

SPECIAL SECTION:

**MATERIALITIES
OF THE
INTERFACE**

Usually, the relationship between user interfaces and materiality is addressed via a problematisation of differences. Whereas user interfaces are often considered 'surfaces' which hide the 'materiality' of the 'deep' technological structures in order to establish a more 'intuitive' or 'fluid' user experience, critical perspectives on user interface analyses such processes as a form of 'concealment' of the material side of these technologies. Breaking with common perceptions, user interfaces are considered to be technologies which implement an artificial 'naturalness' of their use and consequently their use as a consumer product. Yet, to criticise the, much quoted, 'invisibility' or 'transparency' of interface-materialities is in turn committed to dualistic assumptions such as 'frontend/backend' or 'human/machine.' By now, it is generally accepted that user interfaces cannot be primarily regarded as technologies of controlling a computer, but as networked configurations which enable complex human-machine interactions. In consequence, challenges to this kind of 'critical' thinking have emerged. Critical interface theory has to take into account the fact that the materiality of interfaces has changed considerably (and is constantly changing). With the rise of the internet of things, the rapid development of machine learning and the subsequent proliferation of 'smart devices' and their respective 'medialities,' it is no longer enough for a critical approach to uncover a materiality 'behind' the interface. For example, in the era of so-called 'Natural User Interfaces' it is necessary to transform old distinctions like those between 'semiotic' and 'material' structures. The user inter-

faces of today are technologies in which semiotic, cognitive and material aspects of digital media technologies converge in habitualised practices ('interactions'), e. g. now ubiquitous gestures like 'pinch-to-zoom'. Hence, to engage in a critical interface-theoretical discussion leads almost necessarily to a discussion on the status of materiality in media theory in general. A critical perspective on interfaces must discuss theoretical notions of materiality with regard to everyday practices as well as with regard to highly specific forms of interface use. This includes a consideration of the materiality of practices and media that are usually not part of the core area of the paradigm of the traditional GUI (Graphical User Interface). Interesting theoretical notions can be found e. g. in specific media theories such as film theory or general media theory and media philosophy.

The following essays address this issue by giving insights into the contemporary discussion about the materiality of interfaces. In the first article Christoph Ernst discusses the concept of "material metaphors" as it is proposed by Marianne van den Boomen. For Ernst, van den Boomens concept of material metaphor ignores the boundary between non-discursive and discursive aspects of the production of meaning in interfaces. Although the idea of material metaphors is problematic, insofar the 'materiality' of interface metaphors is positioned against a more traditional view of the semantics of interfaces, van den Boomens idea is on the right track giving interface theory a powerful concept to rethink the materiality of interfaces. In the second essay, Konstantin Haensch uses the example of smart speak-

ers to show how these technologies fit into everyday life as “strategic media objects.” Based on the fact that the transformation of everyday objects represents a “new” way of interfacing with material culture, the essay shows to what extent new interface regimes are implemented. The essay calls for a critical analysis of these objects as visible “things” (and not invisible “objects”), drawing on ideas derived from media philosophy and discourse analysis. In the third and final text, Elisa Linseisen discusses the epistemic practice of zooming with regard to its interface-theoretical aspects. In contrast to the old distinction between “surface” and “depth” high-resolution interfaces represent a new media culture in which practices of interaction, change and creation of objects are in the foreground. Using a case study covering a period from 1958–2020, Linseisen argues that zooming can be used to grasp a media culture in which differences arise from the materiality of high-resolution digital images.

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FROM “INTERFACING OBJECTS” TO “INTERFACE THINGS”? MATERIAL-STRATEGIC NOTES ON THE SMART SPEAKER DESIGN

By Konstantin Haensch

“The slick, cold, metallic ‘outer opaque shell’ that preserved the degree of the otherness of laptops and smartphones is replaced by forms and materialities evoking a familiar closeness, inevitably conjuring uncanny interfaces.”

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Fig 1: Product communication by Google for the Google Home smart speaker. An example of the strategic object camouflage in the thing-world of everyday life to initiate processes of domestication. Source: Google Press Material.

With the emergence of the smart speaker Amazon Echo in the years 2014/15, ideas, which has been conceptualized for many decades in *ubiquitous computing* and *internet of things* discourses, have finally manifested themselves in the customer's lifeworlds as a mass-market artifact. With their mass circulation, Amazon Echo, Google Home, and Apple HomePod transform the material¹ worlds and interface cultures² of everyday life

substantially. New design paradigms accelerate this change. From its cylindric beginnings, newer generations of smart speakers utilize design tactics to strategically withdraw from the user's gaze, fulfilling the long-cherished hope of the "disappearance"³ as well as "invisibility and dissolution"⁴ of interfaces. In this regard, smart speakers do not present themselves, taken literally, as "black boxes", but as round, pastel-coloured, fabric-covered objects that are closer to a vase than to a laptop, smartphone, or television. The slick, cold, metallic "outer opaque shell"⁵ that preserved the degree

1 The following makes these observations against the background of the discourses of a "material turn" and "new materialism": e. g. Hans Peter Hahn (ed.), *Vom Eigensinn der Dinge: Für eine neue Perspektive auf die Welt des Materiellen* (Berlin 2015) and Diana Coole and Samantha Frost (ed.), *New Materialisms: Ontology, Agency, and Politics* (London 2010).

2 Stephen Johnson, *Interface Culture: How the Digital Medium – from Windows to the Web – Changes the Way We Write, Speak* (San Francisco 1997); Christa Sommerer, Laurent Mignonneau, and Dorothee King, eds., *Interface Cultures: Artistic Aspects of Interaction* (Bielefeld, 2008); Florian Hadler and Daniel Irrgang, *Instant Sensemaking, Immersion and Invisibility. Notes on the Genealogy*

of Interface Paradigms. *Punctum* 1 (2015).

3 Mark Weiser, Rich Gold and John S. Brown, The Origins of Ubiquitous Computing Research at PARC in the late 1980s. *IBM Systems Journal* 38 (1999).

4 Florian Hadler, Beyond UX. *Interface Critique* 1 (2018).

5 Alexander R. Galloway, Black box, black bloc, in: *Communica-*

of the *otherness* of laptops and smart-phones is replaced by forms and materialities evoking a familiar closeness, inevitably conjuring *uncanny interfaces*.⁶

The short essay argues that such design paradigms go beyond “surface effects”⁷ or a general notion of “distrust of surfaces”.⁸ Deconstructing the surfaces cannot, as Andersen and Pold point out, “unveil”⁹, with Frieder Nake, the apparatus’ “subfaces”.¹⁰ Conversely, by taking the smart speaker’s materiality seriously, in Flusser’s sense of a “praise of superficiality”,¹¹ we can explore the object’s strategic and economic calculation and engage in, with Sabine Wirth, the “complexity of the surfaces”¹² that eerily is hiding in plain sight.¹³ From this perspective, the essay

discusses smart speakers as a strategic bridge technology that catalyses new (not solely voice user-)interface regimes. This *temporary and tactical object arrangement* represents an important intermediate step to the old utopia, to turn “all surfaces of architectural space”¹⁴ into *interfacing objects*. Consequently, due to their central role in establishing new markets and interface normalities, smart speakers have to be considered strategic media objects. Alexander Galloway famously stated ten years ago on the first page of *The Interface Effect* that, “Interfaces are not things, but rather processes that effect a result of whatever kind.” He continues: “For this reason I will be speaking not so much about particular interface objects (screens, keyboards), but *interface effects*.”¹⁵ Interfaces might not be things, but things can be interfaces. With this provocation, the short essay turns back to media superficiality and briefly outlines the material qualities that strategically configure processes of media domestication. It makes a case for a project in critical media and interface studies that examines media objects’ *thingness* to address the often overlooked material-cultural and strategic-economic entanglements of media materiality.

tion and Its Discontents: Contestation, Critique, and Contemporary Struggles, ed. Benjamin Noys (New York 2011), p. 239.

6 Konstantin Haensch, Matthias Planitzer and Lara Nelke (eds.), *Uncanny Interfaces* (Hamburg 2019)

7 Friedrich Kittler, *Grammophon, Film, Typewriter* (Berlin 1986), p. 7.

8 Sabine Wirth, Gehäuse, Black Box, Interface – Zur Opazität der Oberflächen des Computers, in: *Hüllen und Enthüllungen: (Un-)Sichtbarkeit aus kulturwissenschaftlicher Perspektive*, ed. Inga Klein et al. (Berlin 2017), p. 240.

9 Christian Ulrik Andersen and Søren Pold (eds.), *Interface Criticism. Aesthetics Beyond Buttons* (Aarhus 2011), p. 9.

10 Frieder Nake, The Disappearing Masterpiece. Digital Image & Algorithmic Revolution, in: *xCoAx 2016: Proceedings of the Fourth Conference on Computation, Communication and X*, ed. Mario Verdicchio et al. (Bergamo 2016), p. 13.

11 Vilém Flusser, *Lob der Oberflächlichkeit. Für eine Phänomenologie der Medien*, ed. Stefan Bollman and Edith Flusser (Bensheim 1993).

12 Wirth, Gehäuse, Black Box, Interface, p. 240.

13 Konstantin Haensch, Nach dem Unheimlichen – Das “nicht ganz Geheure” der Interface-Dinge, in: *Uncanny Interfaces*, ed. Konstantin Haensch, Matthias Planitzer and Lara Nelke (Hamburg 2019).

14 Jun Rekimoto and Masanori Saitoh. Augmented surfaces: a spatially continuous work space for hybrid computing environments, in: *Proceedings of the SIGCHI conference on Human Factors in Computing Systems (CHI '99)* (New York 1999), pp. 378–385, here 378.

15 Alexander R. Galloway, *The Interface Effect* (Cambridge, UK, 2012), p. vii.

Late materializations of discourse

Discourses of the *internet of things*, *smart things*, and *smart connected products* have been capturing attention and resources (also from the military and economic sector) since the end of the 1980s, increasingly since the beginning of the 1990s. The phantasma of ubiquitous computing promised the (market) potential of radical transformation of the thing-world in the sphere of everyday life. Nevertheless, the long tail of discourse is incongruent to the market development: only slowly markets have responded to the technological trend. As it is well known, early concepts such as "ubiquitous computing," famously coined by Mark Weiser in the late 1980s at the Xerox Palo Alto Research Center,¹⁶ as well as other terms like "calm technology"¹⁷ or "pervasive computing" (coined at IBM 1998), were emerging from R&D departments of Silicon Valley-based companies. The concept's economic roots stand out in the term "internet of things," as suggested by Kevin Ashton from Procter & Gamble in 1999.¹⁸ Its terminological

career is predominantly driven, also in its many variations like "industrial internet of things," by the economic and industrial system. While the term 'internet of things,' according to the trend- and tech-analysts at Gartner, has lost its *hype* potential, thus, discursive agency,¹⁹ the rhizomatic ever-evolving formation of concepts and ideas is still present and prevailing. The, with aspects such as autonomy and augmentation, updated idea of a new class of smart and connected things still is capturing imaginations, channelizing enthusiasm, and is promising a "virtuous cycle of value improvement,"²⁰ as the Harvard Business School professor Michael Porter puts it.

An extensive body of work on these topics can be found in computer science, science & technology studies, sociology, and marketing. In German-language computer science and media studies, the discourse forms increasingly from 2001.²¹ While acknowledging these con-

July 22, 2009; <https://www.rfidjournal.com/that-internet-of-things-thing>, access: January 15, 2020.

19 Kasey Panetta, Gartner Top 10 Strategic Technology Trends for 2019. *Gartner* (2018); <https://www.gartner.com/smarterwithgartner/gartner-top-10-strategic-technology-trends-for-2019/>, access: June 3, 2020.

20 Michael E. Porter and James E. Heppelmann, How Smart, Connected Products Are Transforming Competition. *Harvard Business Review* (2014); <https://hbr.org/2014/11/how-smart-connected-products-are-transforming-competition>, access: June 3, 2020.

21 A few incomplete examples of contributions of the German-language media studies: Friedemann Mattern, Ubiquitous Computing – der Trend Zur Informatisierung und Vernetzung aller Dinge, 2001; <http://www.vs.inf.ethz.ch/publ/papers/Intern-etkongress.pdf>, access: June 3, 2020; Jürgen Josef Bohn, Vlad Constantin Coroama, Marc Langheinrich and Friedemann Mattern, Allgegenwart und Verschwinden des Computers – Leben in einer

16 Mark Weiser, The Computer for the 21st Century. *ACM SIGMOBILE Mobile Computing and Communications Review* 3/3 (1999), pp. 3–11; <https://doi.org/10.1145/329124.329126>.

17 Mark Weiser and John Seely Brown, Designing Calm Technology, Xerox PARC, December 21, 1995; <http://www.ubiq.com/hypertext/weiser/calmtech/calmtech.htm>, access: June 1, 2020.

18 Kevin Ashton, That "Internet of Things" Thing. *RFID Journal*

tributions' achievements, it seems rather important to notice that these studies' outcome is based on something which – at that time – has not been realised its equivalents *in the world*. Michel Foucault remarks that discourses should be treated not only "[...] as groups of signs [...]" but as practices that systematically form the objects of which they speak."²² The 'speech' of the internet of things mainly produced a discursive praxis without the necessary non-discursive reification. According to Foucault, these factors are conditions of a dispositive formation.²³ After examining this discourse, we can declare a vast discrepancy between, on the one hand, the quantity of intellectual concepts/prototypes/critiques of this complex, and, on the other hand, the lack of *realisations* of these concepts on a significant level. Examples of fully realised, mass-distributed, commonly used, domesticated, and normalised formations of IoT products are – until 2015 – sparse. This inadequacy is getting adjusted with the release and market success of the

technological class of smart speakers alongside many other smart connected products of the *smart home* product segment. After the diffusion of these technologies into the mainstream, research outside of intellectual and prototypical speculation and anticipation can be conducted. As a consequence, in the last years, *new* fabrics of everyday culture have been knitted.

Smart speakers carry the potential of transforming the worlds of everyday life and its material cultures while establishing completely new interface regimes. Moreover, this change is driven by the strategic efforts of powerful market actors. Marketing plays a vital role in establishing these new regimes since – as discussed next – the objects of transformation are resisting the change.

Forces of transformation

At all times, the "universe of things"²⁴ has been an object of *negotiations* between forces of change and continuity, novelty and the ordinary, stasis and kinesis. In philosophy – from Heraclitus to Bergson and Whitehead – a long thinking tradition is concerned with processes and potentiality of change, flux, and becoming. On a (more noticeably) level of *thingness* (Heidegger) in the object class

Welt smarter Alltagsdinge, in: *Privat! Kontrollierte Freiheit in einer vernetzten Welt*, ed. Ralf Grötter (Hannover 2003); Friedemann Mattern (ed.), *Total vernetzt: Szenarien einer informatisierten Welt* (Berlin and Heidelberg 2013), Bernard Robben and Heidi Schelhowe, *Be-greifbare Interaktionen: Der allgegenwärtige Computer: Touchscreens, Wearables, Tangibles und Ubiquitous Computing* (Bielefeld 2012) and the multi-perspective publication Florian Sprenger, and Christoph Engemann (eds.), *Internet der Dinge: Über smarte Objekte, intelligente Umgebungen und die technische Durchdringung der Welt* (Bielefeld 2015).

22 Michel Foucault, *Archaeology of Knowledge* (London and New York 2002), p. 54.

23 Siegfried Jäger, *Handbuch Sozialwissenschaftliche Diskursanalyse, Band 1: Theorien und Methoden*, ed. Reiner Keller, Andreas Hirsland, Werner Schneider and Willy Viehöver (Wiesbaden 2006), p. 107.

24 Konrad Paul Liessmann, *Das Universum der Dinge: zur Ästhetik des Alltäglichen* (Vienna 2010); Steven Shaviro, *The Universe of Things: On Speculative Realism, Posthumanities* (Minneapolis 2014), pp. 45–64.

of, with Herder, "midsize things," physical change is manifesting itself by the *come and go* of things in the "near-experience world" (Husserl). These dynamics have been accelerated by the high availability of globalised goods in a "consumer society"²⁵ and its backside a "throwaway society," the "downside of consumption."²⁶ As a result, the negotiations through the dialectic of old and new, habituation and novelty transform the universe of things continuously.

As the domestication theory²⁷ puts it, the early, novel phases of product appropriation are critical for social discourse.²⁸ This window of novelty may be already closing for the smart speaker. Edmund Burke identifies in his standard work on the sublime – here concerning everyday things in the chapter entitled "Novelty" – that all new things are rapidly falling in the valley of "stale unaffecting familiarity."²⁹ Vilém Flusser echoes these observations when he describes "apparatuses" as a class of complex and initially unordinary objects that are getting "obscured by thick layers of the habituality

of these things and the habituation to them."³⁰ "Aesthetic of disappearance"³¹ is the fate of all new things, also smart and connected ones. Against the background of product innovation autopoiesis, continuous processes of domestication and appropriation are taking place. Subsequently, powerful forces of an *innovation-driven* market economy, which is continuously implementing new products and updating old consumer goods, are enabling and cultivating these processes strategically.

In this context, the established thing-world provides the material, the matter, for these depicted strategic transformation processes in continuous cycles of change. The market logic of the internet of things aims for a rapid, accelerated transformation of the existing base of things. How is the material condition of this technological revolution structured? If we want to put the stock of everyday things in some order, we could project two scenarios for how smart things come into the world:

a) In the first case, the old, known, domesticated, normalised, and banal things of everyday life are getting replaced by similar things, (slightly) transformed by *smartification, datification, digitalisation*. (The suffix '-ation' implies that something is being done to these things.)

b) In the second case – and this sepa-

25 Guy Debord, *Society of the Spectacle* (Detroit, MI 1984); Jean Baudrillard, *Die Konsumgesellschaft: ihre Mythen, ihre Strukturen*, ed. Kai-Uwe Hellmann and Dominik Schrage, trans. by Annette Foegen (Wiesbaden 2014).

26 Wolfgang König, *Geschichte der Wegwerfgesellschaft: Die Kehrseite des Konsums* (Stuttgart 2019).

27 Eric Hirsch and Roger Silverstone, *Consuming Technologies: Media and Information in Domestic Spaces* (London 1994).

28 Nancy K. Baym, *Personal Connections in the Digital Age* (Cambridge, UK and Malden, MA 2010), pp. 45–49.

29 Edmund Burke, *A Philosophical Enquiry into the Origin of Our Ideas of the Sublime and Beautiful*, ed. Adam Phillips (Oxford 2008), p. 12.

30 Vilém Flusser, *Dinge und Undinge: Phänomenologische Skizzen* (Munich 2012), p. 7.

31 Paul Virillo, *Ästhetik des Verschwindens*. Internationaler Merz-Diskurs 132 (1986), p. 47.

ration can only be maintained heuristically – not old things (e.g., dishwashers) are changed, but something – in the literal sense – *radically new*³² appears and emerges in the lifeworlds.³³

Let us – for a moment – take this distinction seriously. It might illustrate to what extent the existing matter of everyday things represents a significant environmental factor of the portrayed transformations. It determines what is possible, what is thinkable, what is transformable.

Resistance of the existing

Hence, to the first polarity and its processes of *occupying* existing and well-known things with technology. Here, banal, normalised, domesticated, well-known, ordinary, and appropriated everyday-objects exist in the light of a “normalistic mentality pattern.”³⁴ The producers – and considering the agency of things,³⁵ the new objects themselves –

have to overcome the condition of stasis and the “cognitive, ethical and affective dispositions”³⁶ that are interwoven with objects of the lifeworlds. In this way, new things such as smart speakers are challenging the thing- and lifeworlds’ resistances. This challenge weighs particularly heavily when these innovations should or have to reconfigure existing mentality patterns. Marketing, including product communication and advertising, is one of the driving forces of cultivating these transformations of a “media culture of living”.³⁷ The product discontinuity has to find a way of dealing with the prevailing “continuities, resemblances, repetitions.”³⁸ The most private (if it still exists³⁹) sphere of living must be cultivated in order to overcome these obstacles.⁴⁰ The institution of living is particularly resistant to change due to its, as Thomas Düllo puts it, “structurally conservative”⁴¹ constitution. The cultural-material practice of living is attributed

32 For a critique of the prefix “neo-” see Flusser, *Dinge und Undinge*, p. 62.

33 This case is rather unlikely, because “innovations always contain a lot of old and little new,” as Wolfgang König puts it so well (at the 35th Hybrid Talk at Hybridplattform, Technical University of Berlin and Berlin University of the Arts, May 9, 2020).

34 Thomas Düllo, *Kultur als Transformation: Eine Kulturwissenschaft des Performativen und des Crossover* (Bielefeld 2011), p. 35.

35 As proposed by the Actor–network theory as well as a multitude of contributions in a material turn/new materialism. To the agency of the internet of things: Mercedes Bunz and Graham Meikle, *The Internet of Things* (Cambridge, MA 2018), pp. 42–53.

36 André Burguière and Ulrich Raulff, *Mentalitäten-Geschichte*, in: *Mentalitäten-Geschichte: Zur Historischen Rekonstruktion Geistiger Prozesse*, ed. Ulrich Raulff (Berlin 1987), p. 12.

37 Stefan Rieger, Smart Homes. Zu einer Medienkultur des Wohnens, in: *Internet der Dinge: Über smarte Objekte, intelligente Umgebungen und die technische Durchdringung der Welt*, ed. Florian Sprenger and Christoph Engemann (Bielefeld 2015), pp. 363–381.

38 Michel Foucault, *The Order of Things: An Archaeology of the Human Sciences* (London 2006), p. 132.

39 Florian Hadler, Die Invasion des Interieurs, in: *Texturen Nr. 1: Wohnen*, ed. Thomas Düllo and Konstantin Haensch (Berlin 2013), pp. 138 f.

40 Franz Liebl and Thomas Düllo, *Strategie als Kultivierung: Grundlagen – Methoden – Prozesse* (Berlin 2015), pp. 123ff.

41 Thomas Düllo, Themenfeld und Textanlass: Wohnen, in: *Texturen Nr. 1: Wohnen*, ed. Düllo and Haensch, pp. 17.

to a "strange persistence and constancy [...]. Viewed broadly, everything has remained the same."⁴² This persistence of *installed* things (from *installare* and *stallum*: 'chair, choir chair', i. e. 'putting into a chair') also applies to home electronics and their "[...] inertia of installed technology and their diverse factual and social interweaving [...]."⁴³ It takes enormous marketing efforts to work against or with this resistance of the prevalent.

Producers of the new can strategically and tactically 'tackle' these obstacles with different approaches. In the case of the Amazon Echo, according to Chief Marketing Officer Neil Lindsay, the heavy lifting of cultivating the socio-cultural innovation is done by the product itself and its "magical"⁴⁴ effects. In that regard, the user experience is obliged to overwrite and rewrite existing mentality patterns: "In fact, at our best, the experience is so magical that it disappears into our customer's every day as their new normal."⁴⁵

42 Wolfram Hoepfner, Ulf Dirlmeier, Jürgen Reulecke, Gert Kähler, Ingeborg Flagge and Wüstenrot Stiftung Deutscher Eigenheimverein, *Geschichte Des Wohnens* (Stuttgart 1996).

43 Werner Rammert, *Technik aus soziologischer Perspektive 2: Kultur – Innovation – Virtualität* (Wiesbaden, 2013), p. 60.

44 On these premodern motifs in technological contexts: Natascha Adamowsky, *Smarte Götter und magische Maschinen*, in: *Total vernetzt*, ed. Friedemann Mattern (Berlin and Heidelberg 2003), Konstantin Haensch, *The Magic Interface. Media-Archaeological Notes Based on F. W. Murnau's "Faust" (1926)*, in: *Interface Critique*, ed. Florian Hadler and Joachim Haupt (Berlin 2016).

45 Amy Gesenhues, *A CMO's View: Amazon's Neil Lindsay says customer obsession is core to company's DNA. Marketing Land* (2016); <https://marketingland.com/a-cmos-view-amazons-neil-lindsay-says-customer-obsession-is-core-to-companys-dna-160153>, access: April 1, 2020.

Connectification of the thing-universe

In the radical vision of ubiquitous computing and its "computerisation and interconnection of all things,"⁴⁶ *analogue* things such as a table, chair, and the bed should have been "totally interconnected"⁴⁷ for a long time. Meanwhile, only a few compelling examples of marketable, and above all, *successful* products can be found to this day. An insight of the last decade could be that the old *analogue* world can easily exist alongside the *new* world of connected things. Thing nostalgia is even used strategically as a source of familiarity and soothing, as seen in the respective marketing material of Amazon, Apple, Google, and others. Moreover, new objects such as smart speakers imitate the material-aesthetically innocence of *dumb* things in the lifeworlds, as seen in Fig 1. Most everyday analogue things seem to resist their smartification so far. This circumstance does not carry much weight in a *post-ubiquity* and *pro-practicality* paradigm, where not everything has to be an interface.

Looking at a different class of things in the analogue-electrical realm, different results can be observed: Kitchen and household appliances, radiators, or

46 Mattern and Katz, *Ubiquitous Computing*.

47 Mattern, *Total vernetzt*, p. 1.



Fig 2: In the so-called "Easy Chair" (1933), a radio was *installed* in an armchair. Source: Forty, Adrian, *Objects of Desire: Design and Society since 1750* (New York, N.Y: Thames and Hudson, 1992). The text-mechanic's similarity in the naming seems remarkable: by utilizing a 'bland' adjective, a 'normal' object is branded and thus marketable. From *easy* chairs to *smart* speakers.

electronic circuit/light products are connected and successfully marketed as *Smart Fridge*, *Smart Microwave*, *Smart Lighting*, et cetera. The sensation of a washing machine that automatically orders washing powder and commissions inspections is always related to smart technology's mesh inside and outside the living environment. Such a "life in a world of smart everyday things"⁴⁸ generates a constant information stream of human and non-human objects. These objects are part of a datafied environment where continuously visible and invisible processes of interaction and action occur.

Finally, let us look at the world of things of digital devices, home computers, laptops, smartphones (and newer automo-

biles). A qualitative difference amongst these things becomes apparent when compared to a table, shoe, refrigerator, and washing machine. These things are on top of the hierarchy of smart things, operating as devices for control,⁴⁹ *leading*⁵⁰ interface processes through the agency of their operating systems (also the IoT platform of voice assistance services such as Alexa) and via the platform's *less* smart satellites, with reduced functionalities. These a-level devices represent the material side of the exercise of power, the control, and organisation of the rest of the world of things.

49 Bunz, and Meikle, *The Internet of Things*, pp. 95.

50 Jan Distelmeyer, An/Leiten: Implikationen und Zwecke der Computerisierung, in: *Navigationen 2* (2017): Medien, Interfaces und implizites Wissen.

48 Bohn et. al., *Allgegenwart*, pp. 195–245.

The materiality of smart speakers

Along that line, we can also interrogate the smart speaker regarding the artificial taxonomies of old/new and analogue/electric/digital. The findings have to be – not surprisingly – ambivalent: On the one hand, the smart speaker follows the logic of the *occupation* of everyday things by implementing smart and connected functionality into an object, which at first glance has notable similarities to the product class of wireless/Bluetooth speaker. These observations are based on shape, function, and naming. Additionally, smart speaker are in shape and form similar to a vase, pot, or carafe on a strictly phenomenological level. The appearance of these objects supports a perceived closeness to the materiality of the analogue thing-world. Their muted colour schemes and textile fabrics are citing materiality used in the homely sphere.

On a functional level, one could make a case that the smart speaker's closest relative is not a speaker but a *smart phone*. Smartphones and smart speakers share, despite all material-aesthetic differences, technology, software/services (Siri, Alexa, Google Assistant), functionalities, and generate an intersection of variable use cases. Every smartphone with installed voice assistance services is also, in a way, a smart speaker. The vir-

tual assistant Siri first was *contained* in the smartphone device Apple iPhone.⁵¹ The *inner values* of smart speakers and smartphones are – on a material level due to shared technologies of speakers, haptic interfaces, the microphone, and the common software – comparable. Besides, both devices, smartphones and smart speakers, operate as voice user interfaces (VUI) in the household, sometimes even sharing *interface duties*.

Additionally, on naming and basic construction, these objects are referring to the speaker box. If we follow the path of this product class's naming, we would assume that the smart speaker is a 'smartified' speaker box. Such a term conceptually only grasps the functions of producing and delivering sound signals. However, this is only one side of the coin: The opposite side represents sound recording technology and language understanding (as speech and language processing). This innovation required far greater technological development efforts, remaining one of the most outstanding smart speaker technology achievements. In this logic, one could justifiably speak of *smart microphones* or maybe a *smart listener*. Back in the realm of marketing, these kinds of naming ideas are quite unimaginable when data security and surveillance are social and political issues in public discourse. That said, one could push the naming variations of the smart speaker even further: *smart home hubs*,

51 For a short overview of the development history of smart speaker and voice assistants: Bunz and Meikle, *The Internet of Things*, p. 96.

smart stereos, smart alarm clocks, smart radios, smart light rings. The object exceeds what *speakers* can be. Instead, the smart speaker is a hybrid,⁵² a “mixed object”⁵³ with manifold yet undetermined potentials of usage. Therefore, the branding of the “smart speaker” is strategically motivated and, at the same time, conceptually under-complex and therefore misleading. With the rise of these *undefined objects*, a new class of things has emerged, which is categorical neither near everyday things, nor does it represent material-aesthetic evolutions of home computers, smartphones, or laptops.

Consequently, these devices stand out as dedicated objects of power. Smart speakers are pods (as the name of the Apple HomePod indicates), *containers* as “media encapsulations.”⁵⁴ The speaker, as a *cybernetic* thing, functions like the smartphone as hub of control, also of other, “dumber” things. While smartphones utilize their functional status by a locally directed use of the graphic interface by *one* person, as well as through their singular haptic-tactile materiality *in the hands* of the user, the smart speaker with its multi-person use potential of the language-based interface is establish-

ing new social power structures in the sphere of everyday life. Who is permitted to speak out, to control, to command? The idea of control of the smart home has been part of the product premise and promise from the start: “Amazon’s vision for the Echo now relies heavily on the speaker serving as a hub for the so-called smart home. Limp jokes that it’s only a matter of time before some enterprising developer writes a program to use the Echo’s voice controls to flush the toilet.”⁵⁵

Towards a critique of Interface Things

To conclude, the changes in the world of things in everyday life can reconfigure the thing-relationships of the everyday sphere in a different, perhaps even a new way. Not in the sense of replacement, but any case in terms of diversification. Media products such as the Amazon Echo, Google Home, and Apple HomePod offer nothing less than a reconfiguration of what interfaces can be: New interface regimes are forming and replacing, complementing and reconfiguring current regimes. These objects bridge the ubiquity of mobile media use with stationary paradigms. What previously was domesticated in marked out zones of

52 Bruno Latour, *Die Hoffnung der Pandora: Untersuchungen zur Wirklichkeit der Wissenschaft* (Frankfurt/Main 2017), pp. 7 ff.; Gustav Roßler, *Kleine Galerie neuer Dingbegriffe: Hybriden, Quasi-Objekte, Grenzobjekte, epistemische Dinge*, in: *Kontroversen zur Entgrenzung des Sozialen*, ed. Georg Kneer, Markus Schroer and Erhard Schüttelpeiz (Frankfurt/Main, 2008), pp. 79–82.

53 Roland Barthes, *Das Reich der Zeichen* (Frankfurt/Main, 2012), p. 33.

54 Christina Bartz, Christoph Neubert, Monique Miggelbrink and Timo Kaerlein, *Gehäuse: Mediale Einkapselungen* (Paderborn 2017), pp. 1–32.

55 Joshua Brutstein and Spencer Soper, *The Real Story of How Amazon Built the Echo*, *Bloomberg.com* (2016); <http://www.bloomberg.com/features/2016-amazon-echo/>, access: March 31, 2020.



Fig 3: The refugium of "interface things" (Haensch, *Nach dem Unheimlichen*, p. 86) in the "Interface-Mise-en-scène" (Jan Distelmeyer, *Machtzeichen. Anordnungen des Computers* [Berlin 2017], pp. 81–82) of product marketing and display advertising. Photograph of the Gucci store located in the Trump Tower, September 2019. Photo: K.H.

media use (TV and computer *corners*) is now radiating within smart spaces and the mesh of media environments – even outside the borders of Euclidean spaces and beyond what is typically labelled human-machine-interface. These innovations break into the spheres of everyday life and materialize themselves as new things or configure established objects. With Bill Brown, we can distinguish between "objects" and "things."⁵⁶ Borrowing from Heidegger, Brown emphasises objects as functioning, inconspicuous entities. Precisely the items in Burke's

modes of a "stale unaffectioning familiarity" obscured by Flusser's "layers of the habitual of these things and the habituation to them." With the broad diffusion, normalisation, and domestication of smart speakers, the *thingness*, understood as an awareness of certain qualities of things is fading into the background of attention. The old idea of ubiquitous computing has manifested itself not only in the media materiality of the smartphone, but also in the hybrid materiality of the smart speaker. These stationary, dusty, camouflaged products are operating outside of perception as continually listening, data-producing, *interfacing objects*.

56 Bill Brown, *Thing Theory*. *Critical Inquiry* 28/1 (2001), pp. 1–22.

Eventually, it is the task of cultural and media critique to bring out the thingness of these and other media ensembles to re-transform smart speakers and their silent satellites. From *interfacing objects* to *interface things*, thus enabling the object's re-entry in the realm of critique. The interfacing objects are among us, are with us, we have become. A critical media theory and praxis aim to reclaim these active objects, which act outside of perception and availability – if only in moments – as *interface things*. By exploring the *thingness* of mediating, invisible, processual modes of interaction, we can map the opaque space of mediality and access the implicit knowledge⁵⁷ beyond the ritualistic everyday life and the strategically calculated materiality of camouflage, withdrawal, and passivity of, as Jan Distelmeyer puts it, "interface-staging."⁵⁸ The interfacing objects on the shelves do not, as Alexander Galloway noted on the laptop, "beg to be touched, [...] to be interfaced"⁵⁹ but, in contrary, to be left alone. In reclaiming the surfaces, we have the chance to advance to the *subfaces* not only of technology but also strategic, economic, and political agenda. Bringing things back into a critical space of immediate materiality seems to be an urgent task which demands engagement with the material-cultural surpluses and strategic-economic calculations of current interfacing objects, like smart speakers.

57 *Navigationen 2* (2017): Medien, Interfaces und implizites Wissen.

58 Jan Distelmeyer, An/Leiten: Implikationen und Zwecke der Computerisierung in: *Navigationen 2* (2017), p. 38.

59 Galloway, *Black box, black bloc*, p. 239.

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