

Use of Vectors to Explore Visual Meaning Making

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DOI: <http://doi.org/10.36892/ijlls.v5i4.1451>

APA Citation: AlZahrani, B. & Alhuthali, M.(2023). Use of Vectors to Explore Visual Meaning Making. *International Journal of Language and Literary Studies*. 5(4).33-46. <http://doi.org/10.36892/ijlls.v5i4.1451>

Received:

06/10/2023

Accepted:

02/12/2023

Keywords:

Vectors,
Visual
Grammar,
Intersemiosis,
Resemiosis.

Abstract

The role of women in Saudi society has regularly attracted attention. To many non-Saudis, the historic restrictions are seen as evidence of deep and fundamental discrimination and the complexities of how restrictions and freedoms interact are overlooked. Since 2017, there have been a series of major reforms to the male guardianship system and this has opened up public spaces for women as well as ending the emblematic ban on women driving. However, in turn, this has seen contested interpretations with criticisms of the limited nature of the reforms contrasted with those who see them as a major and significant step. This study looks at a series of images of women in public spaces in Saudi Arabia both before and after the recent reforms. The importance of vectors within the image as a means to combine different semiotic modes is the main research tool for understanding inter-semiosis. This also allows a study of whether the represented actors are seeking to directly engage with the external viewer or if their focus is bounded by the image. This stresses the importance of inter-semiosis in understanding the individual semiotic modes in an image. However, it also stresses that inter-semiosis, in itself, cannot explain the wider process of resemiosis.

1. INTRODUCTION

The portrayal of Islam in general, Saudi Arabia and of women in Saudi Arabia in particular in Western media has often been contentious (Alsulaiman & Rentner, 2021). This partly reflects very different interpretations of social relations in the Kingdom and the impact of recent changes. In many analyses, Saudi Women are often assigned to one of two very distinct roles, as oppressed and excluded from social life or as a source of male entertainment. The implications of this have been studied from the perspectives of political science (Karolak & Guta, 2020), sociology and media studies (Bajri & Alqurayqiri, 2022; Le Renard, 2019; Racman & Hadji, 2022).

The ongoing shift from media in the form of print newspapers to something more visual, especially online (Hameleers et al., 2020) with a strong emphasis on visual images, clear framing (to attract passing interest) and less on text. In addition, the emerging role of carefully constructed fake images (Grothaus, 2021) makes the ability to interpret just how the media works to present images all the more important (Hameleers et al., 2020; Racman & Hadji, 2022). The practical consequence is that any ongoing study of the framing of social and gender

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relations in Saudi needs to take on a far more multimodal approach and also tends to stress the importance of the visual element over text.

In this changing media environment, there is a growing interest in exploring both how images are constructed and used to provide information and the importance of how this information is then interpreted by the observers. Multimodality (O'Halloran, 2008, 2011) provides an analytic framework at three different levels. At one level are the individual semiotic modes (text, image, background colour, sound and so on) and then how these combine to build up the system of meaning embodied in an image or video (Iedema, 2003; Jewitt, 2005; J. R. Martin & P. R. White, 2005). This process of analysing intersemiosis follows carefully structured approaches (Lim, 2021; O'Halloran et al., 2016) and is key to building meaning. Iedema argues that "semiosis is not analysed in terms of discrete building blocks or structures but in terms of socially meaningful tensions and oppositions which could be instantiated in one or more ways" (2003, p. 31). The final part of the process, how the viewer interprets this package, resemiosis, is acknowledged (J. R. Martin & P. R. R. White, 2005) but often set to one side in terms of detailed analysis.

The problem with resemiosis is it is both simple to describe and very complex to analyse (Alhuthali, 2018). The process can be described relatively quickly as the way the viewer interprets the totality of the message but, in contrast to studying resemiosis, it is very hard to break down into its component parts. Almost every individual when presented with an image will bring their own background, prior understanding and beliefs to reach their interpretation. In addition, they may well take into account any relevant headlines, the wider context of the article or who is the publisher.

In the field of psychology, this is often called framing (Haslanger, 2019; Tewksbury & Scheufele, 2019) where the viewer takes new information and creates understanding from previous experiences. This process can be cognitively very efficient (it looks for and uses already understood context) and lies behind the more primitive fight or flight mental constructs that were probably key to the survival of early humans. Martin and White (2005) described this interpretation process as affected by this split into judgment (how we understand social rules) and appreciation (what values we draw on for a given evaluation).

A final and related problem is that not only is our understanding of an image shaped by our own existing beliefs, but this framework will vary not only between observers but quite possibly between the intention of those who created an image and those viewing it. In a contested field, such as the role of women in modern Saudi Arabia, resemiosis is critical to understanding images and media reports. This study takes a two-stage approach. The initial focus is on a selection of images from the Western media spanning the period of recent reforms (Lacroix, 2019; Rizvi & Hussain, 2022) and looks particularly at image framing as a semiotic tool. The final step is then to consider how the images can be interpreted and the different frames that might be applied.

2. LITERATURE REVIEW

2.1. Media Portrayals of women in Saudi Arabia

The representation of the Middle East generally, Islam and the role of women in Western Media has often been challenged due to the underlying orientation and assumptions (Le Renard, 2019;

Racman & Hadji, 2022). In particular, there has been a tendency towards either portrayal of backwardness and repression or an exoticism (slipping into eroticism) of gender and social relations (Said, 1997, 2003). In the Saudi context, the focus has been on the substantial restrictions facing women in public life (Bajri & Alqurayqiri, 2022) but with little note taken of how women have always been able to run their businesses (Al-Asfour et al., 2017) or access higher education. In effect by focusing on the severe restrictions, the net effect has been to overlook or downplay any agency of Saudi women (Karolak & Guta, 2020; Satiti, 2017).

The legal changes since 2017, around male guardianship limitations, especially the right to drive (Alsulaiman & Rentner, 2021) and more freedom to travel, have notionally reduced male authority over women and allowed greater practical opportunities. As such, they have attracted attention both in the Western press (Elyas & Aljabri, 2020) and across the Arabic-speaking world (Adel, 2019). More widely these changes are promoted by their supporters as a radical reset of social relations in Saudi Arabia and by others as far too limited and possibly cosmetic in nature (Boghani, 2019). In addition, while the changes in social relations are often the focus of discussion, the wider plan has committed Saudi Arabia to a substantial change in how it uses, and interacts with, online technologies (Buller, 2021; Kemp, 2020)

2.2. Visual Grammar

While much of this narrative was originally created and sustained in the form of print, increasingly visual images are important tools to transmit information and claim the attention of potential readers. In this respect, in the same way that grammar both structures the format and reading of text, visual grammar is an important tool for reading images (Chen & Gao, 2014; Kress & van Leeuwen, 2006). The process of reading and interpreting an image has some antecedents in terms of the appreciation and appraisal of any visual art form (Vissers & Wagemans, 2023).

Chen and Gao (2014) note how this approach allows for consideration of the various visual modes in the image, the relationship of the image to surrounding material (text, other images, headlines), the intended interpretation by the creator and the possible range of interpretations by the readers (Alhuthali, 2018).

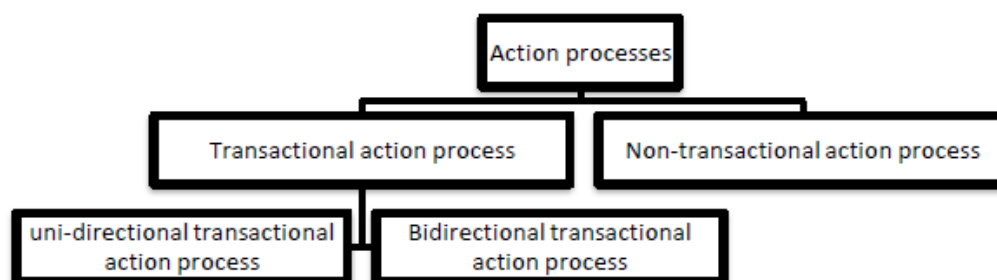
As noted above, the presentation of the role of women in Saudi society is contested (both before and after the recent reforms) and this combination of being able to study the process by which meaning is built up, and to consider issues of variable interpretation makes Kress and van Leeuwen's approach valuable. In addition, their model makes a distinction between the represented participants and the interactive participants in an image (Kress & van Leeuwen, 2006). The objects (people but also background location and other information) are seen as the represented participants while both the creator and viewer are the interactive participants. A key to distinguishing between image composition (narrative) and the interpretation (the conceptual process) is whether a vector exists given that "vectors are the marks of the narrative process" (Kress & van Leeuwen, 2006, p. 82). In terms of the narrative element, the vectors and the number (and actions) of the participants can be broken down into three sub-processes: action; reactional; and, speech and mental processes.

The action process has two main participants. The actor, who initiates a vector, and the goal which receives it. Usually, the actor(s) will dominate an image and the goal is the objective of

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their actions. This in turn can be broken into three sub-processes depending on the type of interaction and whether or not there is an actual goal. In the latter case, the process is described as non-transactional but the others are represented according to the level of interaction (Kress & van Leeuwen, 2006):

Figure 1: Action Process



(Kress and van Leeuwen, 2006, p. 66)

In turn, the reactional process captures how the vector is formed by the eyelines of the participants. In this, the active viewer may either directly look at the phenomenon under consideration (which may or may not be another human) or look in a direction but not at another participant (non-transactional).

These building blocks are given meaning by the interactive participants using four main systems: contact; social distance; perspective; and, modality (Kress & van Leeuwen, 2006). Contact depends on how the represented characters interact with the viewer, if they are looking directly at the viewer this can be seen as ‘demand’ in that some form of direct response is expected (ranging from empathy to disgust). If this is lacking then the image is an ‘offer’ with a degree of passivity (Peng, 2022). In terms of demand, facial expressions are an important part of structuring the desired response. Social distancing relies both on the composition within the image (how close the represented participants are, technical issues such as camera view (close up or long range) and how much of the participants are shown (Padilla & Padilla, 2022). Camera view also builds up the perspective in the sense of looking down at the participants, up at them or eye level. As with other social interactions these positions are often held to reflect the relative power and importance between the participants.

While these three features are, to some extent, matters of technical image composition (Vissers & Wagemans, 2023), modality (Ravelli & Van Leeuwen, 2018) captures the viewpoints of those who constructed the image, how it was used and also, to a lesser extent, the interpretations of the viewers. Initially (Kress & van Leeuwen, 2006) this focussed on issues of truthfulness and credibility (which, of course, capture different criteria). Traditionally it was possible to make a-priori assumptions about truthfulness from the image composition. It was technically easier to fake an image that had little or no colour, limited background or other internal information. However, recent developments in terms of image manipulation make these rules of less value (Grothaus, 2021) suggesting both a need for greater digital literacy among the

wider population and that credibility (and how this is built up) becomes a critical part of the interpretation process (Haslanger, 2019; Luo et al., 2022; Tewksbury & Scheufele, 2019).

3. RESEARCH METHODS

The way that Saudi women are represented in Western media in the form of text has been analysed for some time both from the perspective of multimodality (Elyas & Aljabri, 2020) and wider political, social and journalistic studies (Said, 1997). This study seeks to focus on non-verbal modes in part as this has been less studied and in part as, with the growing reliance on the internet for information, such modes become more important. This allows the study to concentrate on the construction of meaning with the image using vectors (i.e. inter-semiosis) and by the original creator and any viewers (resemiosis).

The approach is qualitative (Braun & Clarke, 2013; Symon & Cassell, 2012), using a small number of images that in turn allows for an in-depth study of how meaning-making is constructed. The sampling frame was derived from an advanced Google image search for direct semiotic references to Saudi women and had been published on a Western news website. All the images were from the English-speaking media and span the period before and after the recent Saudi reforms.

To carry out the analysis, the focus was on vectors (Kress & van Leeuwen, 2006) as the principle analytic tool but also draws on the concept of resemiosis (Alhuthali, 2018) to enable the analysis to both capture how an image was built up and what interpretations could be made.

4. DISCUSSION

The first image is from a music video “Hwages (in English translated as Concerns)” published by the BBC in early 2017 (BBC, 2017). The video intended to highlight the restrictions that women faced and predated the recent reforms as, at that time, women were notionally prohibited from practising sports in public.



Figure 2: Still image from Hawaijes music video (CNN)

This shows two Saudi women playing basketball while wearing the full abaya expected of women in public places in Saudi Arabia. It contains two actional transactional processes and one uni-directional reactional process. The first transactional action process is the woman at the front of the image holding a basketball with the woman as the actor and the ball as the goal. The second transactional action is the woman at the back of the image and here the first woman

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is the goal. This vector is constructed by the stretched arms of the second woman trying to obstruct the first woman from placing the basketball in the net. The final, unidirectional, vector is the eyeline from the first woman to of out-of-frame basket.

The image has no contact between the represented women and the viewer so should be seen as a passive offer (Peng, 2022). The image shows most of the two women (Padilla & Padilla, 2022) and the perspective is eye level in the sense that we are looking at the women. In terms of the wider composition, while it is clearly outside there are no other individuals and that, and the surrounding fencing, may suggest this was a private space.

In terms of resemiosis, the passive offer is important. No judgement or agency can be given as to why the women are playing basketball in circumstances where they are outside but (from the framed image) in a private place. That places considerable emphasis on the interpretation of the viewer and a range of options are feasible:

- This is an instance of women playing sport, adhering to some local restrictions (the abaya) but for their own enjoyment (the passive offer and the transactional vectors suggest no interaction with the image maker);
- The lack of any other individuals reinforces this is a private attempt by two women to enjoy themselves outside despite the social restrictions;
- It is an example of relative liberation, in that the video makes it clear that many Saudi women wish to have fewer restrictions but can still find the agency to enjoy sport in a situation where this is notionally banned. Note that other elements of the video show women skateboarding and dancing in open spaces (BBC, 2017).

Variations of these readings could combine one or more of that list and indeed other interpretations could be made. In effect, this starts to show the problem of moving from studying intersemiosis where the process is technically clear to consideration of resemiosis (Alhuthali, 2018). In consequence, while analysis of a single part of the wider structure can be revealing, to start to identify the intended effect (Martin & White, 2005) consideration of the other semiotic modes is informative as to the intent of the creator. In this particular case, the goal of the wider video is important to any interpretation of this particular still. It suggests female agency, even within the then restrictions (Bajri & Alqurayqiri, 2022; Le Renard, 2019), suggesting both a clear desire for fewer restrictions but also a degree of social agency missed by some Western commentaries (Boghani, 2019).

The next image is from 2 March 2022, so captures the impact of the recent legal changes and shows members of the Saudi national football women's team:



Figure 3: Saudi women's football players

This image is from a report published by CNN "Saudi Arabia Secures Victory in Its Debut Women's International Match" (Nureldine, 2021). The article notes that the idea of the women's team playing internationally is indicative that for some women, at least, the changes since 2017 have had a demonstrable effect on their lives (Aldosari, 2018; Kottasova & Thornton, 2020). Note that while seen as a broadly positive outcome, some critics have stressed that the reality is that women still need permission to play sports rather than having a fundamental right to do so.

In comparison to Figure 2, the women are dressed in relatively conventional sports clothes that would be widely used in this sort of training situation regardless of national context. The image contains several unidirectional vectors as each player looks at the ball they are training with and their focus is on their sporting performance not any viewer. The main transactional vector is from the coach (in the background) to the players (the phenomenon in this case). Again the interaction with the viewer is passive (the women are not looking at the camera) and at eye level (suggesting equity between the viewer and those in the image).

In terms of resemiosis, the image is easier to interpret. Indeed, if the Saudi context was unknown, it would be seen as a typical example of female football players in a training session as there is little in the mode of dress or the background to suggest otherwise. The essentially conventional nature of the image is important, at least for some women the recent changes have normalised their ability to play sports in a public place.

Part of the changes also allowed Saudi women into public spaces such as sports stadiums where they were previously barred. The next image shows a group of women watching a sports event in a mixed-gender setting. This is in contrast to the two images above that are single gender whether due to intent (BBC, 2017) or the nature of the situation (Nureldine, 2021). It is from an article on CNN "Saudi Arabia to Allow Women into Sport Stadiums" (Grinberg & Hallam, 2017).



Figure 4: Saudi women in a sports stadium

The article focuses on the decision to allow Saudi women to attend sports events from early 2018. This has variously been represented as another step in the liberalisation process but the move was also contested by more conservative elements in Saudi society as opening up too many possibilities for interaction between genders. Both these analyses can be supported through an analysis of the image.

The image shows a uni-directional vector from the represented participants (the men in the upper left-hand side) towards the women in the foreground. Again resemiosis is a complex process. In this instance it is clear that Saudi women are in a public place, reflecting recent changes, but the interpretation of the role of the men is more complex. To some extent, to understand the image it is useful to bear in mind that the full beard of the man at the top is an indication of a degree of religious conservatism compared to the man below him. However, this information would probably be missed by an observer with little or no awareness of such subtleties. That the women are their focus is clear, what is open to interpretation is whether this is due to unease (a breach of previous restrictions) or acceptance of the recent changes. Equally, each of the men could be seen as representing one or the other of these responses.

The final image is taken from *Vogue Arabia* and captures a Saudi princess in a car. This was a controversial edition and was reported by CNN (Aldosari, 2018) as an instance where the reforms were limited. In particular, there was no clear right to drive (Alsulaiman & Rentner, 2021), just that a male guardian could approve it (if they so wished) and critics noted that the regime continued to imprison some of the women who had campaigned for this change.



Figure 5: Saudi Princess on the cover of Vogue Arabia

Unlike the earlier images, the female character is gazing directly at the camera so there is a clear demand for some reaction. There is also a unidirectional transactional action vector of her arm on the steering wheel. In combination, this could indicate having just entered the car but with the clear intent to drive it.

In this respect, resemiosis is potentially clear (O'Halloran et al., 2016). Since bans on women driving were one of the widely reported restrictions in Saudi society (Alsulaiman & Rentner, 2021; Rizvi & Hussain, 2022) this strongly suggests the image is meant to convey change and relative degree of freedom. The woman is not just in a car but is preparing to drive it away. If Figure 2 reflected relative freedoms even when they were not legal, this image represents the new legal freedoms. Again, the beliefs and attitudes of the viewer have some impact, in particular as to how much weight is given to the nature of the women's dress (the contrast to the footballers is clear here) as indicating that social changes are less profound than sometimes presented. However, the CNN article focussed on two aspects of the controversy. Vogue has a past history of glossing over issues (an early article in 2012 praised the wife of Assad in Syria as a force for modernisation) and that the change was limited in that male permission was still needed (Aldosari, 2018).

5. FINDINGS

The discussion above reflects the relative difficulties of using inter-semiosis to explore how an image is constructed compared to resemiosis for how it is interpreted (and how the original producer intended for it to be interpreted).

Most of the images have vectors that suggest agency in the action process. The individuals are either focused on their own sporting activities or prepared to drive a car. The exception is figure 4 where the women are reactionary to the male gaze. The nature of such vectors is to suggest agency for the participants in that they are active participants with some agency.

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The type of contact varies across the images. Figure 2 has no eye contact shown, certainly not between the represented participants and the viewer. Figures 3 and 4 have no direct eye contact between the participants and the viewer as their focus is internal to the image (footballs, the players, the seated women). The exception is Figure 5 where there is an offer, in this case looking directly at the viewer, smiling. Such a perspective (Kress & van Leeuwen, 2006; Peng, 2022) seeks social affinity for her actions (in that case the commonplace in much of the world of a woman driving a car). Even though she is seated, the image is at eye level, suggesting a degree of equity between her and any viewer.

All three of the post-2017 images have vectors that suggest normalcy and a focus that suggests freedom and conventionality. Even Figure 3, where the women are the focus of the male gaze fits this interpretation, they are in a public place and such staring is not unusual in any part of the world. All the images meet the expectations of high modality, they are coloured, and there is enough background to give some context (even if, as in Figure 4 the situation is clearly framed for the purpose of the image). Placing this together it suggests that images of women enjoying relative freedom in Saudi Arabia are of high modality, in effect attempting to reinforce how valid this type of social setting now is. The action process adds to this, the women are either just doing their current focus (basketball, football, or watching sports) or have active eye contact with the viewer.

So the high modality of the various images and their use of vectors to suggest focus and interaction can be seen as stressing the relative normalcy of life for liberal or activist women in Saudi Arabia. In this sense, there is a bridge from inter-semiosis to resemiosis but that is not just a matter of the aims of the image producer, or news publisher. It also depends on the response of the viewer.

Figure 2 is probably the most complex in this regard. As in the earlier discussion, it could be viewed as the participants claiming their freedom to play sports regardless of the formal rules. It could also be viewed as indicative of the impact of those restrictions. The two women appear to be in a private space but still need to wear the abaya despite engaging in sport. By contrast, figure 3 is probably the inverse. There are no particular clues as to the Saudi context, the mode of dress is not unusual for football players (of either gender) during a training session. In this regard, if the goal was to present the realities for Saudi women as perfectly conventional, then it is a near-perfect image.

Figure 4 is again open to some interpretation. That the women are the focus for the male participants is clear. Whether this is welcoming or hostile is less clear. Knowledge of Saudi society could suggest the man at the top is less welcoming (but this judgement would be driven purely by an assumption as to his religious affinity) and the man below is perhaps simply interested.

The Vogue image is unique in that it is the only one clearly staged and the only one where the participant directly looks at the viewer. The intent is to invoke a shared view about women driving. However, again, the viewer may disagree with the intent of the image producer. That the participant is a member of the Saudi royal family may simply indicate how privileged her situation is compared to that of the bulk of the population.

6. CONCLUSION

As noted, presentations of Saudi society in the Western media are complex (Bajri & Alqurayqiri, 2022; Le Renard, 2019; Racman & Hadji, 2022). In the main, this is critical of the restrictions placed on women, in particular, in what is seen as a religiously dominated society. The risk in this analysis is that intentionally or unintentionally it denies any agency to Saudi women (Karolak & Guta, 2020) and takes little account of the subtleties that can exist even in an overall repressive social situation. This process of presentation and interpretation has been even more contested since the Saudi state introduced a series of social (and economic) reforms from 2017 onwards (Boghani, 2019; Elyas & Aljabri, 2020; Le Renard, 2019). To its supporters, this is Saudi Arabia embracing major changes on its own terms and addressing the problems caused by the previous restrictive rules. To its critics, the changes are essentially cosmetic, not altering the fundamental social norms and acting as window-dressing to what remains a repressive regime. Of course, there are substantial variations even within these two broad interpretations.

The images in this study allow exploration of these variations in part from the use of vectors as an analytic tool, in part from the use of inter-semiosis (in particular drawing on the wider context of each image), but, most importantly, from considering the process of resemiosis. The latter is more judgemental but allows consideration of existing attitudes (of the viewer) and the various ways in which an image might be interpreted. What stands out is even in Figure 2, with the women in traditional garb, there is a degree of agency often overlooked in external analyses of gender relations in Saudi Arabia (Bajri & Alqurayqiri, 2022).

The focus of this study has been twofold. To consider how the elements of an image interact and build up meaning (intersemiosis) and the role of the viewer as interpreter. In doing so it relies mainly on the vectors within the images and the extent to which the individuals engage with others in the image and/or directly with the viewer. In practice, only one of the selected images sees a direct interaction (demand) with the viewer and that is a clearly staged photograph taken for a fashion magazine. This uncovers that the process of intersemiosis is relatively well understood (Chen & Gao, 2014; Peng, 2022) and that we have a ready grammar to explore and explain how it is undertaken (Kress & van Leeuwen, 2006).

However, such a structure is lacking when moving on resemiosis (Alhuthali, 2018; Iedema, 2003). Elements of this are structured, such as how the creation of demand in an image leads to empathy and identification but mostly it remains descriptive and situational. This study emphasises some of the problems in that prior views of gender relations in Saudi and attitudes towards the reform process most likely heavily influence the individual viewer (Adel, 2019). So in Figure 3, the relative normalcy of the image could provoke views ranging from two opposed positions.

On the one hand, Saudi women can at least train to play football in a public place in a manner that is essentially unremarkable (and here the obvious contrast is to Figure 2). An alternative reading is that this still takes place in an enclosed space and the promotion of women's football is simply an attempt by the Saudi authorities to project normalcy over a social structure that remains deeply flawed. This identifies the major issue with resemiosis as a focus of the study. There is no absolute reason to declare one such reading correct and the other false (Hameleers

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et al., 2020), not least both may stem from a degree of prior understanding of the nuances of social relations in Saudi.

This stresses the challenge of dealing with resemiosis. It is clearly a critical step in meaning making, the psychological element is well understood (fitting information over existing frames of understanding) but the discussion is inevitably open-ended. A viewer will have insight into why they interpret in a given way, they may have some understanding of how a different interpretation might arise. However, in research terms, this remains descriptive rather than structured.

Despite this, studies of multimodal images cannot ignore resemiosis. The need is for more research that explicitly deals with this issue, perhaps especially in either contentious or little-understood situations. In these images, the surrounding news report is important to understanding the wider intended message. So in its original Vogue version, figure 5 was originally presented as a positive instance of an important change, the CNN report stressed the privileged nature of the main subject and that the new rights were more limited than actually presented. In effect, resemiosis is important and almost invariably means combining multiple semiotic resources, even just at the level of an image and the headline used to present the wider article (or possibly just knowing the source of the image).

REFERENCES

- Adel, M. (2019). The Image of Saudi Women in the Arab Press after the Launch of Vision 2030: An Analytic Study on the Sites of the Egyptian, Jordanian and Tunisian Arab Newspapers. *The Scientific Journal of Media Research and Communications Technology*, 5(5), 1-34.
- Al-Asfour, A., Tlaiss, H. A., Khan, S. A., & Rajasekar, J. (2017). Saudi women's work challenges and barriers to career advancement. 22(2), 184-199. <https://doi.org/doi:10.1108/CDI-11-2016-0200>
- Aldosari, H. (2018, 22 June). *Saudi Women can Drive Now. Will That Hurt Saudi Women?* Retrieved 20 October from <https://www.nytimes.com/2018/06/22/opinion/saudi-arabia-salman-women-driving.html>
- Alhuthali, M. (2018). Interpreting Stereotypes: Images and Text. *International Journal of Linguistics* 10(4), 113-123. <https://doi.org/https://doi.org/10.5296/ijl.v10i4.13577>
- Alsulaiman, S. A., & Rentner, T. L. (2021). Women, start your engines: US and UK media portrayal of the Kingdom of Saudi Arabia women driving ban. *Journal of Media and Communication Studies*, 13(1), 1-11. <https://doi.org/https://doi.org/10.5897/JMCS2020.0714>
- Bajri, I. A., & Alqurayqiri, A. A. (2022, 2022-12-06). The Rescue Discourse: Representations of Saudi Women in the Western Media. 2022, 12(8). <https://doi.org/10.5430/wjel.v12n8p450>
- BBC. (2017, 5 January). *Saudi Arabian video on women's rights goes viral*. Retrieved 24 October from <https://www.bbc.co.uk/news/av/world-middle-east-38523130>
- Boghani, P. (2019, 1 October). *The Paradox of Saudi Arabia's Social Reforms*. Frontline. Retrieved 20 January from <https://www.pbs.org/wgbh/frontline/article/the-paradox-of-saudi-arabias-social-reforms/>
- Braun, V., & Clarke, V. (2013). *Successful Qualitative Research*. Sage.

- Buller, A. (2021, 2 September). *The Gulf is counting on its smart cities for a sustainable and profitable future*. Computer Weekly. Retrieved 29 October from <https://www.computerweekly.com/news/252506103/The-Gulf-is-counting-on-its-smart-cities-for-a-sustainable-and-profitable-future>
- Chen, Y., & Gao, X. (2014). Interpretation of movie posters from the perspective of multimodal discourse analysis. *GSTF Journal on Education (JEd)*, 1(1).
- Elyas, T., & Aljabri, A. (2020). Representations of Saudi male's guardianship system and women's freedom to travel in Western newspapers: A critical discourse analysis. *Contemporary Review of the Middle East*, 7(3), 339-357.
- Grinberg, E., & Hallam, J. (2017, 30 October). *Saudi Arabia to let women into sports stadiums*. CNN. Retrieved 24 October from <https://edition.cnn.com/2017/10/29/middleeast/saudi-arabia-women-sports-arenas/index.html>
- Grothaus, M. (2021). *Trust No One: Inside the World of Deepfakes*. Hodder and Straughton.
- Hameleers, M., Powell, T. E., Van Der Meer, T. G., & Bos, L. (2020). A picture paints a thousand lies? The effects and mechanisms of multimodal disinformation and rebuttals disseminated via social media. *Political communication*, 37(2), 281-301.
- Haslanger, S. (2019). Cognition as a social skill. *Australasian Philosophical Review*, 3(1), 5-25.
- Iedema, R. (2003). Multimodality, resemiotization: extending the analysis of discourse as multi-semiotic practice. *Visual Communication*, 2(1), 29-57.
- Jewitt, C. (2005, 2005/09/01). Multimodality, "Reading", and "Writing" for the 21st Century. *Discourse: Studies in the Cultural Politics of Education*, 26(3), 315-331. <https://doi.org/10.1080/01596300500200011>
- Karolak, M., & Guta, H. (2020). Saudi women as decision makers: Analyzing the media portrayal of female political participation in Saudi Arabia. *Hawwa*, 18(1), 75-95.
- Kemp, S. (2020). *Digital 2020: Saudi Arabia*. <https://datareportal.com/reports/digital-2020-saudi-arabia>
- Kottasova, I., & Thornton, C. (2020, 27 February). *Saudi female football team*. CNN. Retrieved 18 October from <https://edition.cnn.com/2020/02/25/football/saudi-arabia-football-league-women-rights-intl/index.html>
- Kress, G., & van Leeuwen, T. (Eds.). (2006). *Reading Images: The Grammar of Visual Design* (2nd ed.). Routledge.
- Lacroix, S. (2019). Saudi Arabia and the limits of religious reform. *The Review of Faith & International Affairs*, 17(2), 97-101.
- Le Renard, A. (2019). Covering Women's Rights, Silencing Suppression: Western News Media and Saudi Female Activists. *Journal of Middle East Women's Studies*, 15(2), 251-255.
- Lim, F. V. (2021). Investigating intersemiosis: a systemic functional multimodal discourse analysis of the relationship between language and gesture in classroom discourse. *Visual Communication*, 20(1), 34-58. <https://doi.org/10.1177/1470357218820695>
- Luo, M., Hancock, J. T., & Markowitz, D. M. (2022). Credibility perceptions and detection accuracy of fake news headlines on social media: Effects of truth-bias and endorsement cues. *Communication Research*, 49(2), 171-195.

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- Martin, J. R., & White, P. R. (2005). *The language of evaluation: Appraisal in English*. Palgrave MacMillan.
- Martin, J. R., & White, P. R. R. (2005). *The Language of Evaluation: Appraisal in English*. Palgrave Macmillan.
- Nureldine, F. (2021, 2 November). *First saudi females football team*. GettyImages. Retrieved 18 October from <https://www.gettyimages.ae/detail/news-photo/players-of-the-first-saudi-womens-national-football-team-news-photo/1236301181?adppopup=true>
- O'Halloran, K. L. (2008, November 1, 2008). Systemic functional-multimodal discourse analysis (SF-MDA): constructing ideational meaning using language and visual imagery. *Visual Communication*, 7(4), 443-475. <https://doi.org/10.1177/1470357208096210>
- O'Halloran, K. L. (2011). Multimodal Analysis and Digital Technology. In A. Baldry & E. Montagna (Eds.), *Interdisciplinary Perspectives on Multimodality: Theory and Practice* (pp. in press). Palladino.
- O'Halloran, K. L., Tan, S., & Wignell, P. (2016). Intersemiotic Translation as Resemiotisation: A Multimodal Perspective. *Signata*, 7, 199-229. <https://doi.org/https://doi.org/10.4000/signata.1223>
- Padilla, J. E., & Padilla, C. A. (2022). Multimodal Discourse Analysis of COVID-19 Vaccination Campaign Posters: Visual Grammar Approach. *Silliman Journal*, 63(2).
- Peng, Z. (2022). A Multimodal Discourse Analysis of Movie Posters From the Perspective of Visual Grammar—A Case Study of "Hi, Mom". *Theory and Practice in Language Studies*, 12(3), 605-609.
- Racman, A., & Hadji, S. M. (2022). Analysis of the Status of Muslim Women in Islam in the two Decades from the Western Lens and Media. *Islamic Studies Research Journal Abhath*, 7(27).
- Ravelli, L. J., & Van Leeuwen, T. (2018). Modality in the digital age. *Visual Communication*, 17(3), 277-297.
- Rizvi, L. J., & Hussain, Z. (2022). Empowering woman through legal reforms-evidence from Saudi Arabian context. *International Journal of Law and Management*, 64(2), 137-149.
- Said, E. W. (1997). *Covering Islam: How the Media and the Experts determine how we see the rest of the World* (2nd ed.). Vintage.
- Said, E. W. (2003). *Orientalism* (3rd ed.). Penguin.
- Satiti, N. L. U. (2017). Representation of Muslim Women in the Western Media. *Jurnal ILMU KOMUNIKASI*.
- Symon, G., & Cassell, C. (2012). Assessing qualitative research. In G. Symon & C. Cassell (Eds.), *Organizational Qualitative Research: Core Methods and Current Challenges*. Sage.
- Tewksbury, D., & Scheufele, D. A. (2019). News framing theory and research. In *Media effects* (pp. 51-68). Routledge.
- Vissers, N., & Wagemans, J. (2023). The Photographer's Visual Grammar: Visual Rightness and Aesthetics of Artistic Photographs. *Art & Perception*, 1(aop), 1-44.