part to be specific to the particular medium. We might think, then, that pictorial narratives have some medium-specific properties that affect things like temporal ordering based on aspect.

4.1. Return to the Aspect Dilemma

Back to the dilemma Schlöder and Altshuler present in their paper mentioned here in section 2, either (i) aspect interacts differently with narrative progression depending on the medium, or (ii) we should reject the idea that aspect is relevant to narrative progression (and then do everything with common sense reasoning). Contrary to many views in the literature, it seems plausible given what I've said up to this point that aspect interacts differently with narrative progression depending on medium. In particular, it seems plausible that aspect interacts differently with narrative progression in pictorial narrative cases. This seems plausible because of genre conventions about pictorial narratives with movement lines, in particular, that require repeated attention to generate eventive meaning and to resolve meaning ambiguities. Integrating the particular information we get from evaluating movement lines, or paying particular attention to certain aspects of the image generate different meanings than flat, simplistic projections. This becomes especially salient when looking at increasingly detailed manga, or comic panels with complex artistic composition. Meant in the most charitable of ways, not all comics are Calvin and Hobbes, and not all pictures have the same robust meaning in isolation as they do within contextual panels. Many complex pictorial narratives require the reading and re-reading of panels in order to 'pick up on' the details provided by the author⁹.

So, we might think at this point that there is a need to reject, or at least amend, a Dowty style theory of narrative progression, since it is the basis for Abusch's account.

- (11) Dowty's Temporal Discourse Interpretation Principle (TDIP): Given a sequence of sentences S_1, S_2, \dots, S_n to be interpreted as a narrative discourse, the reference time of each sentence S_i (for i such that $1 < i \leq n$) is interpreted to be:
- A time consistent with the definite time adverbials in S_i , if there are any;
 - Otherwise, a time which immediately follows the reference time of the previous sentence S_{i-1} . (Dowty, 1986)

⁹ Although there are undoubtedly more nuanced examples, we can look at cases like *The Sandman* by Neil Gaiman and published by DC Comics. In issue 33, *Lullabies on Broadway*, George undoes his shirt to reveal a bare ribcage filled with cuckoo birds, which fly out, representing his personality shift (Gaiman, 1991). The artistic composition of the panels where George undoes his shirt is a clear 'easter egg,' a nod to another DC superhero, Superman. Without careful attention to the canon, landscape of the DC Universe, and the meaning of the image within the context of the pictorial narrative, this 'easter egg' is likely overlooked.

Abusch amends TDIP a bit (to fit better with pictorial narrative cases) by allowing pragmatic enrichment to provide temporal overlap, though strict temporal overlap is not *strictly* given by pictorial narratives. As Schlöder and Altshuler put it: “Like linguistic narratives, pictorial narratives are subject to fixed rules that force pictures to be understood in succession and common sense pragmatics can “extend” a state in time to infer temporal overlap” (Schlöder & Altshuler, 2023)¹⁰. What is happening here, with movement lines, is not pragmatic, but semantically encoded conventional implicature. We should not think this is an issue, though.

Suppose we just use Abusch’s temporal ordering schema, which is based on the Dowty TDIP. As a reminder, the account presented here uses Abusch’s stativity hypothesis for the base case, which provides the at-issue content. The non-at-issue content, the movement lines, provide the semantic encoding for an eventive reading of the image. Since this account has movement lines as conventional implicatures, they are non-veridical in the same way that the base case, at-issue content, will be. So, using Abusch’s temporal ordering schema works great for the at-issue content. Since we do not have issue temporally ordering these stative images, we should not have an issue temporally ordering pictorial narratives with movement lines. Although we are given additional meaning in virtue of these movement lines, when temporal ordering of the eventive meaning creates issues, we can revert back to the temporal ordering provided by the base case image.

5. Objections

Here are two serious objections we should take seriously if this account is to be adopted. The first I consider is the wrong category objection, which holds that although conventional implicature seems like a good way to understand movement lines, conversational implicature seems to be a just-as-good alternative. I look at Grice’s tests for cancelability and whether the content is at-issue or not. Then, I address a convincing objection against cumulativity, along the lines of an anticipated objection Abusch defeats quite nicely in her 2014 paper.

5.1. The Wrong Category Objection

We might worry, at this point, that although conventional implicature seems to be an intuitive candidate for understanding movement lines, conversational implicature might be a just-as-good alternative. The difference would lie in whether or not the additional content was cancelable¹¹ (or whether the movement lines are part of the truth conditional meaning of the picture). Once it is determined that movement lines are non-cancelable in the relevant sense, we should determine whether or not the content is at-issue or not.

First, the issue of cancelability. Let’s say the target meaning for Figure 3b is as proposed above: {Phi trips over a rock}. The additional information provided by the movement lines would be cancelable just in case the negation of the target meaning is semantically encoded.

¹⁰ Pictorial Discourse Representation Theory, or PicDRT, seeks to revive some variety of the Aspect Hypothesis (or (i) from the dilemma presented by Schlöder and Altshuler). This might be another way to solve the temporal ordering issue, although it is also a pragmatics schema. I am hoping to leave open the question of whether or not that temporal ordering schema is compatible with what I lay out here.

¹¹ It should be noted here that cancelability is not the only important difference between conversational and conventional implicature. It does seem like a sufficient test, considering that what is at issue here

- (12) The meaning of interest here is:
- {Phi is tripping over a rock} is true.
 - #? {Phi trips over a rock} is false.

That reading would be odd, but maybe not impossible. We could squabble over the success conditions of the eventive reading. If Phi is tripping over the rock but catches themselves before falling, then maybe this eventive reading would be cancelable. It might not be the case that they trip over the rock. This would certainly be right if our understanding of the image was instead that {Phi is falling over a rock} and for the image with movement lines, {Phi falls over a rock}. But, this reading of the pictures in (4) would be even more odd than (12)b being cancelable! Even suppose that we had such an image, where Phi catches themselves right before falling over the rock. This new information, given our dynamic panel interpretation movement story, might even shift our understood meaning from {Phi is falling} to {Phi is tripping} since the success conditions for tripping are compatible with Phi catching themselves. This seems perfectly in line with the account presented here.

Let's look at a case (borrowed from Schlöder & Altshuler) to show when pictorial content can be cancelable.

- (13) The meaning of interest here is:
- {The person is falling} is true.
 - {The person falls} is false.



In this case, {The person is falling} is strictly true. You can see the person in the image presumably stumble and certainly begin to fall. Then, they seem to catch themselves, recovering. In this kind of a case, the additional meaning from (13)b is cancelable. It is cancelable because of the information we get from the second image, where we know that it cannot be the case that the person falls, since they seem to recover. In this case, then, there is not a conventional implicature at play.

The other main issue we need to address is whether or not the movement lines are in fact at-issue or actually conventional implicatures. This seems a bit easier to discharge quickly. At issue meanings are strictly, as Grice says, ‘what is said,’ whereas conventional implicatures provide additional supplemental content that can be speaker (or, in this case, viewer) relativized (Grice, 1975; Potts, 2007). Think back to my discussion of veridicality and movement lines. Strictly speaking, if we were living in the cartoon world of DaiPhi’s comics, we would see a projection more like Figure (4a) than (4b). The movement lines are non-veridical for this very reason! The movement lines themselves are not literally a visible aspect of geometric projection, and are therefore not at-issue. Since we’ve discharged these two related worries, it seems that we can discharge this objection. If movement lines were actually a form of

is not the kind *conventional implicatures*, but the application of the kind to different contexts. For more on whether cancelability is a reliable test see (Zakkou, 2018).

conversational implicature, they would be cancelable. It doesn't look like this is the case. If the movement lines were merely at-issue, they would be objectively veridical in the same way the base case images are. They are not, so this doesn't seem to be defeating either. Now, we can turn to the other objection we should consider here, one on the basis of cumulativity.

5.2. Cumulativity Objection

This objection, in line with Abusch's reasoning in her 2014 paper, holds that pictures cannot be eventive because events are not temporally cumulative in the same way that states are. Because we are committed to a (revised) Dowty-style narrative interpretation, we need the pictorial panels to possibly be temporally cumulative. In short, it has to be the case that two or more images which are temporally cumulative (happening at the same time interval) can be interpreted that way. This assists in narrative progression and therefore temporal ordering in a way that is not accessible to us if we understand pictures as always eventive.

That being said, remember (10). Were we to understand this panel as being three stative (or intervally stative) images, we can assume a cumulative meaning of at least B and C. So, for σ_B (or the second image in the panel) and σ_C (or the third image in the panel), $\sigma_B \cup \sigma_C$ could be true. While stative and activity propositions can be true at a time, eventive propositions cannot. Since what I have developed here is a *semantic* enrichment, rather than pragmatic enrichment we might think that we need to reject my account for cumulativity reasons. But, this is not the case.

When outlining this cumulativity concern, Abusch states that "for pictures, there are no non-stative literal contents" (Abusch, 2014). Since movement lines are *not* literal contents of the image, but are non-veridical conventional implicatures, we might think we can get around the cumulativity concern by just appealing to our base case (which, in fact, is just Abusch's stative account). We need to be able to have base-stative interpretations of pictures in order to order them temporally and get clear narrative progression. As Abusch claims, "it is a mathematical fact that the informational content of the picture is cumulative, and in fact stative, because it can be satisfied by an instantaneous situation" (Abusch, 2014). The key here is that what we are looking at needs to amount to an instantaneous slice of σ_B and σ_C to satisfy $\sigma_B \cup \sigma_C$. This seems given. This allows us to engage in temporal ordering and to formulate narrative progression in a more straightforward manner. Abusch is right that we should have our at-issue meaning be stative and be subject to cumulativity concerns. That, though, does not tell us anything about non-literal contents of the picture, namely the movement lines. Movement lines do give us a more informationally rich eventive understanding of the image, but they are notably non-veridical. Although this enriched meaning might be more *useful* to viewers of the pictorial narratives, as it conveys information not given in just the base case, it is simply not at issue, and veridically can be collapsed to the instantaneous slice Abusch appeals to.

If this still seems like an unappealing response to Abusch's cumulativity concern, we might consider taking a second look at the discourse construction rules laid out within the 2014 paper. These rules would help to distinguish between temporal succession and overlap based on aspect (whether or not the picture is eventive or stative). By reopening the discourse construction rule, we can rely less heavily on an amended Dowty-style narrative

interpretation and focus more clearly on a unique pictorial narrative progression account. This approach, while lofty and appealing, requires more care than can be given here, so I leave it as an open question whether or not that is the best solution to the problem.

6. Conclusion

So if what I have said here has some promise, we should still accept Abusch's stative interpretation of pictures for standard pictorial narratives. However, in cases where movement lines are present, we might think the non-veridical lines function like conventional implicature, semantically enriching the picture to an eventive proposition. It should be noted that I am not arguing for the universal claim that all pictures are eventive. Instead, here, I argued that there are at least *some* pictorial narratives comprised of stative depictions, with additional implicatures which enrich the understanding of the depiction to an event. We might even want something notably stronger than what is presented here, which would have, as its starting place, the same intuitions I appeal to here.

On the present account, strong compositional narratives and pictorials with movement lines should not be interpreted as *merely* stative, as previously theorized. This has implications for the way we talk about temporal ordering in pictorial narratives, and does not require that we commit to a super-pragmatic account. Instead, a super-semantics can be developed to enrich the given stative meaning of pictorials to give us dynamic, informationally rich pictorial representations.

Defining movement lines for pictures in this way requires us to formulate a more dynamic understanding of panel integration, where individual panels are not seen as flat images, but eventive depictions. With this account, we might be able to accept the first horn of Schlöder and Altshuler's Dilemma, under which aspect interacts differently with narrative progression depending on the medium. If we accept that position, Abusch's discourse construction rule can come back into consideration—this would distinguish between temporal overlap and temporal succession based on whether or not the content of the picture is stative or eventive. These possibilities revive the issue of whether or not we should consider pictures as essentially stative.

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