

Impact case study (REF3)

Institution: Birkbeck, University of London		
Unit of Assessment: 30 Philosophy		
Title of case study: The objectivity of taste and tasting: the impact of philosophical research on the food and drink industry and on health and wellbeing		
Period when the underpinning research was undertaken: 2004 - 2014		
Details of staff conducting the underpinning research from the submitting unit:		
Name: Barry C. Smith	Role(s) (e.g. job title): Senior Lecturer, Honorary Research Fellow, Birkbeck; Professor and Director, Institute of Philosophy, University of London	Period employed by submitting HEI: 1986-2014
Period when the claimed impact occurred: 1 August 2013 to 31 July 2020		
Is this case study continued from a case study submitted in 2014? No		
1. Summary of the impact Professor Barry C. Smith, an authority on flavour perception, played a central role in the national effort to add 'a loss of taste and smell' to the U.K's official list of Covid-19 symptoms. In addition, he has enhanced the wellbeing of cancer patients (whose sense of tastes and smell is often affected by chemotherapy treatment) and other patients who have lost their sense of smell, and made a direct contribution to how global food companies such as Coca Cola and Kellogg work with different sensory modalities in reducing the amount of sugar and salt in their products.		
2. Underpinning research Professor Smith's research at Birkbeck on how we perceive flavours made a significant, distinctively philosophical intervention into debate about the objectivity of taste. He organised an international conference to promote research in this area at the School of Advanced Study, University of London (December 2004). The conference, 'Philosophy and Wine', in which philosophers, winemakers, critics and other wine professionals participated, launched a new field of interdisciplinary research, the Philosophy of Wine. Smith's conference paper, 'The Objectivity of Tastes and Tasting,' evoked a strong and favourable response from the wine industry and from prominent wine critics (including Jancis Robinson). The paper rejects the common assumption that tastes are mere sensations: it distinguishes the subjective experience of tasting from the objective tastes encountered in a wine. It argues that tasting is a complex experience, and that we can learn to assess the perceptible qualities of a wine by distinguishing perception of objective flavour properties from personal preferences. This paper, along with others presented at the conference 'Questions of Taste: The Philosophy of Wine,' was published in an Oxford University Press volume (Ref 1). The volume, edited by Smith, was favourably reviewed in wine magazines and newspapers including the <i>TLS</i> (June 2007) and <i>The New York Times</i> (Sept 2007), and it featured among Tim Akin's top five wine books of the year in <i>The Observer</i> (Dec 2007). Favourable reviews also appeared in two academic journals, <i>The British Journal of Aesthetics</i> (2008) and <i>Mind</i> (2009). Smith's defence of the objectivity of taste has been picked up by others: it was the subject of chapter 4 of Cain Todd's <i>The Philosophy of Wine</i> (Ashgate 2011), and of articles in <i>the British Journal of Aesthetics</i> 2012, and in <i>The Aesthetics of Wine</i> , eds. D. Burnham and O. Shilleas (Wiley 2012). In 2008, Smith was seconded from Birkbeck into the role of Director of the Institute of Philosophy where he continued to develop his research in this area, working closely with psychologists and neuroscientists on how interactions between our senses influence flavour perception. He was an invited participant in international conferences of professional chemists and oenologists working in the wine industry, 'Wine Active Compounds', in Beaune in 2008 and in 2011; and he contributed to the scientific proceedings of both conferences. In 2009 Smith founded the Centre for the Study of the Senses (CenSes) at the Institute of Philosophy, with a view to promoting innovative and collaborative research between philosophers, psychologists and neuroscientists. In 2012, he contributed to a scientific paper in		

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the journal *Food Quality and Preference*, and he published a paper in *Nature* (Ref 2). With co-authors Charles Spence and Mailika Auvray, he has contributed a widely cited paper 'Confusing Tastes with Flavours' to *Perception and its Modalities* (Ref 3), with Oxford University Press. Smith, Spence and Charles Michael also published a paper – 'Airplane noise and the taste of umami' (Ref 4) – offering an account the effect of white noise on taste perception that explains why people order Bloody Mary or tomato juice on airplanes, when they would not do so on the ground.

Smith was subsequently awarded a British Academy Latin American–Caribbean Link Grant to run two workshops on 'Sensory Exploration and Evaluation of Flavour' in Bogota (attended by 300 people and streamed to 3,000 internationally) and London (2010-12). In light of his work on flavour perception, and his role as an ambassador for the relevance of philosophy in science and the public debate, Smith was awarded a GBP590,000 AHRC Leadership Fellow Grant for the Science in Culture Theme in 2013, which was renewed in 2016 (AH/N50452X/1: GBP614,200).

On June 30, 2014, Smith left Birkbeck to join the School of Advanced Study on a permanent basis. He is an Honorary Research Fellow in Philosophy at Birkbeck, and his research on flavour perception continues. For example, his paper 'The Chemical Senses' (Ref 5), argues that taste—like smell and touch—cannot be treated as a special case of perception modelled on vision. This contributes to dethroning the latter as the primary focus in philosophy of perception and this led to further research interest in smell and consciousness, published in the science journal *Chemical Senses* (Ref 6).

3. References to the research

1. Smith, B. C., 'The Objectivity of Taste and Tasting' in *Questions of Taste: The Philosophy of Wine*, ed. B. C. Smith (Oxford University Press, New York, 2007).
2. Smith, B. C., 'The Complexities of Flavour', in *Nature* Vol.486, S6, June 2012. DOI: <https://doi.org/10.1038/486S6a>
3. Smith, B. C., with C. Spence, and M. Auvray, 'Confusing Tastes with Flavours,' in *Perception and its Modalities*, eds. D. Stokes, M. Matthen, and S. Biggs (Oxford University Press, New York, 2014).
4. Smith, B. C. with Spence, C. and Michel, C, 'Airplane noise and the taste of umami' in *Flavour* 3(2), 2014. DOI: <https://doi.org/10.1186/2044-7248-3-2>
5. Smith, B. C, 'The Chemical Senses' in *The Oxford Handbook to Philosophy of Perception*, ed. M. Matthen (Oxford University Press, New York, 2019).
6. Smith, B.C., 'Human Olfaction, Crossmodal Perception and Consciousness' in *Chemical Senses* Vol 42, 2017. DOI: <https://doi.org/10.1093/chemse/bjx061>

4. Details of the impact

Following on from the success of the 2004 'Philosophy and Wine' conference and resulting publications described above, Smith's reputation as the expert in the field began to be consolidated and the food and drink industry began to consult with him extensively.

In 2008, he presented his research at the **Wine Active Compounds conference** for chemists and oenologists in Beaune. Following on from that meeting in 2010, he was asked to contribute to the submission for **UNESCO** to have *Les Climats de la Cote d'Or* vineyards in France recognised as a UNESCO World Heritage Site. In July 2015 the site was [inscribed on the world heritage list](#), recognising that "The Climats are today a unique and living conservatory of centuries-old traditions, an expression of the diversity of its terroirs and producer of wines, the excellence of which is recognized worldwide". Smith's contribution was published as 'Les climats de Bourgogne: un assemblage de nature et de connaissances' in *Les climats du vignoble de Bourgogne comme patrimoine de l'humanité*, ed. J-P. Garcia (2011). Benefits of UNESCO World Heritage status to *Les Climats de la Cote d'Or* vineyards, includes: increasing partnership activity; being viewed more favourably by conservation, heritage and community-based funding sources; new investment and increased tourism; increased social unity, cohesion interaction and engagement within the regional community.

1. WORK WITH THE MEDICAL SECTOR

In 2013, Smith was featured on BBC Radio 4's [The Food Programme](#), talking about how our sense of smell contributes to tasting, and what happens when we lose it, through old age,

illness or injury. Smith's contribution to the programme was based on the co-authored academic article on 'Confusing Tastes with Flavours' (subsequently published as Ref 3 above) arguing that we should not treat putative experiences of tastes such as fruity or meaty as arising from basic tastes (e.g. 'sweetness', 'sourness') but as multisensory flavours involving smell.

ENT surgeon Carl Philpott and his patient, Duncan Boak, heard the Radio 4 story, and got in touch with Smith about their plans to launch a charity, Fifth Sense, aimed to support people affected by taste and smell-related disorders. According to [Philpott's work](#), loss of smell (anosmia) is thought to affect 5% of the population – more than blindness and profound deafness – and is associated with depression, anxiety and relationship problems. Fifth Sense is a UK charity that supports anosmia sufferers, while its members are routinely involved in medical research related to loss of taste and smell. Together with Boak and Philpott, Smith hosted a charity [Launch Event](#) at the Institute of Philosophy on 15 March 2014 (1).

Smith was featured on BBC World Service's [The Food Chain](#) on 25 Jan 2018, again talking about his work on loss of smell (10). Chef Ryan Riley heard that show, and got in touch with Smith about [Life Kitchen](#), a project offering free cookery classes for people living with cancer (and their carers), who often find that foods taste and smells unpleasant while undergoing chemotherapy. In 2019, Smith's work with Life Kitchen, was featured in [iNews](#), [The Huffington Post](#), [The Caterer](#) and [Urban Intention](#), [Independent](#), [Guardian](#), and on [ITV news](#), all of which cite Smith's research contribution to the project, and latterly, in the [cookbook](#) that Riley published with Bloomsbury in March 2020. The book has been endorsed by [the World Cancer Research Fund](#) and described by [Waterstones](#) booksellers as 'truly revolutionary'. Elsewhere, Nigella Lawson has lauded Riley's book as 'vitally necessary' and in 'another league' compared to other commercially-available cookbooks. Lawson [specifically notes](#) that 'every recipe is informed by the up-to-date research from Professor Barry C. Smith'.

In April 2020, Smith was made UK Lead for the Global Consortium of Chemosensory Research ([GCCR](#)), a group of over 500 doctors, researchers and sensory experts formed to address issues surrounding smell and taste loss during the Covid-19 pandemic. Smith coordinated the UK response alongside ENT surgeons Prof Claire Hopkins, Dr Katherine Whitcroft, Mr Simon Gane, Prof Carl Philpott and patient advocate, Chris Kelly. In that capacity, Smith contributed to the design of [a survey](#) of more than 40,000 patients diagnosed with Covid-19, who reported on average an 80% drop in ability to smell and a 69% drop in ability to taste.

His work with GCCR and Prof Claire Hopkins, a jointly authored letter to the BMJ, and [a joint statement](#) with the British Rhinological Society (BRS) and ENT-UK, contributed to Public Health England adding loss of smell and taste to the official list of symptoms on May 18 2020. Smith featured in an article in [the Sun](#), discussing the work of the GCCR to bring about this change. Loss of smell has become a vital symptom in identifying Covid-19. The evidence presented by Hopkins, Smith and the UK GCCR group to Public Health England was confirmed by the [King's College coronavirus tracker app](#) which found that 65% of more than 7,000 users of the app who had tested positive for Covid-19 reported loss of smell and taste, compared with just over a fifth of those who tested negative. In their *Nature Medicine* article the authors say that loss of smell - anosmia - is a stronger predictor of Covid-19 than fever. As current UK testing and track and trace systems have struggled to identify and isolate sufferers of the disease, individual alertness to Covid-19 symptoms has become even more important in halting Covid-19; better public awareness of anosmia as a key symptom can save lives by identifying the disease early, and can help to slow the spread of the virus. However, Hopkins and Smith have published a letter in *The Lancet* (3 Nov 2020) stressing that widespread smell testing for Covid-19 has limited application (2).

2. SENSORY CONSULTANCY FOR THE FOOD AND DRINKS INDUSTRY

On account of his experience and extensive media work (see below, (8, 9, 10)), Smith is established as a key figure in advising the food and drink industry to develop and market their offer:

(i) **Caviar House**: in 2014, Smith published a co-authored journal article, 'Airplane noise and

the taste of umami' (Ref 4 above) showing that—unlike the other four basic tastes—umami is resistant to the altitude-induced dulling of tastes when passengers are airborne. On 29 Sept, 2016, Smith was featured on The Chris Evans Breakfast Show to talk about sensory perception and his research on umami specifically. This show had 9,060,000 weekly listeners in the third quarter of 2016 (*Daily Telegraph*). Evans's interview with Smith was later captured on Radio 4 in Four, summing up highlights from their programming in four minutes. Then, in March 2019, Smith was commissioned by Not Always Caviar, Caviar House's restaurant in Stansted Airport, to create the 'Sky High Sandwich,' which is umami-rich and will retain its flavour once airborne. A video clip of Smith explaining the science behind the sandwich is played regularly in the airport. The story was picked up by, among others, [Mail Online](#), [Mirror](#), [Daily Star](#), [Catering Today](#), [The Armed Post](#) and [Sport & Leisure Catering](#). The 'Sky High Sandwich' campaign subsequently won a ['Campaign of the Year' prize](#), as well as [a PR award](#) (6).

(ii) **Sainsbury's**: in 2016, [Daily Mail](#) reported that Prosecco sales were 40% higher than expected. The next year, Sainsbury's brought in Smith to pair a variety of strawberry with a sparkling wine in the lead-up to Wimbledon. He chose to pair Sainsbury's Taste the Difference *Crémant de Loire* with the Murano strawberry. According to a *Daily Express* Interview (13 July 2017), strawberry sales in its Southfields store near the courts were up 281% and those of sparkling wine 98%, with an even bigger 1,600% hike in single-serve fizz bottles. In 2019, Sainsbury's *Crémant de Loire* won [the Drinks Business' Gold medal](#) (7).

(iii) **Cocoa Runners**: Spencer Hyman, founder of this chocolate retailer engaged Smith to help them encourage people into the craft chocolate market. Smith and Cocoa Runners also collaborated in the Institute of Philosophy public engagement event, 'Moving Humans' (22-23 June 2019) at Tate Modern with a demonstration involving the sensation of melting and effects of astringency on taste. The type of tasting event that Smith developed for Cocoa Runners has subsequently been run by them [virtually](#), as part of their commercial enterprise to over 5000 people and to corporations including Amazon, Google, NatWest, London Stock Exchange, and more than 50 more (3).

(iv) **Coca Cola**: in 2019, Smith was approached by Bompas & Parr on behalf of Sebastian Kroth, Brand Director for Western Europe, to utilise his expertise in multisensory perception on a UK 'Guess Can' campaign, where people have to guess whether an unmarked can contains regular *Coke* or *Coke No Sugar*. In February 2020 Smith presented at the annual conference of the European Coca Cola All Hands meeting on how perception of sweetness can be modulated by other factors like viscosity and carbonation level (with the aim to reduce sugar content), following which he was recruited by Coca Cola UK to help on the execution of the local marketing campaign due to be rolled out at music festivals during 2020. (This is currently on hold because of Covid 19 (4)).

(v) **Kellogg**: in 2018, Smith was hired by a UK marketing consultant to bring her up to date on the science of taste and tasting. The consultant was also doing work for **Kellogg**, and subsequently recommended Smith to the company. Smith was invited by Product and Consumer Science Principal Scientist, Julie Adams, to the Battle Creek headquarters of Kellogg twice in 2020 for two full-day events working with the Pringles and other teams working on the development of flavours in protein bars. Smith delivered four technical presentations on sensory perception to over 60 R&D employees. Adams noted that Smith expanded 'our standard view of appearance, flavor, texture', which 'led to richer Food Briefs that teams use when setting the course for innovation development'. Moreover, the company has invited Smith to re-join the development teams in 2021 to consult on 'sensory and packaging research that we should be considering in the development of new products' (5).

Other clients: Smith has also worked as a sensory consultant for **Courvoisier** (2011), **Guinness** (2014), **Diageo** (2013-16.), **Mumm and Perrier Jouet** (2012), **Douwe Egberts** (2012) and **The Fat Duck** restaurant (2013), **Champagne Bureau, U.K.** (2014), **Berry Bros. and Rudd, St James** (2015), **Häagen-Dazs** (2016), **Heineken** (2017), **Mars Flavour Group** (2018), **Unilever**, **Bombay Sapphire**, and **Nespresso** (2017).

3. COMMISSIONED AND OTHER MEDIA WORK

As an established authority on taste and food, Smith regularly features in TV, radio, and print media, including as a flavour expert on the semi-final of **BBC One MasterChef** (2015). He has on several occasions been commissioned to produce content on the philosophy of wine and the senses. In 2014-15, Smith was invited six times by BBC producer James Cook to BBC Radio 4, **A History of Ideas** to cover topics including language, consciousness and sensory experience. On account of this work, Smith came to the attention of BBC's Commissioning Editor (now controller) Mohit Bakaya, who commissioned him to: (i) write and present a 10-part series on the philosophy and neuroscience of the senses for the BBC Radio 4, aired as **The Uncommon Senses** in 2017. The show was subsequently featured on Radio 4's 'Pick of the Week'; (ii) travel to Burgundy to profile a 1994 *Meo-Camuzet Vosne Romanee, Aux Brulee*, broadcast on BBC Radio 4 as **The Terroirs of Burgundy** on 3 November 2017; (iii) write and feature in BBC Radio 4's **The Art of Science and Blending**, on the blending of drinks and perfumes as a unique human act. This was picked up by Charlotte Runice in the *Daily Telegraph's* 'Radio Choice' section (22 April), and the episode on Tea (23 April) was selected for BBC Radio 4 'Pick of the Week' (28 April). Smith has also featured in a variety of media outlets, including over thirty articles on wine for **Prospect Magazine** (2011-2018), two pieces in the **Times Literary Supplement** (2016-17), and as a regular guest on **BBC Radio 4, Kitchen Cabinet** (2016-2020) and **BBC Two, Inside the Factory** (2016-2019). He was interviewed in **Under the Skin** podcast with Russell Brand (6 Jan 2018; close to 95,000 views on YouTube as of May 2020); **BBC World Service, The Food Chain** (25 Jan 2018); **BBC Radio 4, Origin of Stuff, 'The Wine Glass'** (26 June 2019); **BBC Radio 4, The Food Programme: Whisky Britannia** (29 Aug 2016); **RTE Radio 1, The Ray D'Arcy Show** (2 Dec 2015); **BBC Radio 5 Live Breakfast** (28 Aug 2016), and Horizon on **BBC 2, 'The Honest Supermarket'** (8 July 2019).

Smith's research at the **Centre for the Study of the Senses** (Censes) has also attracted the interest of journalists directly. For example, in **'Fine flavours: The unsuspected talents of your taste buds,' Andy Extance, New Scientist (5 Aug 2015)**, Extance describes his experience in a CenSes Lab experiment where he sampled with a nose clip two identical tomato sauce dishes with one variant, Kokumi. The article describes the new taste sensation that distinguishes them. In **'I Hate Mixing Foods and That's Actually Fine,' Ailbhe Malone, BuzzFeed (17 Sept 2016)**, BuzzFeed food reporter Malone confesses a lifelong distaste for mixing foods with different textures. She visits CenSes, where Smith gives her a strip indicating that she is a supertaster, and explains that what she had considered an abnormality was actually sensory acuteness and sensitivity to texture and touch.

5. Sources to corroborate the impact

- 1) *Fifth Sense*: testimonial from Prof Carl Philpott, Professor of Rhinology & Olfactology, UEA.
- 2) *GCCR/NHS*: testimonial from Prof Claire Hopkins, Professor of Rhinology, KCL.
- 3) *Cocoa Runners*: testimonial from Spencer Hyman, Partner & Co-founder, Navigator Commerce.
- 4) *Coca Cola*: testimonial from Sebastian Kroth, Brand Director, Western Europe.
- 5) *Kellogg*: testimonial from Julie Adams, Director, Product and Consumer Science.
- 6) *Not Always Caviar*: ['Flight secrets: Is this the one aeroplane sandwich that WON'T taste awful?'](#) by Beth Allcock (Daily Express) on Smith's collaboration with *Not Always Caviar* at Stansted Airport (13 March 2019)
- 7) *Sainsburys*: ['Wimbledon and Strawberries - Sainsbury's fruit and sparkling wine sales peak this week'](#), by Maisha Frost (Daily Express) on Smith's collaboration with Sainsbury's (13 July 2017).
- 8) *BBC Radio 4*, ['A History of Ideas: Barry Smith on the Philosophy of Good Taste'](#) (18 November 2014); ['The Art and Science of Blending'](#) (22-26 April 2019); ['The Origin of Stuff: The Wine Glass'](#) (26 June 2019).
- 9) *BBC Radio 4*: email from Mohit Bakaya and testimonial from James Cook, BBC.
- 10) *BBC World Service, The Food Chain*, ['Why we should all "smell train"'](#) (25 January 2018).