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Larissa D'Angelo / Stefania Consonni (eds.)

New Explorations in Digital Metadiscourse

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New Explorations in Digital Metadiscourse

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CERLIS
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CARMEN SANCHO GUINDA

From free rhetoric to the tripartite model: Metadiscourse trends in graphical abstracts

1. The challenges of scientific iconography: Metadiscourse in focus

Pictorial information has been used to build and disseminate knowledge since time immemorial and with a whole host of purposes. As Dwyer (1978) points out, through visual representations humankind has illustrated concepts, verified research, solved problems, clarified ideas, assisted theory development, served as a source for comparison and contrast, corrected misconceptions, and summarised topics. This chapter will precisely explore the encapsulating function of a recent scholarly genre, the graphical abstract (hereafter GA), every day more demanded by specialised high-impact journals across disciplines and at present undergoing severe changes imposed by the guidelines of one of its editorial pioneers, the multinational publisher Elsevier. Leaning on the analyses of discourse and multimodality, I will pay special attention to the evolution of GA metadiscourse through this publishing house's policy and to its possible repercussions on the genre's format and content comprehension.

Visuals are not to be considered "mere additions", as Pauwels (2006) cautions, but "an essential part" of scientific discourse, being science itself, in words of Bruno Latour (1990), "a largely symbolic enterprise". Such symbolism, nonetheless, is not free from challenges: to begin with, visual representations usually function as *"one way communication"* (Trumbo 2006), because what the audience receives does not provide for a response and there is no dialogue about the visual decisions taken. Very seldom do scholars justify why they have

chosen a photograph, a drawing, a diagram, a symbolic notation or a computer visualisation from among the graphic repertoires technically affordable and available today. Neither do they argue for their choices of perspective and orientation, or for the reference to, say, a molecule, by its verbal label (e.g. methane), its formula (CH_4), its bi-dimensional or tri-dimensional models, or its dynamic relationship with other molecules and elements in chemical reactions. Experts keep all those decisions to themselves.

Secondly, visual language is holistic, open, amalgamated, synthetic and dynamic (Barry 1997), and therefore *cannot establish a one-to-one correspondence with verbal language,* which is by definition linear and logically structured. Simply put, there cannot be a real 'visual grammar', despite Kress and van Leeuwen's (1996) and Leborg's (2004) attempts, a limitation that Machin (2007) readily underscores in his *Introduction to Multimodal Analysis.* Thirdly and stemming from the former, if the goal of any instance of visual communication is to enable the viewer to understand and remember its content (Lester 1995), then scientific iconography must be, as Tufte (1997: 73) notes, "clear, assured, reliable, and sturdy", but it is not always so, because not every scholar possesses the *visual literacy* required. That is the reason why Pauwels (2006: 24) reminds us that although visuals are supposed to enlighten and broaden our understanding, "at the same time they will obscure it".

A fourth challenge is to transform the discoveries, findings, research outcomes or data into a *visual narrative.* Visual representations are static (Leborg 2004: 39) and what we perceive as action is a static sequence that creates an illusion of activity with compositional strategies and visual metadiscursive resources. However, scientific knowledge is not static and it gets transformed when turned into a narrative, which acts in turn as a 'knowledge carrier' (Ogborn et al. 1996: 14-15). Consequently, those illusions of movement mentioned by Leborg must be powerful and efficacious. Once again we stumble upon the problem of visual literacy.

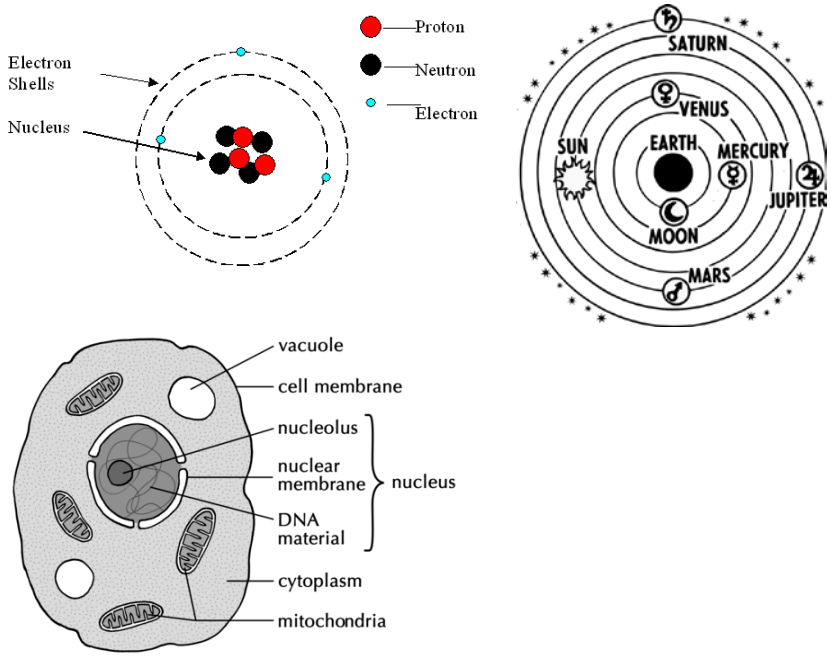

Figure 1. Static representations of atomic structure (top-left), our solar system (top-right) and the structure of the animal cell (bottom). Illustrations from *Creative Commons*.

The three static representations in Figure 1, which depict the structures of the atom, the Solar System, and the animal cell, are easy to understand by secondary school students. Although their immediacy and clarity derive from their stillness, from their concentration solely on position, Bergström (2008) stresses that, when several objects are grouped in a composition, they relate to other elements within it, as well as to the viewer and the format. They establish relationships of attraction and repulsion among the diverse compositional elements, and potential paths and directions for movement may be drawn, since structures can actively define them, as is the case of the atomic and solar orbits. For Leborg (2004: 48) too, the visual positioning of an object may suggest forces that have

influenced it or will influence it and eventually move it. Thus, positional or structural representations are more dynamic than they appear to be.

The visual reproductions of complex dynamic relationships among structural components call for the aid of vectors (i.e. lines and arrows pointing to the direction of movement or showing provenance). They are visual metadiscourse items without which it would be extremely difficult, if not impossible, to grasp complex relationships and movements at a glance.

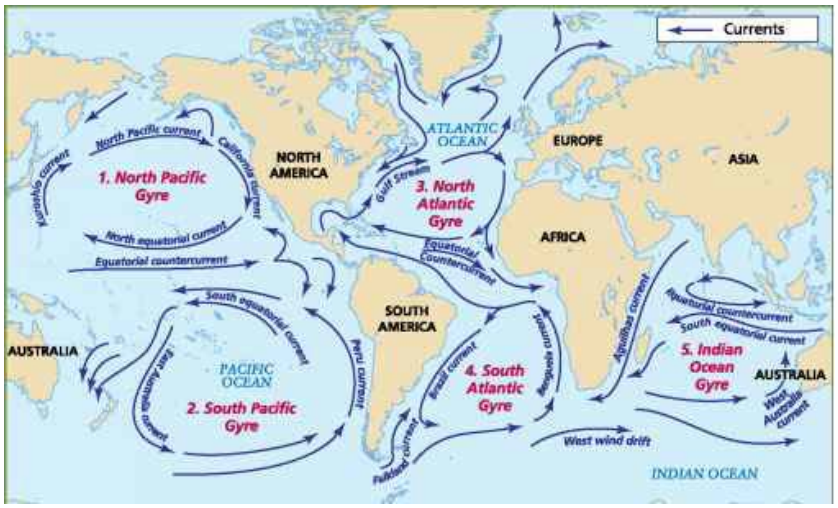

Figure 2a. Dynamic representation of oceanic currents with the aid of vectors. Illustration from *Creative Commons*.

The two instances in Figures 2a and 2b, representing oceanic currents (above) and cell physiology (below), are prime examples of the crucial role of vectors. An alternative to vector use for showing narrative dynamism is what is known as ‘small multiples’ (Tufte 1990); that is, small-sized and quasi repetitive designs that visually enforce comparisons of changes because the constancy of their layout draws attention to changes in the data, not in the data frames.

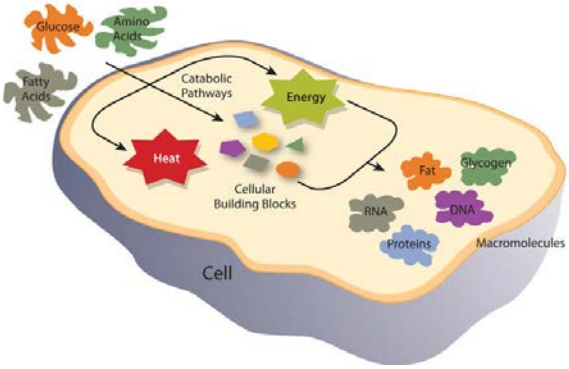

Figure 2b. Dynamic representations of animal cell physiology with the aid of vectors. Illustration from *Creative Commons*.

A good case in point is the representation of cell division (mitosis and meiosis) typical of biology textbooks. The invariable frames (i.e. the cell walls) make the viewer concentrate on the changes that occur from phase to phase in their inside (Figure 3).

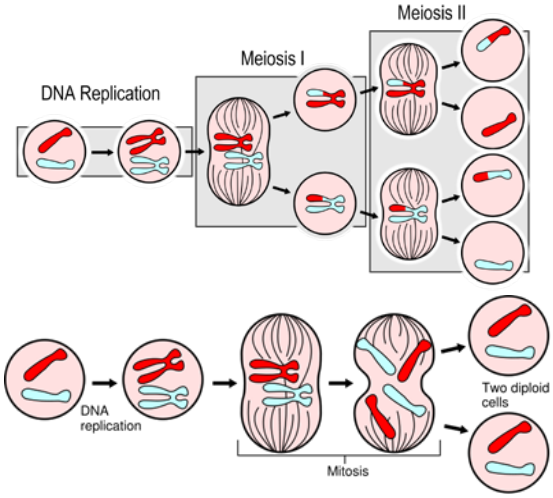

Figure 3. Dynamic representations of cellular division by means of small multiple designs (‘small multiples’) and vectors: mitosis (top) and meiosis (bottom). Illustrations from *Creative Commons*.

A fifth and last challenge is the subjectification of layouts, rhetorical organisation and representations of objects and concepts, which I have termed *'stylisation'*. Addressers can choose between telling a linear narrative (progressive or regressive) or dwell on a particular stage of it, a strategy popularly known as 'frozen moment'. They can also highlight a certain structural component with a myriad of resources: position (central or marginal, top/bottom, left/right), vectors, frames, size, texture, colour (hue, tone, saturation), and repetition. They may even want to embellish functional elements, such as vectors or frames, or narrate events by means of a metaphorical scenario borrowed from other domains.

All in all, then, scientific visual representations face five major challenges that threaten the clarity of their explanatory, argumentative, illustrative, or directive quality:

1) Their communicative unidirectionality;

2) Their holistic and synthetic nature;

3) Their inherent statism and hence their illusory narrative potential;

4) The scarce visual literacy among average users (addresser and addressees, who respectively codify and interpret the message);

5) Stylisation at a rhetorical, representational, and ornamental level.

To them we must add some incontestable facts:

1) Cultural conventions of a representational sort may be transgressed by individual and disciplinary practices;

2) Visual effects are not 'mathematical' or infallible: they depend on the addresser's skills as designer and on the addressee's interpretive abilities (on visual literacy on either end);

3) Perception, both in the visual codification and decodification processes, always involves a certain degree of subjectivity and is conditioned by individuals' cultural background

In principle, any scientific abstract should summarise the complete research process detailed in the scientific article or report, unless authors decide to emphasise a single specific stage or instant visually. This selective narrative of 'frozen moments' is exclusive to the GA, the genre under study, and cannot be found in its verbal and video counterparts. Analogously, 'promissory contents' are very difficult to express visually but abound in verbal conference abstracts, which only specify the purpose and methods of the research without any data and, logically, with no subsequent discussion or conclusion, although tacitly commit to having them ready at the time the conference takes place.

Incompleteness and graphical stylisation seem then to be the most saliently divergent features between verbal and graphical abstracts. Yet the possibility of 'not showing all' (since visuals are intended to show rather than tell), makes the GA drift apart from the general definition of abstracts as "stand-alone mini texts" that act as "previews or road maps for the research article" (Swales/Feak 2009: 2). Another remarkable difference is the 'entertainment expectation' generated by any contemporary visual instance of scientific dissemination and in large measure due to stylisation. To the 'selective representation' and 'promotionalism' (Hyland 2004: 63-64) archetypal of every abstract, visuality incorporates a 'scifotainment' quality (Zhang/O'Halloran 2014; Zhang 2019) to GAs and video-abstracts whereby their amusing potential equals or even surpasses their informativity. Not in vain, Laszlo (2006: 2) describes any abstract as a "shop window" of science and the Mentor of Cell Press' blog *Crosstalk*, Kerry Evans,[1] vindicates the aesthetic quality of visual abstracts, enjoyable by experts and laypeople alike. The truth is that,

[1] Cell Press and its associated blog, *Crosstalk*, belong to Elsevier. Evans is also Senior Managing Editor of the journals *AJHG* and *Immunity*. Her 2018 claim as to the 'universality' of visual abstracts is available at <https://crosstalk.cell.com/blog/6-tips-for-creating-a-video-abstract-anyone-can-enjoy>

added to a generalised lack of visual literacy, non-experts may not have the level of specialised knowledge necessary to decode the GA message, and that cannot be supplied or mitigated by metadiscourse, no matter how exhaustive its repertoire may be.

1.1 The 'before and after' of graphical abstracts

A widespread misbelief among scholars and discourse analysts is that GAs, also known as 'ToC (table-of-content) images', 'ToC entries', 'ToC graphics/figures', or 'Graphical ToCs', had their origin in Elsevier's 2012 'Article of the Future' project, when in reality they date back to much earlier. GAs result from the fusion of three visual genres: the ancient emblem, and the more modern infographic and billboard advertisement (or advertising poster). Their viewable surfaces are ample (one full page for the emblem and a whole panel for the infographic and the billboard/poster) and the three of them admit verbal insertions, which tend to be minimal in the infographic and billboard advertisement. The emblem was used profusely from the XV to the XVIII centuries and consisted of a motto (often in Latin), an image, and a textual commentary or foot legend, each of which was carefully framed (see Figure 4, left). In fact, 'emblem' meant in Greek 'what is framed' or 'embossed ornament'. Its goal was to disseminate an allegory, a moral lesson, a concept, or the hagiography of some prominent individual (a saint or a king).

The infographic, in contrast, conveys dynamic information (e.g. how something works, such as the human digestive process in Figure 4) or how the different items making up a system are classified. It normally uses sketchy verbal labels accompanying the vectors, and may attach longer explanatory notes in side captions and adjacent diagrams. The process shown in Figure 4 additionally includes a zoom-in focus to reveal some inner structure invisible to the naked eye.

Figure 4. Pictorial sources influencing the contemporary GA: the emblem (top-left), the infographic (top-right) and the billboard advertisement (bottom). Illustrations from *Creative Commons.*

Very different is the billboard advertisement below it: billboards generally carry less verbal text but are the only source that makes overt use of physical-act directives (a term coined by Hyland 2002, 2005), which tell the reader/viewer what to do outside the text. Whereas framings, vectors, and brief verbal insertions have become stable GA ingredients, cognitive and textual directives have turned into graphical vectors that may in turn be superseded by (framed)

visual collocations and graphically engage readers/viewers, telling them how to understand and interpret notions and relations and how to progress within the text.

In previous work (Sancho Guinda 2016, 2019, 2022 forthcoming), I have criticised the confusion caused by vague and disparate editorial policies regarding the crafting of GAs. Elsevier's initial instructions, which lasted published online well into 2020,[2] exposed that GAs must "allow viewers to quickly gain an understanding of the take-home message of the paper", as well as to "encourage browsing" and "promote interdisciplinary scholarship". These three instructions have been kept intact in the updated 2020-2021 version and are still too vague for a successful insertion of visuals inside the panels. Contrastingly, two of the most specialised Elsevier journals, *Cell* and *Polymer*, provided back then more strict and clearer guidelines in addition to "capturing the essence of the paper". *Cell* detailed the type of file and fonts, discouraged heavily saturated colours and the expression of speculative content, advised reducing verbal text and the number of panels to the minimum, concentrating on a single point or idea, creating reading paths from top to bottom or from left to right, and discarding excessive detail to avoid distractions.

In a similar fashion, *Polymer*[3] underlined the appeal of the image, which should be enough to "capture the reader's attention", and encouraged the use of colour, graphs, drawings and chemical reaction schemes, but discouraged tables, spectra and added text. Journals from other publishers, such as *The Journal of Medical Internet Research*, one of the first open-access e-health publications, offered more refined guidelines and rejected image reuse, logos, screenshots, collages, general stock photos, or cartoonish illustrations.

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2 Retrieved from <https://www.elsevier.com/authors/journal-authors/ graphical-abstract> (now inoperative and leading to the current updated 2021 guidelines)

3 Retrieved from <https://www.elsevier.com/wps/find/journaldescription.cws_home/30466?generatepdf=true>

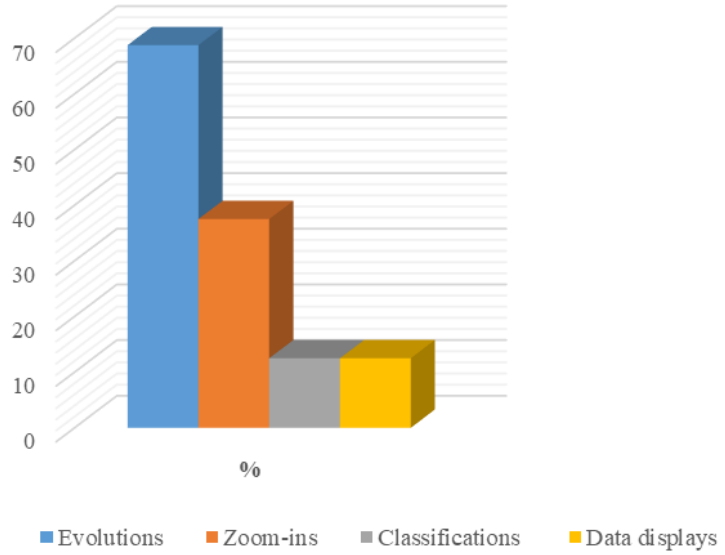

Figure 5. Percentages of GA types in Elsevier's 16-exemplar guidelines to authors between 2015 and 2020.

The cross-disciplinary guidelines launched by Elsevier between 2015 and 2020 were ambiguous and gathered 16 exemplars (see their identifying DOIs at the end of the chapter) that I grouped into four basic sorts:

1) *'Narrative evolutions'*, which through vectors or items collocation show some progression or change in state or condition. They comprise equations and chemical reactions and often limited the linear narrative sequence of science (IMRD) to methods and results, omitting introductions and discussions;

2) *Classificatory diagrams*, which organise information with or without vectors;

3) *Zoom-ins*, which foreground detail hardly or no visible to the naked eye;

4) *Data displays,* consisting in tables, graphs and other means of data representation.

Pure or in combination, these four types of GA yielded the percentages shown in Figure 5 (above), narrative evolutions and zoom-ins being the most numerous. Essentially, all four types are but subjective rhetorical encapsulations of the research story; that is, rhetorical stylisations of the scientific content.

In practice, though, science blogs, academic network forums and the tables of contents of journals were teeming with GAs with structures that did not conform to those four types of the webpage exemplars, as Examples (1-6) instantiate here. GAs might divide into several framed panels, or consist in a metaphorical scenario taking up the optical centre or one full panel, or evolving from one subpanel to another, and include embellished elements, such as 'prettified' anthropomorphic molecules or cartoonish renditions.

In Example (1), the authors have used emojis to evaluate the outcome of the molecular bonds defining the narrative. In (2), the chemical element is 'prettified', in this case given anthropomorphic appearance and a 'wardrobe' that metaphorises its 'trans-metal' chemical behaviour. Example (3) is at the same time metaphorical (for evoking the transcendental Hamletian doubt of Shakespeare's famous character), inter-discursive (for borrowing the quasi-exact literary quotation) and humorous (for taking playful advantage of the spelling and phonology of the verb 'to be' and 'Betaine', the name of the chemical compound under study). The intertextual and inter-discursive element, illustrated here with a Shakespearian head and a large-size quote, is emphasised spatially at the optical centre. Nevertheless, it does not occupy the entire panel, being framed by molecular structures that function as 'ad hoc pointers' (Yus 2009) alerting the reader/viewer of the non-literal meaning of the message.

Also exploiting comical effects, (4) draws on a well-known science-fiction character, Dr. Spock (from the TV series *Star Trek*) as mnemonic, given that its pronunciation coincides with that of the acronym of the chemical compound researched. It also resorts to a highly promotional verbal insertion resembling an advertising slogan ("100% complete & surface kinetics"). Unlike the reduced central

space of Example (3), in (5) we can observe a metaphorical scenario unfolding across the full panel and whose ad hoc pointer is the molecule framing one of the characters' head (Mr Hyde's), who enacts the unpredictable, wild and potentially harmful changeable behaviour of the chemical substance described.

(1) https://doi.org/10.1039/C8DT04394A
(2) https://doi.org/10.1021/acs.inorgchem.1c02961
(3) https://doi.org/10.1002/chem.201706036
(4) https://doi.org/10.1002/anie.201612037
(5) https://doi.org/10.1039/C5CS00057B

Examples (6) and (7) show how authors may segment the scientific narrative into panels which work as reading paths with no vectors, and even adopt an art style or insert speech balloons that set a comic strip register.

(6) https://doi.org/10.1021/acsami.8b20504
(7) https://doi.org/10.1021/bi4010039

If logical connectives and metaphorical choices are, according to Gilbert (2013: 170-171), crucial in science communication, it is worthwhile to heed what metadiscoursal tendencies prevail in Elsevier's past and present GA exemplars. Its 2015-2020 webpage contained model samples that used a wide array of metadiscourse items (Figure 6), of which the most employed were, in decreasing order, vectors, verbal insertions for glossing, labelling and commenting, functional uses of colour, and framing for boundaries between moves, stages and steps, and for delimiting time lapses and research actions. In equal proportions, collocation and size were chosen in 50% of model samples to denote conceptual or procedural saliency, and each component of the triad formed by frozen images, typography and similar shapes standing for functional equivalence reached approximately 30% of all uses. Slightly less than 20% of the exemplars exhibited an optical centre to highlight the importance of concepts and actions, and trope icons (i.e. the metonymical visual allusion to the tools or instruments used in procedures, mostly in the

methods section) were employed rather discreetly. Image overlaps to express simultaneity and narrative embeddings (e.g. a diagram inside a graph or vice versa) were minimally employed and, expectably, there were no metaphorical encodings or register shifts, as there was no use of expressive punctuation, creative typography, interdiscursivity, intertextextuality, home-made like art styles, cartooning, or onomatopoeias.

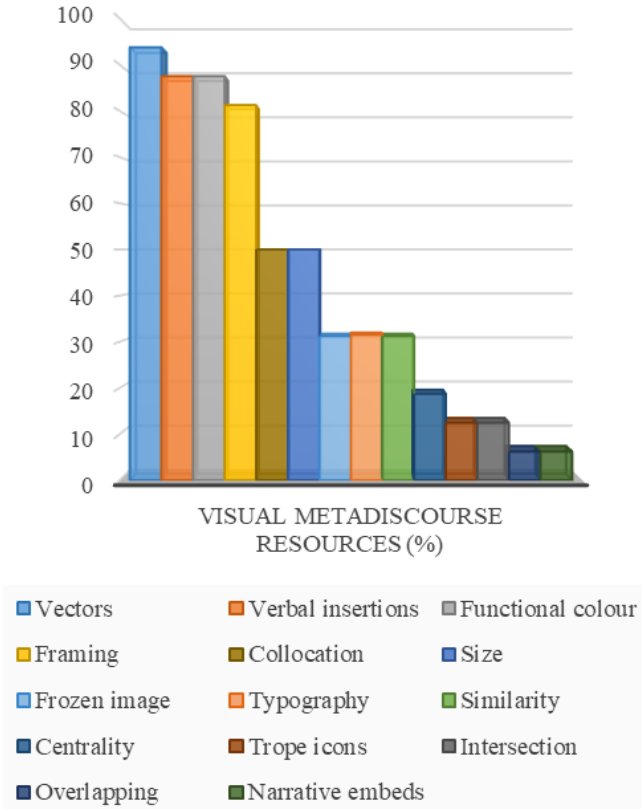

Figure 6. Metadiscourse use in Elsevier's 2015-2020 exemplars.

What have Elsevier's normative changes brought about? Its current online guidelines[4] have notably bet for simplification. They give precise instructions concerning image size, file type and font, demand that the GA has a clear start and end, preferable reading paths from top to bottom or from left to right, and that no additional text, outline or synopsis are included – any text label must be part of the image file. They warn authors off redundant titling (so that "Graphical abstract" does not appear in the image file), cluttering detail, and the unnecessary use of white space. Authors are also encouraged to check the guidelines of the specialised journal they will write for, as it may add further instructions. The guidelines conclude with the provision of seven hyperlinks, in a section entitled 'Further readings & resources', leading to research articles in Elsevier medical journals that discuss GA features to increase their efficacy, to a recorded PowerPoint presentation dealing with the GA topic, to video demos and tutorials, and to a free template, reproduced under these lines (Figure 7). I have called it Elsevier's 'tripartite model' because of its three-panel structure, although it was first adopted by medical journals such as *Annals of Surgery.*

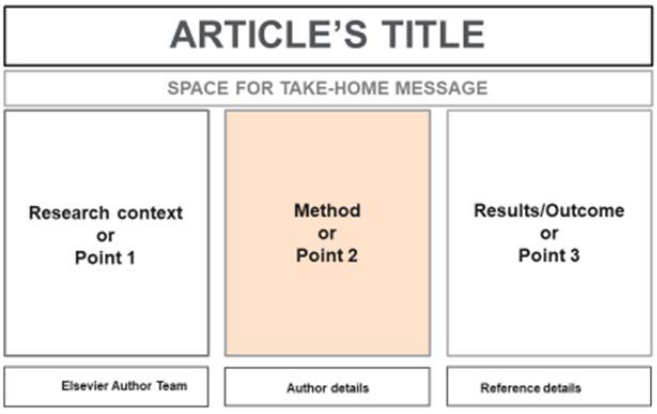

Figure 7. Elsevier's recent 'tripartite model' (Rendition of the Publisher's free-download original).

[4] Retrieved from <https://www.elsevier.com/authors/tools-and-resources/visual-abstract>.

The tripartite structure is qualified in the webpage as "simple", accessible", and "visually stimulating". Simplification is also manifest in the number of exemplars provided by this new guidelines-to-authors page: just one fourth of the number of model samples disseminated by the 2015-2020 guidelines.

It is certainly a good idea to divide the GA's informative spaces, because the interpretive skills required from viewers/readers are in this way more realistic and can be exercised gradually. In other words, each of the three panels contains a rhetorical move or a main idea, and thus there is no need to decode the message holistically and in one go, as was the case of global depictions through narrative evolutions, classificatory diagrams, zoom-ins and data displays, or metaphorical scenarios (i.e. all of them 'rhetorical stylisations') occupying one full panel. The progressive sequence of the tripartite model, in this respect, not only makes scholarly summaries more homogeneous, but also prevents rhetorical stylisation from becoming the main narrative thread of the research. Further, it makes it difficult to insert a metaphorical scenario in any of the three panels, as the metaphor would be hard to segment and visually relate with the rest of panels conveying literal information. This implicit discouragement of metaphorical meanings raises more focused and accurate content expectations in readers/viewers.

The consecutive collocation of panels also makes us assume that the information is presented orderly, flowing chronologically from left to right, especially if the chosen rhetorical option is the presentation of the research context in the first panel, followed by the methodology in the second, and finally by the research outcome in the third. This logical succession spares vector use, since it is no longer necessary to mark the reading path with arrows or lines, with colour fadeout or saturation, or with verbal metadiscourse (i.e. sequencers such as 'first', 'second', then', 'next', etc., or numbering and lettering). One question inevitably arises: What if authors present three points that are not chronologically related? The new guidelines say nothing about the visual development of

textual progressions other than temporal, when the three points exposed could perfectly belong to the same rhetorical move. For example, they might be three important methodological innovations, or three outstanding results in order of importance, not in chronological sequence. Then it would be necessary to include verbal text (headings, at least) in each of the panels, or some explanation, which would go against the intended visual immediacy of GAs.

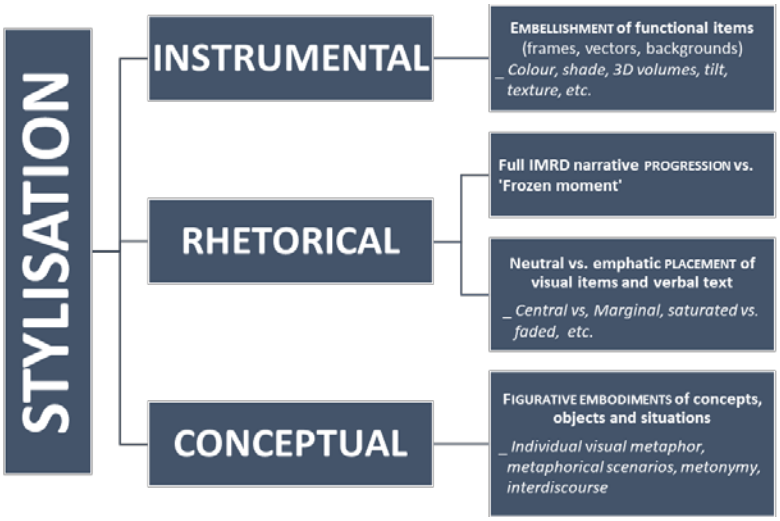

Figure 8. Basic taxonomy of visual stylisation in GAs (my own).

By the same token, subtitling and vectors may be practically superfluous in the context-method-outcome version, but necessarily become almost mandatory in the three-point one. It should also be borne in mind that the tripartite panel sequence does not lend itself very much to the embellishment of functional items such as vectors or frames (to what we could term ‘instrumental stylisation’, see Figure 8) or to colouring backgrounds or adding textures (unless they are part of meaning codes), which would be pointless and distracting. Scholars will be most likely engrossed in complying with the formal requisites of the template rather than in embellishing their visuals.

While the research outcome or results normally call for graphs, infographics, photographs or diagrams (and so does the method), the research context (i.e. purpose, motivation, problem to be solved or knowledge gap to be bridged, standard practices to be improved, etc.) is hard to condense visually and more often than not will require full expression in verbal text. It is equally possible that we find GA instances with the method and research outcome totally verbalised as well. The question is, whether we can call 'graphical' the distribution of verbal text into three clear-cut panels—or conversely put, whether panel framing suffices to ensure the 'graphical' quality of GA samples, despite their considerable amount of verbal text.

2. The new exemplars: Straightforward at last?

In its instructions, unfortunately, Elsevier does not clue us as to whether panel frames enclosing verbalised information is what makes a GA. The genre is defined as "concise" and "pictorial", but no maximum percentage of verbal text is recommended, nor what the minimal requisites for visuality are. One of the four exemplars displayed (GA.4) reaches around 80% of written content in relation with the total GA surface usable, which does not suggest much 'visuality', and the approximate percentages of two other exemplars (GA.1 and especially GA.3) are no less than 30% and may amount up to 60%.

(GA.1) https://doi.org/10.1053/j.ajkd.2020.01.008
(GA.2) https://doi.org/10.1016/j.kint.2021.01.029
(GA.3) https://doi.org/10.1016/j.xkme.2020.02.006
(GA.4) https://doi.org/10.1016/j.jclinepi.2020.11.007

Moreover, the icons accompanying the verbal text in GA.1, GA.3 and GA.4 could be dispensable, as they seem too

tangential or metonymic to the written message. This happens with the icons in the left-column table headers in GA.1, with the method "Interview to explore patient experience" at the bottom of the leftmost panel in GA.3, or with the action "soldier on", at the very bottom of the right-hand panel in the same exemplar, which requires knowledge of the idiom. Other icons are superfluous (e.g. the pills in GA.4, under the heading 'placebos'), or simply redundant with the writing. The latter is the case of the map of the USA and the Pacific Island Territories' flags in GA.1's table headers (left column), which have already been displayed in the leftmost panel and could have stood alone, without any verbalisation, in the said left-column table headings.

The same applies to the factory icon in GA.4, as it contributes no fresh information at all. Much more to-the-point and revealing are the icon choices in GA.2, labelled with a succinct noun phrase and sequenced by vectors in the take-home message below the paper's title, and expeditiously showing proportions in each of the three panels, which should be enlarged to improve readability. It is uncertain whether the final graph, located in what seems to constitute a fourth panel, has been designed ad hoc for the GA or extracted from the results section of the article, in which case it could be redundant, since some journals display GAs together with all other illustrations in the article. The directions given by Elsevier appear contradictory in this regard: on the one hand, it is stated that the GA "could either be the concluding figure from the article or better still a figure that is specially designed for the purpose", so image reuse is allowed although not recommended. On the other hand, under the heading 'Instructions', Elsevier asks for "an *original* image that clearly represents the work described in the paper" (italics mine). The request is indeed stringent ("Authors must provide…") which ambiguously overrides the previous admission of recycled article graphics.

Elsevier should also be clearer about the functionality of the visual items to be used by authors. Reasonably, icons may be employed as 'attention getters' and 'goal announcers'

anticipating more detailed verbal content (both are terms from Hyland's 2005 metadiscourse taxonomy), but this systematic use propping up and advancing the verbal text that conveys the truly newsy information may not be enough to consider a summary 'visual/graphical'. Bulleted verbal text or verbal text having more or less the length of an average bullet point does not theoretically need any visual illustration, unless emphasis or high reader/viewer engagement is sought. Such engagement is usually a given in very specialised texts, because journal readers are motivated professionals who need to update their knowledge and daily praxis or want to promote themselves as scholars. At the most, those icons beside bulleted or reduced portions of text could be taken as 'facilitators' or 'spotters' that help locate a certain type of information much more quickly, but their relation with the verbal message cannot heavily rely on metonymy, which could escape the eye of untrained cultural insiders and even more that of experts from other cultures. This is the risk of phrasing information from a very specialised domain into idioms or folk wisdom that must be later translated into visuals (e.g. "soldier on" in (GA.3)): metaphorical thought differs among individuals and across cultures, and may harm the universality pursued by scientific discourse if not appropriately used.

A sweeping glance at Table 1 may give a comprehensive picture of the rhetorical profile of the four Elsevier exemplars. As can be observed, there is not a single exemplar that meets all the requisites dealing with rhetorical moves or sections. The approximate amounts of verbal text are quite high in all samples, and the choices between the rhetorical options of 'research context-method-outcome' and 'point 1-point 2-point 3' are perfectly balanced (50% each).

EXEMPLAR	VERBAL TEXT % (APPROX.)	C-M-O OPTION	POINTS 1-2-3 OPTION	TAKE- HOME MESSAGE UNDER TITLE	CONCLUSION CAPTION	AUTHOR DETAILS	JOURNAL DETAILS	REFERENCES
GA.1	30-40	✓	✗	✗	✓	✗	✓	✓
GA.2	20-25	✗	✓	✓	✓	✗	✓	✓
GA.3	55-60	✓	✗	✗	✓	✗	✓	✓
GA.4	75-80	✗	✓	✗	✗	✗	✗	✗

Table 1. Rhetorical profile of Elsevier's new GA exemplars.

Only one exemplar (GA.2) reserves space under the title for the take-home message of the article, whereas the rest of samples provide captions with the conclusion inside a caption at the bottom of the GA. All exemplars but one (GA.4) facilitate journal details (title and logo) and (GA.4) is again the only sample not providing references. These may be minimal ((GA.2) just mentions the first author and the year of publication) and it is not sure whether they cite the authors' present work, whose content is summarised by the GA, some previous work of theirs used as point of departure, or somebody else's research. Author details (e.g. affiliation and academic status) are lacking in every exemplar and, curiously enough, (GA.3) gives recognition to the GA designer, who is not part of the research team (assuming that the reference given cites the researchers' work).

As for the visual metadiscourse items most employed, recourse to typographical emphasis is rife, as is the use of colour. The number of panels is dubious in the first exemplar, because the second and third framed spaces make up a twin table that does not visually differentiate the two aspects tackled by the results/outcome section and the second and third panels appear merged into one. Panels have headings in all exemplars excepting (GA.4), whose captions with verbal text have their

own typographic emphasis but their integration within the larger structure is not self-evident, and the absence of a general title for the abstract contributes to this uninformative effect. This exemplar is the most ambiguous instance in what regards reading paths, moves, and colour code meaning: there appears to be an intentional choice of reddish, greenish and purplish tones for the vectors and captions, but their number and multi-directionality end up gathering too many stimuli and the colours are too faded. The verbal text in the captions, grammatically mixed (i.e. randomly consisting in noun phrases and full sentences instead of in a consistent single grammatical formula), hampers any mnemonic attempt, which cannot be redressed with bullet points, rather unnecessary. Bulleting or not the information framed by the panels does not make any difference as to clarity and discourse economy.

EXEMPLAR	PANEL NUMBER	PANEL HEADERS	PANEL FRAMES	VECTORS	COLOUR USE	COLOUR CODE	BULLETS	VERBAL MD	TYPOGRAPHY
GA.1	2-3?	✓	✗	✗	✓	✓	✗	✗	✓
GA.2	3	✓	✓	✓	✓	✓	✗	✗	✓
GA.3	3	✓	✗	✗	✓	? ✓	✗	✓	✓
GA.4	3	?	✓	✓	✓	✓	✓	✓	✓

Table 2. Metadiscourse resources used by Elsevier's new GA exemplars.

Verbal metadiscourse is present in (GA.3) (an adversative 'however', inverted quotes, and a question mark in the title) and (GA.4) (a question mark in one of the headings). Obviously, the percentage of use is low and its necessity debatable, although the use of interrogatives captures attention powerfully and helps readers/viewers to reflect on the topic being developed and to build informative expectations. Also questionable is the vector

pointing to the plot line graph in (GA.2), redundant since the reading path has already been marked by the consecutive panel collocation from left to right. Without doubt, Elsevier's new exemplars could be leaner and still there is room for improving and optimising their rhetorical resources.

Overall, the tripartite model adopted by Elsevier pursues more objective and universal rhetorical patterns of science dissemination than the ones known so far; patterns that transmit scientific and technological innovation and are appealing, quick, clear, and capable of sustaining interest. To that end, framed panel spaces prevent stylisation and its three connatural dangers: trivialisation, exclusion, and misinterpretation—the latter two even among experts. Panel frames delimit space, enhance the information contained in them, and therefore do not foster instrumental or conceptual embellishments, intertextuality, or humour, which may be sources of confusion and misunderstanding. As Bergström (2008: 61) puts it, "structure highlights the message" and delimitation draws "a line between what is to be included and what it isn't". Likewise, the elimination of non-scientific cultural references (e.g. metaphorical scenarios, idioms, allusions to both encyclopaedic and too local knowledge) ensures the prevention of exclusion owing to obscured meanings and a lack of familiarity with cultural references and backgrounds. Space limitation, to sum up, seems to go hand in hand with discursive restrictions, and the tripartite compositional arrangement in panels may be seen as an interactive macro-metadiscursive item that safeguards the linearity and monosemic quality that characterise scientific discourse.

3. Concluding thoughts: What lies ahead

Despite its advantages of structural simplicity, prevention of confusion and discursive economy, the tripartite GA model has its flipside, which comprises three capital issues.

The first of them is didactic. By and large, exemplars remain uncommented, which means that scholars cannot know what their weak points are, nor learn from their colleagues' effective design strategies and with them increase their visual repertoires.

Much has been written on the urgency to impart visual literacy instruction to scholars and higher education students. I have myself noted (2015, 2016, 2019, 2022 in press) the graphicacy skills gap common to academics and professionals and vindicated the joint promotion of visual literacy training by educational and research institutions, corporations, and academic gatekeepers. Publishers could concisely explain the strengths and weaknesses of their GA exemplars or leave some spaces for comments from other academics in the field and akin research areas. Prompts and visual inventories (based on the attempts at visual grammar by Kress & van Leeuwen 1996; Leborg 2006 and Machin 2007), together with compositional strategies, could be also facilitated in an appendix or in attached files as part of the 'Further reading & resources section'.[5]

The second issue involves research from communication specialists and applied linguists. The present small-scale study is confined to very few medical disciplines, because the editorial provenance of Elsevier's four exemplars is *AJKD (American Journal and Kidney Diseases), Kidney International, Kidney Medicine,* and *ICE (Journal of Clinical Epidemiology).* It remains to be determined whether the metadiscourse strategies analysed here are characteristic of these disciplines or common to others. Larger and more varied corpora should be compiled

[5] See the inventories of visual items and compositional strategies I propose as metadiscourse in the Appendix.

and scrutinised to find out what (trans)disciplinary trends crop up and whether future stylisations emerge once the tripartite rhetorical stylisation settles down as a GA standard across disciplines. Will stylisation, if any, bring distracting elements and subjective modality devices that jeopardise clarity, economy and immediacy, or curtail subjectivity in favour of textual comprehension? What will be the evolution of the template and what influence may it exert on related journals, especially on open access ones? Will it in the end contribute to the democratisation of science dissemination?

The third and last issue deals with identity and power. GA templates may turn into editorial branding devices for multinational publishing houses, although this editorial distinctiveness is partly achieved at the expense of authorial creativity. Templates, in effect, keep academics from exploring pictorial possibilities that might engender new representations and new knowledge, because as Kress (2010: 27) concluded, "learning is a dynamic process of sign making" and "representation makers are knowledge makers". Hopefully GAs serve to reconcile control and creativity, disseminate and promote knowledge in increasingly more dynamic and democratic ways, and come finally to portray—and brand—a society defined by the altruistic values of universality and community originally intrinsic to science.

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APPENDIX

Proposal of visual metadiscourse inventory and compositional strategies for GAs

1. Items inventory

Visual Metadiscourse Items	
ITEM	MEANINGS
Frames	Move, stage, step, boundary, temporal sequence or time lapse if consecutive
Vectors (arrows, lines, mathematical signs, numbering, lettering, narrative captions)	Reading paths, event clustering (temporal, spatial, causal)
Typography	Importance, emphasis, distinctiveness, classification tool
Object icons	Instrumentality o method, intervention
Cultural symbology	Taken-for-granted or well-known information, deducible property or action (e.g. ticks and crosses for pros & cons or right & wrong)
Verbal insertions (labels)	Glosses, naming and identification of entities, events, and objects
Colour use (saturation, tone, chromatic harmony vs. dissonance)	Importance/salience, emphasis, cohesion/unity, classification, distinctiveness
Register shifts through expressive punctuation and stylisation	Change in the interpersonal relationship between communication participants

2. Strategies inventory

Compositional Strategies	
STRATEGY	MEANINGS
'Frozen moment'	*In medias res* narrative
Focus and placement (e.g. foregrounding vs. backgrounding, centrality vs. marginality)	Salience, importance, emphasis, peripheral information or secondary role
Embedding	Subsumed item, inclusion
Overlapping	Simultaneity, superiority
Intersection	Commonality
Physical similarity	Functional equivalence
Schematisation	Selection of essential features & properties
Stylisation/embellishment	Authorial presence and stance
Metaphorisation	Authorial stance
Directionality (e.g. by vectors, collocation and juxtaposition)	Reading path and information flow
Fadeouts	Irreality, uncertainty, secondary importance
Colour code	Classification and clustering, physical or functional similarity
Interrupted contours (e.g. broken or dotted lines)	Hypothesis, doubt, lucubration, prediction, theoretical plane, irreality