Written Responses

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Position through iterating

Pater, R. (2016) The politics of design: a (not so) global manual for visual communication. Amsterdam: BIS Publishers.

Though symbols are an essential visual aid in graphic design, they do not necessarily make information or the system in which they are embedded more accessible (Pater, 2016). Fugelsang (1982, cited in Pater, 2016) validates that, like reading text, image reading is a skill that needs to be learned. However, reading and understanding all recycling symbols can be challenging even for a generation that grew up with the internet. While recycling policies are localised, the products we consume and the packages that come with the products are increasingly internationalised, many of which are shipped by the multinational company Amazon. Delgado (2023) points out that the resin identification codes, wrapped in the three chasing arrows symbols, have misled consumers into thinking all the plastics with this symbol will be recycled, while only two of the resin types are recyclable. This misinformation works because we, as consumers, have been taught to read these arrows as a symbol of recycling. However, can we unlearn what we know and be re-introduced to the actual meanings and underlying systems behind this symbol? By dissecting the recycling signs into colours, sentences, and eventually keywords, these iterations present how little information these signs give when the actual sorting and recycling process is complicated and arduous.



Crow, D. (2010) Visible signs: an introduction to semiotics in the visual arts. Second edition. Lausanne: AVA.

Crow (2010) discusses the official and unofficial languages in visual arts, which also apply to bin signages. The symbol of three chasing arrows lining in a circular direction is often seen on official signs for recycling. At the same time, the icon of a person throwing litter into a bin is on signs for general waste. Some common official messages on bin signages include 'recycling only,' 'rubbish only' and 'no food waste'. Residents, contributors of the unofficial language, often label their bins with their house numbers, phone numbers, and sometimes personal messages for the waste collectors. Although not as widely recognised as the official visual language, this unofficial language provides valuable insights into the waste management system. By dissecting and studying the communication and the relationships between these two languages, we can better understand how waste management and recycling are practised and perceived.

I have extended this perspective to one of the most common packaging materials: cardboard. Because of its sustainability, cardboard has also become a symbol for recycling. In this case, I'd argue the official use of this material is packaging, and it carries the official languages of shipping carriers and recycling systems. Meanwhile, the unofficial use of cardboard includes placards and shelters for people who experience homelessness, where the material becomes the medium for unofficial signs and languages.



Kozole, E. (2021) A book documenting all Slovenian logos that feature the national symbol of the country. Available at: https://www.ljudje.si/change-2/arhiv-triglav (Accessed: 18 April 2024).

Through collecting over 400 logos of the most famous mountain, Triglav, in Slovenia, Kozole (2021) documented more than just variations of the national symbol but also stories of the communities and the people of Slovenia, as each logo carries a unique story of its own and, collectively, they contextualised each other and pieced together the history and the contemporary image of this country. The power of distinct and abstract symbols, such as the Triglav and the recycling symbol, is that they are memorable and recognisable (Pater, 2016). In the second set of my iteration, I pictured a basic structure of the waste management and recycling systems by gathering images of recycling symbols, signs, and mediums of these graphics, such as delivery packages and bins.





Xu, B. (2015) *The Seven-Character Poetry Collection of Small Enterprises* [Clothing labels and programming writing]. Beijing. Available at: https://www.xubing.com/en/work/details/692?year=2015&type=year (Accessed: 18 Apr 2024).

Xu (2015) created visual poems with unique textual and cultural qualities by appropriating words and sentences from a collection of clothing labels. Though recycling labels are supposed to be more informational than visual, they have become a tool in building a brand identity associated with sustainability, accompanied by customised, illustrative icons. Meanwhile, the text portion on all labels has been reduced as the icons take up more real estate, competing for attention in a graphicsaturated world. I started decoding the labels and sorting the design devices by colour, shape, icon, and text, and then I rearranged the text blocks to visualise the recycling process. The same method has been applied to the images of placards. To iterate these design elements further, I combined the text, icons, and symbols from both recycling labels and the protest placards to generate new signs that speak in an unofficial language.

DiSalvo, C. (2014) *Adversarial Design*. Cambridge: MIT Press. Available at: http:// ebookcentral.proquest.com/lib/ual/detail.action?docID=3339433 (Accessed: 21 April 2024).

DiSalvo (2014) considered inquiry a process of producing a shape or a material form for otherwise vague and confusing situations.

Through recreating symbols with actual Amazon packaging materials, these iterations re-contextualised these three chasing arrows by visualising what is produced, used, disposed of, or recycled through our everyday purchases. What are the assumptions associated with these symbols, these materials, and the recycling infrastructure? Has the symbol been reappropriated into a decorative design piece on a package from a visual aid to the recycling instructions?

Blauvelt, A., Maurer, L., Paulus, E., Puckey, J., Wouters, R. (2013) *Conditional Design Workbook*. Available at: https://www.conditionaldesign.org/manifesto/ (Accessed: 16 November 2023).

Blauvelt et al. (2023) consider logic the tool for conditional design. When given a clear, logical framework, one can see and determine materials that should be used as input and ones that are to be discarded. If we look at the current recycling system in our city, using the approach of conditional design, what are the logic and the rules for things to be recycled? Consumers, waste management companies, and policymakers may adopt different logic regarding what is recyclable and what is waste. And what role does a sign designer play in this process?

Cardboard is considered one of the most sustainable and recyclable materials; therefore, many cardboard boxes have been collected by bin workers and accepted into the recycling process. However, the cardboard recycling rate is still not 100% because players in this system apply different rules when dealing with these materials. According to the Environmental Protection Agency (2022), some consumers dispose of cardboard as solid waste due to insufficient infrastructure or awareness. Some recycling workers discard recycled paperboard due to contamination. This set of iterations has not fully explored these rules, but I'd like to keep developing them in my next brief.

Line of enquiry

Has the recycling symbol been reappropriated as a tool for greenwashing, an advert, or part of the packaging, deviating from its role as a visual aid to the recycling instructions?

Is the recycling symbol failing its original purpose, or is it fulfilling its function as a propaganda tool?

What is the history, the contemporary context and the underlying structure of the recycling symbol?

What are the alternative symbols of recycling? What assumptions are associated with these symbols, materials, and infrastructure? Could materials, such as cardboard, be the symbol of the recycling systems? If so, what are the official and unofficial languages of cardboard?

Can we unlearn what we knew and be re-introduced to the actual meanings and underlying system behind this symbol? How could we re-imagine a 'universal' symbol and use it as a form of resistance or to reflect? How could we produce knowledge by curating and contextualising different types of recycling symbols? How could design generate new meanings with discarded items in an unofficial language?

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Delgado, C. (2023) Why the recycling symbol is part of a 'misinformation campaign'. Available at: https://www.popsci.com/environment/recycling-symbol-misinformationgreenwashing/ (Accessed: 18 April 2024).

Environmental Protection Agency. (2022). *Municipal solid waste (MSW) generation in the United States from 1960 to 2018, by material (in 1,000 tons)*. Statista. Statista Inc. Available at: https://www-statista-com.arts.idm.oclc.org/statistics/185710/usmaterials-generation-in-the-municipal-waste-stream-since-1960/ (Accessed: April 24, 2024)

Position through contextualising

This project explores aluminium beverage cans and the underlying relationships of their history, symbols, material, reputation, recycling, and production systems.

Liboiron, M. and Lepawsky, J. (2022) *Discard studies: wasting, systems, and power*. Cambridge, Massachusetts: The MIT Press. Available at: https://search-ebscohostcom.arts.idm.oclc.org/login.aspx?direct=true&db=nlebk&AN=2955243&site=ehostlive&scope=site (Accessed: 28 April 2024).

Liboiron and Lepawsky consider recycling a form of discarding as it builds a green reputation that rationalises the production of the disposable (2022). The creation of the recycling symbol, commissioned by the Container Corporation of America in 1970, has institutionalised the practice of recycling by offering disposable products a place within the waste system, treating them and then maintaining their production (Liboiron and Lepawsky, 2022). In addition, consumers have become responsible for waste sorting and recycling (Liboiron and Lepawsky, 2022).

Among all the packaging materials, aluminium's recyclability earned itself various dedicated recycling symbols, painting a green image and branding the metal as sustainable and futuristic. However, according to the International Energy Agency (2023), the manufacturing process of aluminium is highly energy-intensive and results in a significant amount of carbon dioxide emission and industrial waste, called red mud. Moreover, the extraction of aluminium ore, bauxite, has led to environmental degradation and social issues. In Odisha, India, alone, the metal mining industry, including the Aditya Birla Group, the aluminium supplier of the Coca-Cola company, has displaced millions of people, depriving them of livelihood resources, many of whom are tribal people (Jena, 2016). Recycling has shifted public attention away from these issues by tasking consumers with reading symbols and sorting waste, addressing only the symptoms but never the origin (Liboiron and Lepawsky, 2022) — the system of production.

Even when failing to deliver the promised environmental impact, recycling remains the focal point and an effective distraction for the bigger system failures and contradictions.

Furthermore, consumer products like beverage cans are only one of the many aluminium applications. In contrast, transportation, construction, and renewable energy infrastructures consume most of the primary aluminium that is ever produced (European Aluminium, 2024). To put this in perspective, a Boeing-747 aeroplane requires 66,000 kg of aluminium (European Aluminium, 2024), and a standard 330ml aluminium soda can weighs approximately 0.015 kg. The Aditya Birla Group, a multinational conglomerate based in Mumbai, India, is a leading aluminium, copper, and metal producer. In addition to beverage packaging companies like Coca-Cola, its subsidiary

company, Novelis, holds long-term contracts with high-profile clients in the aerospace and automotive industries, such as Boeing and Toyota (Novelis, 2024). This is what Liboiron and Lewpasky called a scalar mismatch. The high recycling rate of aluminium cans does not offset the transportation industry's growing demand for the metal or its production waste and social impact (Liboiron and Lepawsky, 2022); however, the green image built from the recyclable cans has been applied to the material as a whole and enables the production of primary.

This is why recycling is less about sustaining the environment and more about legitimatising resource extraction and manufacturing systems. This project aims to contextualise the issues associated with the aluminium industry by visualising and objectifying the underlying structures of aluminium production from extraction to refinement to industrial waste to relevant policies to displacement to applications.

Voss, G. (2024) Systems ultra: making sense of technology in a complex world. London : Verso.

Voss argues that systems are imagined through languages (2024). What are the visual languages that enable the recycling system? The introduction of the recycling symbol in 1970 led the world to reimagine disposables as recyclables. Though recycling hasn't met its purpose of conserving the environment to this day, the internationally recognised symbol still implicates the possibility of a better future where waste is manageable and even re-processable.

One contributor to the recycling symbol's success is its visual simplicity—three folded, chasing arrows lining in a triangular direction—which allows the symbol to lend itself to almost any materials, technology, or context. More than 50 years after its creation, variations of the recycling symbol have bombarded the packaging industry. One variation is the notorious resin identification codes placed inside the recycling symbol, which mislead consumers into thinking all packages with a symbol are recyclable and disposing them in the recycling bins.

Aluminium, one of the most recyclable materials, is often called a 'miracle' or a 'green' metal. The material has also earned several dedicated symbols, championing and validating the recycling system. Because of the 'totalising' nature of systematic thinking (Voss, 2024), the sustainable image of aluminium packaging has been extended to all other aluminium applications, such as transportation, even though the latter uses a large amount of primary aluminium and the recycling process of aeroplanes and automobiles is drastically different from that of consumer products.

Similar to the abstract symbols, as Voss noted, 'system' is a totalising concept that can be taken out of its original context and applied to anything in the world, and, as a result, it makes the world subject to study and technical control (2024). When the system is applied to the recycling practice, industries are established to collect the litter, store the recyclables, re-direct the contaminated and unqualified waste, export the recyclables and ultimately maintain the completeness and orderliness of the larger system, ensuring an undisrupted flow of production. However, Voss also mentioned an 'admission of failure' (2024). Litter still exists and even overflows the waste management and recycling system (Moore, 2012, cited in Liboiron and Lepawsky, 2024).

How could graphic communication design demonstrate the recycling system's complexity, excessiveness, contradictions, and failures? When writing with words, Voss employs metaphors to comprehend systems (2024). This project produced two forms of publications—one is a traditional booklet that can be read page by page, and the other consists of interlocking strings of objects underneath the aluminium beverage can, such as the history of this container and the source materials. Compared to the booklet, the strings of objects has exceeded the affordance of a publication. As a result, the second edition is much more challenging to navigate and read — a physical analogy for the complex structure relationships in the aluminium industry.

Uj, W. (2024) *Happyland*. Available at: https://wuthipoldesigns.bigcartel.com/product/ happyland (Accessed: 7 May 2024).

Happyland is a popsicle-shaped zine picturing the renowned dystopia-like neighbourhood in Bangkok, Thailand. The zine's vivid colours and playful shape complement the rejuvenated district and strongly contrast against the infamous history of the closed theme park. The wooden handle transforms the traditional zine into a three-dimensional object from a two-dimensional publication, propelling readers to imagine the unique theme park experience, such as licking a popsicle, while unfolding the booklet. How does string format influence the understanding of the aluminium industry? Will new knowledge be produced if the publication is transformed again into the shape of a beverage can? How does the string of objects shape the reader's interpretation of the traditional publication?



"Language implicates reality: the ideas we attach to things become things in the world. We use metaphors to describe things that elude our grasp, and fictions and metaphors allow an imaginary concept to be legitimated" (Voss, 2024).

Atelier HOKO. (2022) Science of the Secondary #13 Rubbish. Available at: https:// atelierhoko.com/science-of-the-secondary-13-rubbish/ (Accessed: 7 May 2024).

Science of the Secondary: Rubbish is a visual research and study on the daily practice of discarding published by Atelier HOKO. It visualises each step of discarding through photography and collage, from preparation before disposal to disposal to alternatives for disposal, such as hoarding or gifting. The publication presents the practice of discarding on a micro-scale, highlighting it as a cultural and collective practice supported by either official infrastructure, such as bins, or unofficial infrastructure, such as hidden places where our waste can fit. How could the production, the consumption, the material and the images of aluminium be broken down? How could graphic communication design present systems at different scales to recover the scalar mismatch often seen in environmental activism campaigns (Liboiron and Lepawsky, 2022)?



Blauvelt, A. (1994). 'An Opening: Graphic Design's Discursive Spaces', *Visible Language*, vol. 28, no.3, pp.205-216.

Blauvelt argues that graphic design's history must be examined in its social context, including its production, distribution, and consumption. The Container Corporation of America commissioned the design of the recycling symbol amid the awakening of environmental issues on the first Earth Day (Liboiron, 2012). The recycling symbols gained global recognition and legitimised the production of paperboard boxes due to their recyclability. Today, the recycling symbols advocate not only for paperboard but also a wide range of 'recyclable' materials, such as plastics and aluminium. Because the symbol is in the public domain (Liboiron, 2012), it has been overused and overconsumed without much standardisation or guidelines, contributing to much confusion and partially leading to the failure of the recycling system. Yet, if we look at the origin of recycling symbols, it still serves its real purpose of keeping the production of disposable products flowing.

Deakin, N. and Dyer, J. (2022) *Graphic events: a realist account of graphic design*. Eindhoven: Onomatopee.

To challenge the dominant way of seeing graphics, Deakin and Dyer advocate for a more 'affected and embodied' graphic experience, which they name a 'graphic event' (2022). An event is something that people can participate in or attend, and the uncertainty that emerges during the event is what designers could use to challenge the traditional experience of graphic design (Deakin and Dyer, 2022). Through playing with the affordance of a publication, I've produced a physical, folded network of objects to demonstrate the underlying structure of the aluminium industry. This 'publication' cannot be flipped page by page like a regular book; instead, readers must follow the thread, untangling and unfolding the objects individually. Once untangled and unfolded, readers could see all the objects floating out of the green cover, which Patti Smith would describe as 'kinetically trailing,' or an amplified experience of familiar objects (cited in Deakin and Dyer, 2022). In the process of this graphic event, the viewer would experience the physical challenges of navigating systems, information and power structures.







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The International Energy Agency. 2023. *Aluminium*. Available at: https://www.iea.org/ energy-system/industry/aluminium#tracking (Accessed: 10 May 2024).

Position through essaying

Working through the brief Method of Contextualising, I realised that graphic communication design often uses symbols, alongside other design devices, to simplify a complex issue, through which it manages to greenwash certain practices.

My iteration 0 is a phrase, 'recycling = (sampling),' taken from the Coca-Cola Company's campaign, 'Recycled Records.'



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To explore how symbols work, particularly the recycling symbol, I made 100 iterations, after which the underlying structure of the recycling symbol, including the waste management system, the recycling system and the production system, manifested.

As Pater noted, symbols, though essential visual aids to communication design, do not necessarily make information or systems more accessible, and visual literacy is an acquired skill (2016).

So, how could I introduce alternative ways to read symbols?



Crow suggests that there are official and unofficial visual languages. If the internationally recognised recycling symbol is considered the official language of the recycling practice, what are the unofficial languages of recycling? What makes the recycling symbol official? Can materials, such as cardboard, be symbols of recycling? If so, what are the official and unofficial languages of cardboard? What do the unofficial languages of these symbols tell us about the broader system?



Through collecting over 400 logos and symbols of the Triglav mountain in Slovenia, Kozole pieced together his home country's history and its contemporary identity (2021). Xu created visual poems from a collection of clothing labels with brand names that reflect modern Chinese cultures and aspirations (2015).

<image>

Both practices show that, through curating and contextualising, new meanings can be generated from the original materials.



Position through essaying



Based on these references, I made 48 more iterations, contextualising the recycling symbol with recycling bins, labels, and packing materials, revealing conflicts in the system. I realised these symbols fail as a communication tool, and the recycling system neither conserves the environment.



To understand how a system works or fails, I read Systems Ultra: Making Sense of Technology in a Complex World by Georgina Voss (2024) and Discard Studies: wasting, systems, and Power by Max Liboiron and Josh Lepawsky (2022).

Voss defines systems as 'relationships between things and the relationships of relationships'; therefore, it has always been challenging to describe systems in a neat and linear way. To visualise and contextualise the recycling network, I started with an aluminium sprite can and mapped out all the relevant components, including its history, material, reputation, extraction, productions, applications and environmental and social costs.

I've better understood Liboiron and Lepawsky's argument that recycling is a form of discarding that re-imagines the disposable as recyclable and validates the production of single-use commodities. Furthermore, the degradation of the environment and the displacement of indigenous communities caused by the mining and refining of aluminium's ore, bauxite, have also unveiled the exploitive nature of the seemingly 'green' industry.

How could I present these networks and findings through graphic communication design? Is there an alternative to the traditional publication format for hosting this map?

Happyland is a zine in the shape of a popsicle. By adding a wooden handle to his zine, Tum Wuthipol Uj transforms a traditional publication into an object, a metaphorical illustration of the bygone amusement park in Thailand (2024).

Deakin and Dyer advocate for a more 'affected and embodied' graphic experience—a graphic event in which people can participate actively and challenge the dominant way of seeing graphics.

Therefore, when I play with a publication's affordance by turning it into a pile of tangled, folded objects, readers can experience the complexities of the aluminium network in a physical form, which becomes a metaphor for the actual system.

To summarise, graphic communication design, such as symbols, has historically oversimplified complex issues; however, by playing with the affordance of publications, we could develop alternative ways of understanding systems, such as a graphic event. I'd like to explore this topic further in future practices.





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