To feel like a character:
How perspective influences emotion in comics across cultures

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Disclosure of used technology

For this thesis ChatGPT was used to summarize articles that were used for theoretical background information. Other than the spelling and grammar check off word was used. No further technological tools were used for writing this thesis.

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Abstract

Visual languages are found all around the world. However, just like there are differences between spoken languages, visual languages around the world can differ from each other as well. In comics you can see clear differences between for example, the visual language used in manga and the visual language used in superhero comics. Among the dimensions of difference across comics is the amount of panels using a subjective perspective and the way emotions are shown, which can have an impact on how a story is perceived. This study aimed to explore these differences and the relation between perspective and emotion by analyzing a corpus of comics in different styles and originating from different countries across the world. The emotion of comic panels were annotated on valence and arousal and combined with annotations for the perspective-taking of the comic panels. It was found that when a more subjective perspective is used, less valence and arousal are present. In addition, Manga uses more arousal with a subjective perspective than other styles, whereas Realistic comics use less arousal with a subjective perspective than other styles. This suggests that world region might not be a good indicator of differences in visual languages and it would be better to use comic style. However, some universality can also be seen in these results. Every culture and style follows the same pattern of using less emotion when using a more subjective perspective. This combination of small differences with an overarching pattern, might suggest that visual languages differ from each other, but do belong to a same type of ‘language family’.

1. Introduction

Visual languages are found all around the world, reflecting a great diversity in systems people use to create pictures. The fact that multiple different visual languages exist around the world gives reason to believe that the creation of visual language is universal for humans. However, just like there are great differences between spoken languages, visual languages around the world can differ from each other as well (Cohn, 2024). One place where fairly complex visual languages can be found is comics. Only by looking at comics, clear differences between comic styles from different parts of the world can be seen (Cohn et al., 2023; Cohn, 2011; Cohn, 2024). One of the things that is different in comics from different cultures is the amount of panels using a subjective perspective (Cohn et al., 2023). A subjective perspective is when a panel is drawn in a way that it shows the viewpoint of a character. For example Manga uses more subjective panels than American superhero comics. Also the way emotions are shown in comics around the world differs. Japanese comics, for instance, use bloody noses as a depiction of list whereas comics from western cultures do not use this metaphor (Cohn & Ehly, 2015). These different ways perspective and emotion are shown can have an impact on how a story is perceived.

The example below (Fig. 1) shows how perspectives can be used in a story. The sequence on this page starts off with an objective perspective. An objective perspective shows a scene as if an outsiders looks at it. In this sequence it sets the scene and shows where the characters are. Then the sequence uses an indirect subjective panel. By looking over the shoulder of the character it shows what the character is looking at, however the character is still seen in the scene. You see the character taking a book from a large selection of books and wonder what book he takes. By switching to a subjective perspective, through a POV panel, the reader gets the feeling he is the character and reads what is on the book. This example clearly shows three perspective types getting progressively more subjective. It shows how differences in the perspective gives a more or less intense focus on the scene. The example also shows emotions can be shown by showing the face of characters like in the last panel of the sequence. Besides, background ques, like the motion lines in the fifth panel, can tell the reader something about the intensity of an action or emotion.

Figure 1

Example of the use of different perspectives

When people read a story in a book they mentally change the perspective of a scene depending on the pronouns being used (Brunyé, 2009). For one the reader can embody an actor's mind. The reader then experiences the story as if they are the actor. Other than that the reader can take an external perspective, looking at what is happening from a distance. This perspective taking is important to understand the story as the reader needs this perspective to give context to what is happening or what is being said (Forceville, 2023). This importance of perspective is not only true for written media, but also occurs in spoken or visual languages (Forceville, 2023). Since comics consist of visual narratives, where perspective taking is present in every panel, they are an interesting medium to study this topic (Cohn et al., 2023). Studying perspective in comics and visual languages, can also help better understand perspective in narratives in general.

One reason perspective taking is so important in narratives is because it helps readers determine the emotion conveyed in the story. Emotion is fundamental for humans to experience stories. Since perspective taking is known to change the emotional reaction of people (Forceville, 2023), it could be interesting to explore the effects of perspective on emotion in visual narratives.

From the perspective of psychology, it would be a logical assumption that more subjective perspectives in comics would lead to more emotions. Subjective perspectives would suggest that you are experiencing something and therefore emotional reaction would be greater (Goldie, 2003). However, research on the use of subjective panels showed that shojo manga uses the least amount of subjective panels out of all manga styles (Cohn et al, 2023). This is interesting since shojo manga is described as conveying the emotion and mental states of characters (Prough 2010; Takahashi 2008). This implies that the use of subjective panels might not be the primary way to convey emotions of characters in comics. This contradiction makes it interesting to explore this further and try and find the effects emotion and perspective have on each other. This has led to the following research question: 'How does perspective-taking interact with emotion in comics, and how does it vary across cultures and/or styles of comics?'

Researching this question could help better understand the relation between perspective and emotion. This could not only be helpful for comics, but for storytelling in general. Knowing if perspective and emotion are related and how this relation looks, might help to get better story engagement. This study could also help comic creators when they have to decide on what perspective to use. If they have a better sense of how perspective interacts with emotion it can help them convey the right emotion at the right time in the story.

2. Theoretical background

2.1 Perspective

Perspective taking is important for people to understand stories (Forceville, 2023). Perspective can be seen as the point of view of a situation described in a story. This is also called 'focalization' (Genette, 1980; Maier & Steinbach, 2022). Perspective tells the reader who perceives the events in the story. For example, 'internal focalization' conveys the internal feelings, emotions or experiences of a character itself. It provides an insight into the character's inner world. One-way internal focalization can be realized in written media, is by writing in first person ('I') (Maier & Steinbach, 2022). For visual languages perspective taking is present in all images, since visual depictions necessarily means a perspective has to be taken (Branigan, 2012; Mikkonen, 2017).

Looking at perspective there are roughly three categories which can be distinguished (Cohn et al., 2023). First of all, objective panels show the scene from an objective viewpoint, as if an outsider is looking at it (Cohn et al., 2023). An example can be seen in figure 2c. Here

characters are seen from a distance and the reader gets an external view of the scene. Second, indirect subjective panels still give the reader the same perspective as the character, however the character is in the panel themselves. For example, panels where you look over the shoulder of the character show you what they are looking at, but also show you the characters themselves. An example of this can be seen in figure 2b. Here you look over the shoulder of the character in panel. It shows you the target the character is aiming at, but the character itself is clearly in the panel giving more of an outsider look on the scene. Finally, there are subjective panels. These panels give you a perspective as if looking through a character's eyes (Cohn et al., 2023). These are so called point of view or POV shots. A final example of this kind of perspective can be seen in figure 2c. Here the scope indicates that it is a POV shot. The panels make the reader think they are looking through the scope as if they are the character themselves.

Figure 2

Different types of perspective

2a: An objective panel

2b: An indirect subjective panel

2c: A subjective panel

Earlier research has found a relation between the use of subjective perspectives and framing in comics (Cohn et al., 2023; Cohn, 2011). It was found that a subjective perspective is combined more often with micro framing, which focuses on details. Other than that subjective panels are often combined with amorphic frames, meaning that no active entities are in the panel. Here only information about the environment is shown in the panel. Micro framing is said to be a more focal type of frame, meaning that it triggers internal focalization more than for example a macro shot, where a lot is happening (Cohn et al., 2023). This relation could possibly suggest a relation between perspective and emotion. Since micro framing triggers internal focalization it could make people experience the emotions of the characters. If then subjective perspectives make more use of micro framing, this could mean subjective framing also leads to more internal

focalization and therefore more emotion. It could therefore be interesting to explore if there is a direct relationship between perspective and emotion.

2.2 Emotion

Comics have the interesting characteristic that they have multiple ways to show emotion. First of all, there are the facial expressions or body postures of the depicted characters (Ekman, 1993; Ekman & Cordaro, 2011). Other than that emotion can be conveyed by different types of visual morphology. For instance, ‘upfixes’ are cues that float above heads; elements can be substituted, like eyes being replaced by hearts or the manipulation of the size of body parts can show how intense emotions are. Figure 3a shows some examples of upfixes. It shows how for example a lightbulb above the head indicates someone has inspiration. Figure 3b shows an example of substitution. The eyes of the character are replaced by hearts, indicating that the character is in love. Finally figure 3c shows how body parts can be manipulated to convey emotion. The big mouth and big head in general really emphasize the greatness of shock. Emotion can also be shown by ‘backfixes’, this is when certain aspects of the background convey the emotional states of characters, such as aspects of weather (storm clouds), flowers, or sparkles (Cohn et al., 2016). Figure 4 shows some examples of this. The first panel has some type of thunder as a background, making it extra clear the character is angry. The second panel uses motion lines to draw your attention and because of that the emotion gets a lot more intense. In the final panel the background consists of bubbles/sparkles, making the entire scene more dreamy and the character extra happy.

Figure 3

Examples of upfixes and substitution

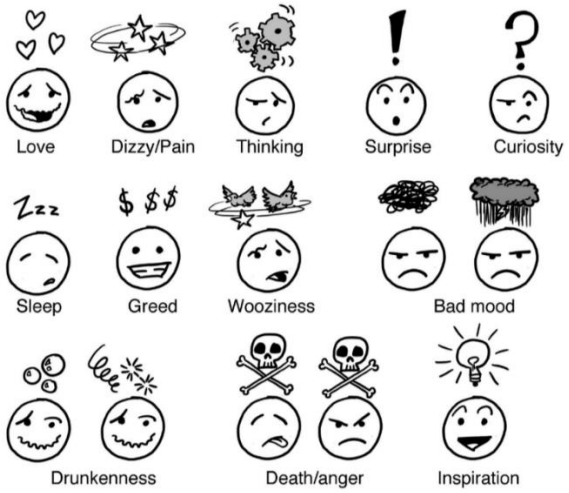


Figure 3a: Upfixes

Figure 3b: Substitution

Figure 3c: Body part manipulation

Figure 4

Different examples of backfixes

One fundamental distinction can separate emotion in the two dimensions of valence and arousal (Barrett & Russell, 1999; Bradley & Lang, 1994; Hodes et al., 1985). Within this distinction valence stands for the perceived pleasantness of the emotion, for example anger can be seen as an emotion with a negative valence, whereas excitement can be seen as an emotion with a positive valence. Arousal makes a distinction in how intense the emotion is. This means for example that a person can be irritated or furious, both have a negative valence, but irritated has low arousal whereas furious has high arousal levels. Figure 5 shows some examples of these

differences. The two panels on the left both have a positive valence. However, the most left panel has quite low arousal, the character is happy, but nothing much is happening, the other panel has higher arousal. The text balloon has a shape that calls for attention and the expression on the girl's face is much more expressive. The two panels on the right have a negative valence. The left panel of these has a low arousal. The character looks sad but is not that expressive. The other panel has higher arousal, with a more intense background color and a more expressive facial expression. These examples show how valence and arousal make a difference in how emotion is perceived.

Figure 5

Differences in arousal and valence

2.3 Cultural differences

Research has found that cultural differences can be found in the use of perspective and the way emotions are shown in comics (Cohn et al., 2023; Fang & O'Halloran, 2012). Japanese comics, for instance, generally use more subjective panels than American comics (Cohn et al., 2023). Furthermore, the way for example mouths are drawn differs across countries, even though the same emotion is depicted (Fang & O'Halloran, 2012). Since comics from different parts of the world use perspective and show emotions in different ways, the relation between these two might also be different.

This difference might be explained by the fact that people from different cultures perceive visual information in a different way (Čeněk & Čeněk, 2015; Tulviste, 2019). People from different parts of the world pay attention to different things when looking at a scene. People from East Asia tend to focus more on the entire scene an relations between objects and the background. People from Western countries however, tend to focus more on focal objects (objects dominating the visual scene) and its details (Čeněk & Čeněk, 2015). This could possibly be linked to the fact that Western countries tend to be more individualistic than East Asian countries (Nisbett & Masuda, 2013). Furthermore, cultural differences can also be seen in the

way visual information, other than comics, is presented (Nisbett & Masuda, 2013; Kim & Papacharissi, 2003; Fischer, 1961). Which would be an explanation for why comics from different world regions look different.

Studying whether perspective and emotion influence each other differently in comics from different parts of the world, could help explain broader cultural differences. For this study comics were divided into eight regions where they originated from: Europe, North America, South America, Oceania, East Asia, West Asia, South-Central Asia and Africa.

Besides looking at the different regions of the world, it might be interesting to look at different comic styles around the world. Comics could, for example, be from America, but use a (Japanese) Manga style, because of this it could use characteristics of a different visual language. This possibly means style cuts across cultures and might be a better way to explore differences between different types of comics and possibly visual languages. Therefore, the way perspective is used, and emotion is shown might also be different. This could therefore also influence the way perspective and emotion influence each other. For this study a general distinction was made between five comic styles: Manga, Cartoony, Real Exaggerated, Alternative and Realistic.

Figure 6 shows some examples for each style to better illustrate the differences in styles. Manga is the comic style that comes mostly from Japan, but now also exists worldwide (Brienza, 2015). Comics in this style are often in black and white, make little use of text and characters usually have Asian/Japanese appearances. With Cartoony comics, characters have exaggerated physical features, bodily proportions are not accurate and usually color is used. An example of this is the ligne claire style, as shown by the TinTin comic in figure 6. Real exaggerated comics also have characters with exaggerated features, but the bodily proportions are more accurate. A good example is the way American superhero comics are drawn. Realistic comics are comics that draw characters with close to real world features and proportions. Alternative comics are comics that cannot be defined in any of these particular styles. They have their own style and usually are a bit more artistic.

Figure 6

Different comic styles

2.4 This study

An immediate question might be, is there a relation between emotions and perspective in comics and if so, what does this relation look like? Research in other fields would suggest that subjective panels would display higher levels of emotion. Readers experience the emotions in

stories with a perspective where they are the protagonist more internal as if it was happening to themselves (Brunye et al., 2009). Research in film showed that POV shots cause people to attribute mental states to characters. It would therefore help with internal focalization, which would in turn lead to more empathy towards the character (Bálint & Kovács, 2016). Following this, comics where perspective is drawn as if the reader is looking through the eyes of the protagonist, should also display stronger emotions. However, earlier research on comics showed that subjective panels might not be the primary way to convey emotions of the characters (Cohn et al., 2023). Research has however also found that subjective perspectives are often used in combination with more focal framing. This would lead to more internal focalization and therefore more emotion (Cohn et al., 2023; Cohn, 2011). There has however not been much research on this relation between emotion and perspective in comics. This contrast and the lack of research makes it interesting to explore this further.

Earlier research has shown that Manga generally uses more subjective panels than the rest (Cohn et al., 2023). However, differences in uses of perspective and emotion between other styles have not been explored that much yet. This makes it interesting to see if there are differences between these styles in the use of perspective and emotion and differences in how perspective and emotion influence each other.

Following from this, how does this relation differ in comics from different parts of the world? Finally, how does the relation between perspective and emotion change in different comic styles? Is this relation for example different in Manga than it is in Cartoony comics?

This study aims to answer these questions by analyzing properties of perspective-taking and emotion in a corpus of comics using different styles and originating from different countries across the world. First of all, since there has not been much research on the relation between perspective and emotion in comics, predictions about this relation will be based on results from studies on similar topics (e.g.: written books and film). To start it is expected that (H1) panels using a subjective perspective will have higher valence and arousal scores than indirect subjective panels. This is suggested because, a subjective frame would lead to more focal framing and internal focalization (Cohn et al., 2023).

In turn it is expected that (H2) indirect subjective panels will have higher valence and arousal scores than objective panels. This is expected since indirect subjective perspective, probably trigger more internal focalization and therefore convey more emotions of the characters. It is also

predicted that comics may differ in these dimensions related to their cultural origins or style. Regarding the region the comics are from it is expected that (H3) Japanese comics have higher emotional valence and arousal levels when using a subjective perspective than American comics. This is because Japanese comics generally use more subjective perspective. Since subjective panels are expected to show more emotion in general this would be the case here too. Other than that since Japanese comics use other perspectives less than American comics it would also mean they have to put more information into the subjective panels and therefore also more emotion.

Finally, regarding style it is expected that (H4) manga uses has higher emotional valence and arousal scores, when using a subjective perspective, than other styles. Here too this is mainly expected because manga uses generally more subjective perspective panels than other comic styles. This would again lead to more internal focalization and therefore emotion. Other than that manga would also have to put more information into the subjective perspective panels since they use the other perspectives less. Therefore also more emotion would have to be used in combination with subjective perspectives.

3. Method

3.1 Materials

This research used the TINTIN Corpus consisting of 1030 comics from 144 countries including roughly 76,000 panels. From this corpus a subset of comics was chosen (see below) resulting in a sample with wide diversity across global regions and styles. Table 1 shows how the comics in the subset were divided across the different world regions. Also, the number of comic panels from each region can be found and the earliest and latest publication date of books from that region. Table 2 shows the number of comics and comic panels divided by comic style as described above.

Table 1

Numbers per region

Region	Number of comics	Number of panels	Publication date between
Africa	84	4174	2002 – 2021
East Asia	59	4490	1950 – 2023
Europe	191	13757	1936 – 2023
North America	21	1336	1961 – 2020

Table 1

Numbers per region

Region	Number of comics	Number of panels	Publication date between
Oceania	18	1476	1948 – 2019
South America	73	4899	1950 – 2022
South Central Asia	34	2207	1980 – 2022
West Asia	35	2015	2012 – 2021
Total	515	34354	1936 – 2023

Table 2

Numbers per style

Style	Number of comics	Number of panels
Alternative	18	763
Cartoony	100	6896
Manga	118	8530
Real Exaggerated	203	12835
Realistic	76	5330
Total	515	34354

3.2 Areas of Analysis

For annotating I used the MAST software (Cardoso & Cohn, 2022). Around each panel a region was drawn. These regions were then given the values for valence and arousal. The annotations were carried out using the VLT: Semantics: Emotion annotation scheme (Cohn & Hacımusaoğlu, 2022). Figure 7 shows a screenshot from the annotation program and software. The blue areas are the regions that could be annotated. As can be seen from the VLT: Semantics: Emotion scheme arousal and valence were used. Valence had a drop down menu where one of the 5 scale options could be selected and assigned to the region. Arousal had just an option and on the right side of the screen in the ‘Annotation Notes’ section the arousal score could be assigned. Arousal was assessed using a scale from 1 to 5 where 1 stood for low arousal panels and 5 for high arousal panels. A Self-Assessment Manakin (SAM) was used as a reference for the level of arousal (Fig. 8) (Bradley & Lang, 1994). The SAM was used as a visual aid to determine the place of a panel’s arousal on the scale. Every figure can be seen as a number on the scale of arousal. As can be seen in Figure 8, the first manakin is really calm, so when a panel

would be very calm, it would be assigned a 1. On the other hand, the last manakin has a lot of motion and action. When a panel would show similar characteristics a 5 would be assigned to it.

For emotional valence another SAM scale was used in a similar way. The emotional valence was assessed using a 5 point scale with the variables positive, slightly positive, neutral, slightly negative and negative (Fig. 9) (Bradley & Lang, 1994). Figure 9 shows how the manakin on the left is really sad, whereas the second manakin is only a bit sad. This same distinction can be made on the right side of the scale for happy and only slightly happy. These visuals helped determining where to place a panel on the emotional valence scale by comparing the with the manakins and seeing which manakin the panel had the most in common with.

Figure 7

A screenshot of the annotation software

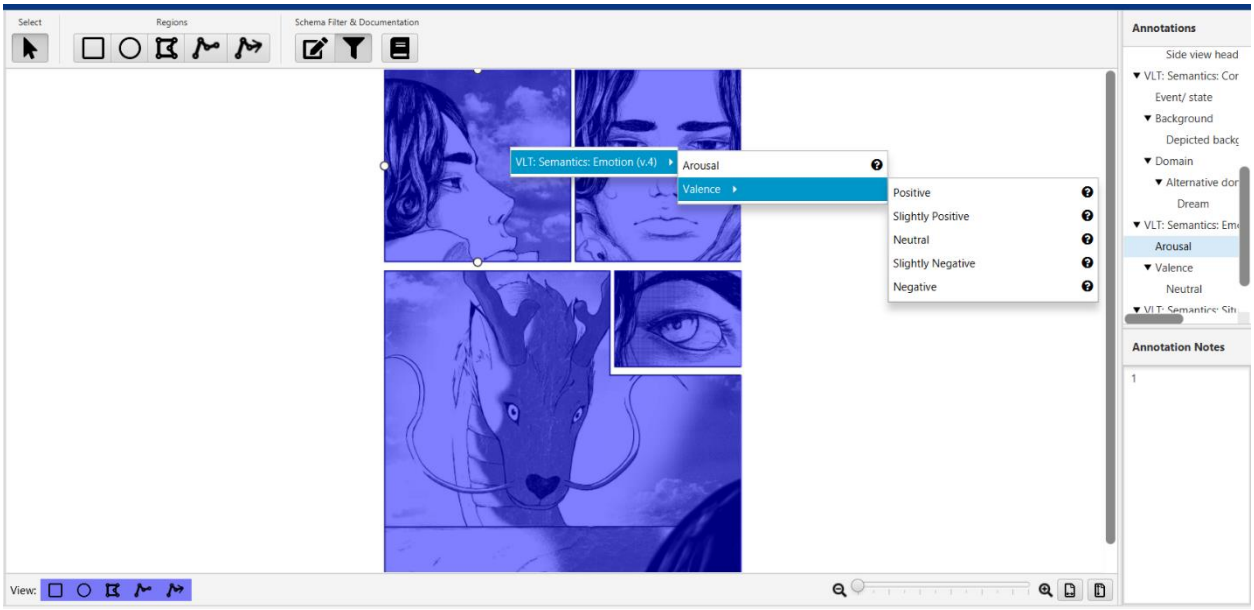


Figure 8

Self-Assessment Manakin (SAM) Arousal

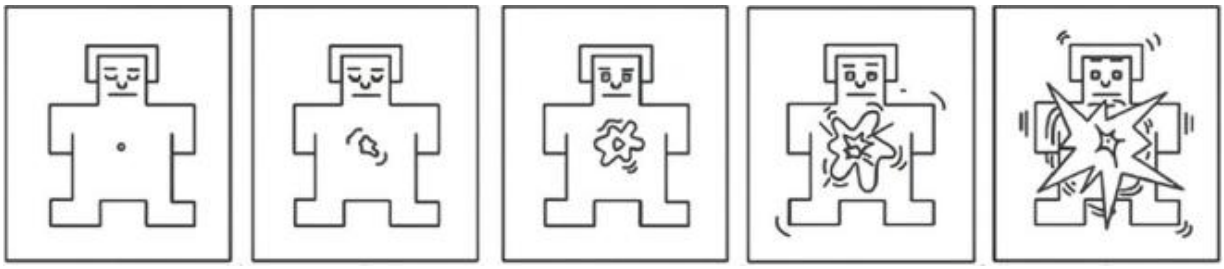
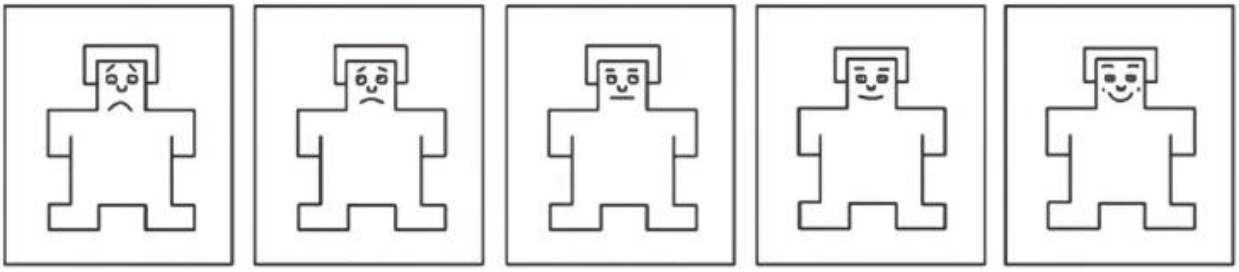


Figure 9

Self-Assessment Manakin (SAM) Valence



For the annotation of emotion I first learned how to work with the MAST software and the criteria to annotate. I had several practice rounds which had to be annotated sufficiently before proceeding to the main corpus. From that point on weekly meetings were held between the annotators to discuss differences in annotations to ensure reliability. We checked comics across annotators to see if there was agreement on the annotations. If there were differences in the ratings these were brought up during the meeting and as a group it was decided what was the best way to annotate it. Since emotion is a subjective concept, some variation was expected across annotators, but generally similar values were used and consistent discussions minimized variation. In the end I annotated 150 comics, to which 760 comics, annotated by 4 other annotators, were added. This resulted in a total of 910 comics of the corpus annotated for emotional valence and arousal.

Within the TINTIN Corpus, an additional 573 comics were annotated with the Visual Language Theory: Morphology: Perspective Taking v.2 annotation scheme (Cohn & Klomberg, 2022). This scheme includes annotation classes for both direct subjective viewpoints (hands in frame, eyeline downward/upward, etc.) and for indirect subjective viewpoints (over the shoulder shots, etc.). Annotations for both direct and indirect subjective viewpoints were compiled into categories reflecting the whole classes. Objective perspectives were deemed as any panels that did not use either subjective or indirect subjective viewpoints.

Across comics annotated for both emotion and perspective-taking, this resulted in a subset of 515 comics used in this study for analysis, spanning 34354 panels.

3.3 Data Analysis

For analysis the valence scores were converted to numbers. The scores were given as follows: Positive: 1.0; slightly positive: 0.5; neutral: 0; slightly negative: -0.5; negative: -1.0.

Other than that, the emotion scale goes from negative to positive, however for this study it is also interesting to look at valence more generally. A positive valence is stronger than a slightly positive valence, the same as negative valence is stronger than slightly negative. In order to explore these differences as well a variable named absolute valence was created. Here negative and positive annotation got the same scores and slightly negative and slightly positive also got the same scores. Positive and negative were scored 1.0, slightly positive and slightly negative were scored 0.5 and neutral was scored 0.

For analysis factorial ANOVAs were used. Emotional valence and arousal were each used as dependent variables in separate ANOVAs, each with factors of 3 different panel types (subjective, indirect subjective and objective), 5 different comic styles (Manga, Cartoony, Real Exaggerated, Alternative and Realistic) and 8 global regions (Europe, North America, South America, Oceania, East Asia, West Asia, South-Central Asia and Africa). The imbalance of comic styles and world regions did not allow the model to run. Because of that separate tests were run.

With some exploratory tests Mauchly's test indicated that the assumption of sphericity of all the data was violated, indicating that the data was skewed. To counter this a log transformation of the data was done. Since some values were negative, the square root of every number was taken to get rid of the negative values. After this, since decimal numbers often result in negative numbers when log transformed, 1 was added to every number. These values were then log transformed, written as a formula this is: LOG(square root(###) + 1). Only the data of the emotional valence was not log transformed. This data would help determine differences between negative and positive, since the log transformation gets rid of negative values this data would not be useful after the log transformation anymore.

4. Results

4.1 World region effects

First, a quick look at the descriptives table of the data revealed that regardless of perspective, mean valence scores were negative (Objective M = -0.207, Indirect M = -0.218, Subjective M = -0.205).

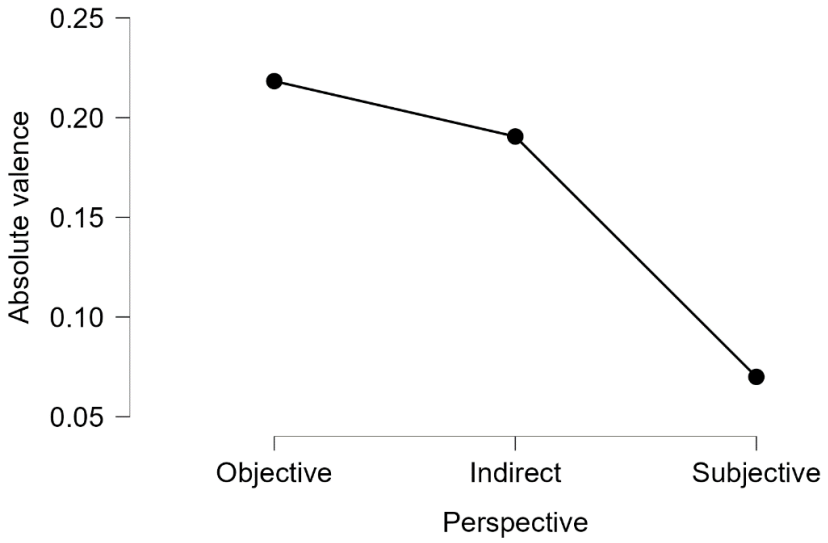
After this, I tested whether perspective varied with regard to the emotional valence of panels and used world region as a between subjects factor. Mauchly's test indicated that the assumption of sphericity had been violated, $\chi 2$ (2) = 52.91, p = < .001. After applying a

Greenhouse-Geisser correction no main effect of perspective on valence was found ($F(2, 315) = 0.128$, $p = .836$, $\eta 2 = 2.716 \times 10^{-4}$). Also no main effect of world region was found ($F(7, 195) = 1.017$, $p = .421$, $\eta 2 = 0.020$). Finally no interaction effect between panel type and world region on valence was found ($F(11, 315) = 0.669$, $p = .772$, $\eta 2 = 0.010$).

Following this, I tested whether perspective varied with regard to the absolute emotional valence of panels, with world region as a between subjects factor. Even after the log transformation the assumption of sphericity was still violated ($\chi 2\ (2) = 218.79$, $p = < .001$), therefore the Greenhouse-Geisser correction was applied. Following this a main effect of perspective on absolute valence was found ($F(1, 751) = 271.668$, $p < .001$, $\eta 2 = 0.214$), as depicted in Fig. 10. Post-hoc tests, using Holm's correction, showed that an objective perspective resulted in significantly higher valence levels than an indirect ($p < .001$) and a subjective perspective ($p < .001$). Also an indirect perspective resulted in significantly higher valence levels than a subjective perspective ($p < .001$). Also a main effect of world region was found ($F(7, 507) = 3.389$, $p = .002$, $\eta 2 = 0.017$). A post-hoc test using Holm's correction revealed that comics from Africa have significantly higher valence values (Mean Difference = 0.027) than comics from Europe ($p = .015$). Lastly, no interaction effect of panel type and world region on absolute valence was found ($F(10, 751) = 1.515$, $p = .126$, $\eta 2 = 0.008$).

Figure 10

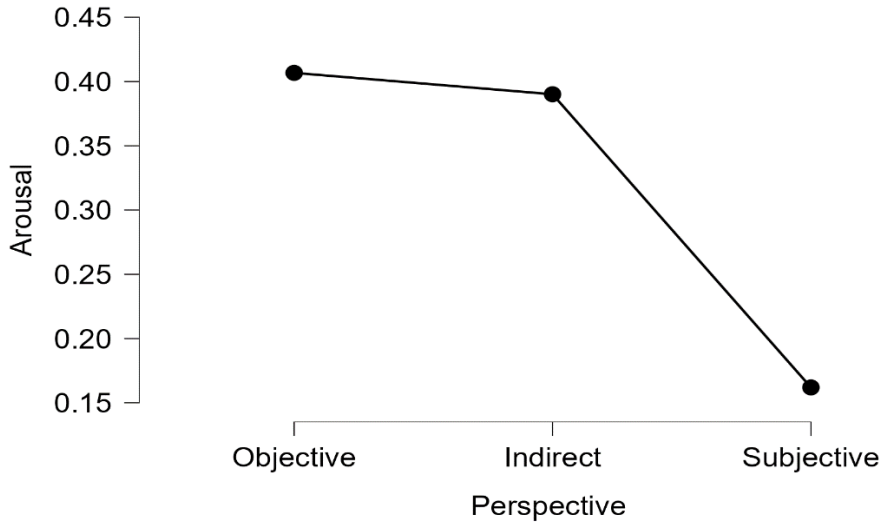
The effect of perspective on absolute valence



A third ANOVA was performed to test whether perspective varied with regard to the arousal of panels, with world region as a between subjects factor. Mauchly's test indicated that, even after the log transformation, the assumption of sphericity was violated ($\chi 2$ (2) = 554.31, p = < .001). The Greenhouse-Geisser correction was applied and a main effect of perspective on arousal was found (F (1, 609) = 336.39, p < .001, $\eta 2$ = 0.305), as depicted in Fig. 11. Post-hoc testing using Holm's correction revealed that an objective perspective lead to significantly higher arousal levels than subjective perspectives (p < .001). Also an indirect perspective lead to higher arousal levels than a subjective perspective (p < .001). A main effect of world region on arousal was also found (F (7, 507) = 3.372, p = .002, $\eta 2$ = 0.010). Post-hoc testing using Holm's correction showed that panels in comics from Europe had significantly less arousal than in comics from South America (Mean Difference = -0.037, p = .004). Finally, no interaction effect of world region and panel type on arousal was found (F(8, 609) = 0.026, p = .429, $\eta 2$ = 0.006).

Figure 11

The effect of perspective on arousal



4.2 Comic style effects

Finally this study researched the effect comic style may have on the relation between perspective and emotion. Once again, first the effect of comic style on the relation between perspective and valence was explored. After controlling for the violation of the assumption of sphericity ($\chi 2$ (2) = 52.90, p = < .001), with the Greenhouse-Geisser correction, no main effect was found (F (6, 321) = 1.747, p = .104, $\eta 2$ = 0.014).

Following this, the effect of comic style on the relation between perspective and absolute valence was explored. The log transformed data still violated the assumption of sphericity ($\chi 2$ (2) = 222.88, p = < .001), so the Greenhouse-Geisser correction was used once again. Again, no main effect was found (F (6, 753) = 1.648, p = .132, $\eta 2$ = 0.005).

Finally, I tested whether comic style differed based on the relation between perspective and arousal. After a log transformation was performed, the assumption of sphericity was still violated ($\chi 2$ (2) = 545.68, p = < .001) and the Greenhouse-Geisser counter was used. Following this the test did show a small main effect: F (5, 615) = 3.711, p = .003, $\eta 2$ = 0.013. The effect is shown in Fig. 12. By looking at post hoc tests, using Holm's correction, it was then found that for Manga subjective panels use significantly higher arousal than Cartoony (p = .012), Real Exaggerated (p = .003) and Realistic comics (p < .001). Realistic comics use significantly lower arousal than Cartoony (p = .018), Manga (p < .001) and Real exaggerated comics (p < .001).

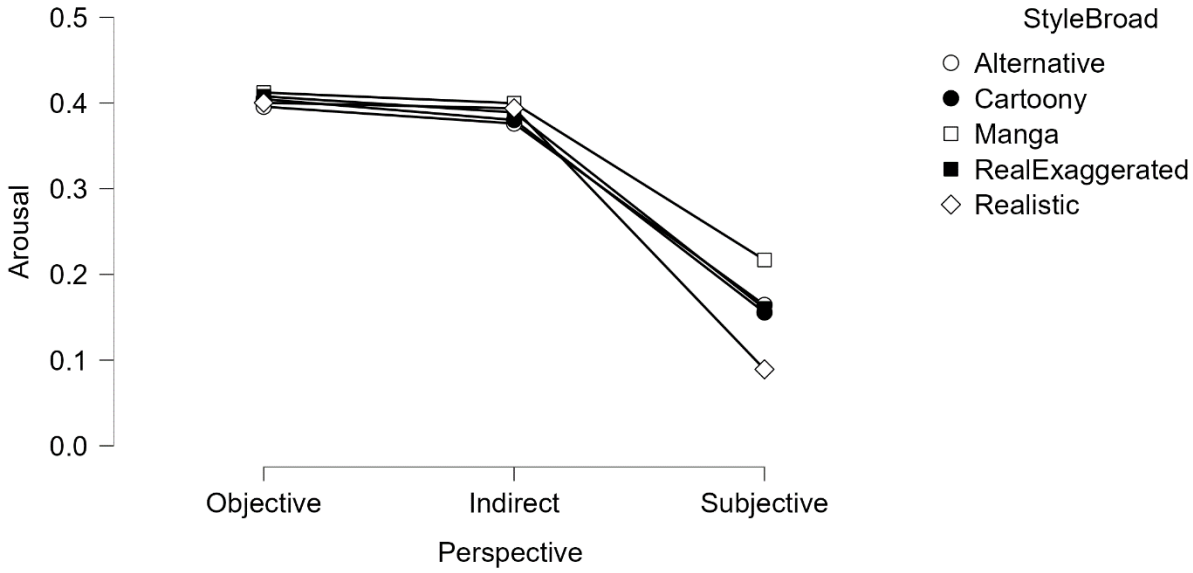
Table 3

Post Hoc Comparisons – Comic style ✲ Perspective on arousal

		Mean Difference	SE	t	p_{holm}
Alternative, Subjective	Cartoony, Subjective	0.009	0.031	0.279	1.000
	Manga, Subjective	-0.053	0.031	-1.704	1.000
	RealExaggerated, Subjective	0.004	0.030	0.135	1.000
	Realistic, Subjective	0.075	0.032	2.350	0.944
Cartoony, Subjective	Manga, Subjective	-0.061	0.017	-3.699	0.012
	RealExaggerated, Subjective	-0.005	0.015	-0.313	1.000
	Realistic, Subjective	0.066	0.019	3.579	0.018
Manga, Subjective	RealExaggerated, Subjective	0.057	0.014	4.013	0.003
	Realistic, Subjective	0.128	0.018	7.121	< .001
RealExaggerated, Subjective	Realistic, Subjective	0.071	0.016	4.335	< .001

Figure 12

The effect of comic style on the relation between perspective and arousal



5. Discussion & conclusion

5.1 Discussion

This study sought to examine the relationship between perspective taking and emotions in comics. By annotating emotional valence and arousal of comics panels along with their perspective-taking, we found that contrary to our hypothesis, panels using a subjective perspective often had lower valence and arousal scores. On the other hand a panel with an objective perspective usually had higher valence and arousal scores. Below we further elaborate on these findings, by explaining the relationship between perspective and arousal and the relationship between perspective and valence. We also dive deeper in to the results regarding variation across cultural and stylistic differences.

The main finding of this study is that an objective perspective generally displays the most emotion, followed by an indirect subjective perspective. A subjective perspective (like a POV panel) generally displays the least emotion. When looking at the absolute values of valence a graded effect was found. The effect was that panels with an objective perspective had generally higher valence levels than indirect subjective panels and indirect subjective panels had in turn higher valence values than panels using a subjective perspective. So panels that use a progressively more subjective perspective, use less valence. For the relationship between

perspective and arousal something similar was found. It was found that panels using an objective perspective had significantly higher arousal levels than panels using a subjective perspective. Furthermore, panels using an indirect subjective perspective also had significantly higher arousal levels than panels using a subjective perspective. However, no significant difference between an objective panel or an indirect subjective panel was found. This is in contrast with research in other fields (Brunye et al., 2009; Bálint & Kovács, 2016) and with what we hypothesized.

One reason why this stepwise decrease in emotion can be seen as subjectivity rises, might have to do with framing. At the beginning of this study I thought that seeing things from a subjective perspective would lead to more internal focalization and therefore would convey the emotion of characters more (Bálint & Kovács, 2016). However, it might be the case that, since a subjective perspective generally has a more focal frame (Cohn et al, 2023; Cohn, 2011), less information is shown in a panel using a subjective perspective and automatically less emotion is conveyed as well. This would explain the graded effect as well. Since progressively more subjective perspectives, use progressively more focal frames, they would also show progressively less information and therefore less emotion. This seems to support Cohn et al (2023) suggesting that perspective might not be the primary way to convey emotion in comics. This would mean other properties, like facial expressions or backgrounds, would be more important to convey emotion in comics.

After this we looked at potential differences between cultures. Starting with looking at the origin of different comics, no significant effects were found. This rejects the hypothesis that Japanese comics would use more emotions when using a subjective perspective than American comics. Furthermore, this tells us there seem to be no real differences in the relationship between perspective and emotion in comics, between different regions of the world. This suggests that there are no cultural differences for the relationship between perspective and emotion.

However, an alternative reason for the lack of a cultural effect might be that styles (i.e. visual languages) cut across cultures. So, I also looked at style, where I did find a difference in the relationship between perspective and emotion. The results showed here that comics in the Manga style use more arousal with a subjective perspective than Cartoony, Real exaggerated and Realistic comics. On the other side Realistic comics seemed to use less arousal with a subjective perspective than Cartoony, Real exaggerated and Manga comic styles. This means that style could perhaps be more important in finding differences between comics from different cultures.

Furthermore, this could even suggest that not region, but style could be more useful in identifying different visual languages around the world. This would also be consistent with other languages: the language of English has an identifiable structure no matter what region of the world it is spoken. This supports that that there are differences between the styles of comics, which further suggests that diverse visual languages vary in their grammars (Cohn, 2024).

It has to be noted that this research did not take into account the way different cultures use emotion in general. If, for example, one culture is less expressive than another, it could be that emotions in comics from this culture, are generally depicted less. Other than that it might be interesting for future research to look why it is that objective panels have a generally higher emotion level. An interesting thing to look at would be the relationship between framing and emotion. Do certain types of framing generally have higher emotional values than others? There could also be looked at the use of emotional cues in combination with different perspectives. Do, for example, panels with an objective perspective make more use of backfixes and upfixes than panels using a subjective perspective?

It might be worth to study whether the relation between perspective and emotion is expressed in a universal way across modalities. If this would be the case it could help get a better picture of what parts of modalities are universal and what parts are culture dependent. Furthermore, it could be interesting to not only look at the intensity of the emotion, but also which emotion specifically is used more often with which perspective. It could for example be the case that a subjective perspective is used more when conveying the emotion of being in love, whereas an objective perspective could be used more for conveying anger. No research has been done on this topic yet, but it could yield interesting results. This could help comic writers choose the perspective they use when writing a comic.

5.2 Conclusion

This study aimed to answer the question: How does perspective-taking interact with emotion in comics, and how does it vary across cultures and/or styles of comics?' Overall it seems that the more subjective a perspective gets, the less emotion is conveyed. In addition, the region of origin does not influence this, whereas comic styles do, with Manga generally having higher arousal levels with a subjective perspective and Realistic comics having generally lower arousal levels with a subjective perspective. This suggests that world region might not be a good indicator of differences in visual languages. Style would be a better indicator and following this

it would be interesting to explore these differences in style further. However, some universality can also be seen in these results. Every culture and style follows the same pattern of using less emotion when using a more subjective perspective. This combination of small differences with an overarching pattern, might suggest that visual languages differ from each other, but do belong to a same type of ‘language family’.

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