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## METAPHORICAL CONCEPTUALIZATION OF CANCER IN ENGLISH MEDICAL CREATIVE NONFICTION

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**Abstract.** The paper discusses the phenomenon of medical creative nonfiction, delineating the factors that engender demand for this type of literature, listing its types and identifying its main features. It highlights the importance of language choices in the presentation of medical facts, as creative nonfiction aims to be comprehensible, engaging and aesthetically pleasing. The paper further narrows down the topic to nonfiction about cancer and considers the use of metaphors as a means of conceptualizing this disease. It provides an analysis of metaphors in two bestsellers written by medical professionals: S. Mukherjee's "The Emperor of All Maladies: A Biography of Cancer" and J. Fung's "The Cancer Code: A Revolutionary New Understanding of a Medical Mystery." The methodological foundation for the analysis is the refined version of the Conceptual Metaphor Theory, supplemented by the Discourse Metaphor Theory (J. Zinken) and the Metaphoric Creativity Theory (Z. Kövecses). The authors reveal the main patterns of metaphor use in each book. The most common source domains utilized in both books are WAR, LIVING BEING, PLANT and SPACE, while JOURNEY, which is a highly recommended source domain for the conceptualization of cancer in contemporary discourses, is barely noticeable. The authors further identify creative metaphors, analyze their conceptual structure, and compare the use of metaphors in the two books to demonstrate the possibility of conceptual experimentation with the topic despite the pressure of discursive conventions.

**Key words:** medical nonfiction, creative medical nonfiction, cancer, cancer discourse, conceptual metaphor, metaphorical creativity.

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## МЕТАФОРИЧЕСКАЯ КОНЦЕПТУАЛИЗАЦИЯ РАКА В АНГЛОЯЗЫЧНОЙ ЛИТЕРАТУРЕ ЖАНРА «ХУДОЖЕСТВЕННЫЙ НОН-ФИКШН»

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**Аннотация.** В статье рассматривается феномен литературного жанра «медицинский художественный нон-фикшн». Определены факторы, способствующие формированию спроса на такую литературу; охарактеризованы его основные разновидности этого жанра. Обоснована важность выбора языковых средств для представления медицинских фактов, поскольку художественный нон-фикшн стремится не только донести

информацию простым и понятным языком, но и создать увлекательный и эстетически привлекательный нарратив. В фокусе исследования находится литература об онкологических заболеваниях. Объектом изучения стала метафора как средство концептуализации рака. Анализ проведен на материале двух бестселлеров, написанных профессиональными медиками: «Император всех болезней : Биография рака» С. Мукерджи и «Раковый код : Революция в понимании медицинской тайны» Дж. Фанга. Методологическим базисом исследования послужила современная версия теории концептуальной метафоры, дополненная теорией дискурсивной метафоры (Й. Зинкен) и теорией метафорической креативности (З. Кёвечеш). В статье выделены основные паттерны метафоризации в каждой из изучаемых книг. Показано, что к наиболее востребованным доменам-источникам относятся ВОЙНА, ЖИВОЕ СУЩЕСТВО, РАСТЕНИЕ и ПРОСТРАНСТВО, в то время как домен-источник ПУТЕШЕСТВИЕ, который активно рекомендуется как основа для осмысления рака в современных англоязычных дискурсах, представлен скудно. В статье установлены креативные метафоры и описана их концептуальная структура. В результате сравнительного анализа метафор, функционирующих в двух книгах, продемонстрировано, что работа в рамках одного жанра и привязка к определенной теме, как и наличие четких дискурсивных конвенций, не являются препятствием для индивидуального метафорического творчества.

**Ключевые слова:** медицинский нон-фикшн, художественный медицинский нон-фикшн, рак, онкодискурс, концептуальная метафора, метафорическая креативность.

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## Introduction

One of the most notable trends in the contemporary literature is the rise of creative nonfiction, which is alternatively termed literature of facts/reality, verfabula, documentary narrative, and literary journalism [Gutkind, 2024, pp. 9-10], the variety of names suggesting that the genre is still very much in the making.

Creative nonfiction is commonly defined as “fact-based writing that uses the techniques of fiction to bring its stories to life” [Singer, Walker (eds.), 2013, p. 2]. This definition successfully encapsulates the dual nature of the genre, which is sometimes referred to as “the creative territory at the intersection of the arts and sciences” [Evoking Illness..., 2016]. On the one hand, it aims to enlighten the public by providing scientifically sound and verifiable information, always remaining true to facts. On the other hand, it strives to be engaging and aesthetically pleasing. It breaks up with the conventions of dry and rigid scientific prose and highly formulaic journalistic texts to offer dramatic thought-provoking narratives that intrigue and move the reader.

Creative nonfiction lays special emphasis on the “craft of writing” [Gerard, 2004, p. 10], inviting all forms of experimentation with text structure, modes of expression, style and language. It “pushes boundaries and opens doors” [Gutkind,

2024, p. 2], welcoming spontaneity and imagination [Gutkind, 1997]. These features create unlimited research opportunities, enabling us to approach creative nonfiction from a variety of angles. The research presented in this paper is thematically narrowed down to medical nonfiction with a further focus on literature about cancer. The particular research interest is the use of metaphors, which are an indispensable tool in creating a narrative which appeals “not just to readers’ intellects but to their hearts and senses” [Singer, Walker (eds.), 2013, p. 3].

## Material and methods

This paper takes a look at one particular subtype of medical creative nonfiction about cancer, which can be termed narrative history. These books typically provide a chronological account of cancer research, tracing its history from the first mentions of the disease in ancient manuscripts to the most up-to-date developments.

For this research we have chosen two narrative histories of cancer: “The Emperor of All Maladies: A Biography of Cancer” by S. Mukherjee [Mukherjee, 2011] and “The Cancer Code: A Revolutionary New Understanding of a Medical Mystery” by J. Fung [Fung, 2020]. The choice is accounted for by the following factors: 1) both authors are qualified and practicing medical

professionals, who have a deep understanding of the subject; 2) the narratives follow a similar logic, which makes them comparable and accounts for some structural and linguistic similarities; 3) the books were published within the same decade, which means that they reflect discursive practices of the same period and are influenced by the same discursive trends; 4) both authors demonstrate linguistic mastery and creativity when it comes to describing their subject.

Our research exclusively focuses on the use of metaphors which serve as a means of conceptualizing cancer. This narrow focus is explained by the fact that metaphor is the brightest manifestation of literary mastery and is one of the main techniques that makes medical nonfiction truly creative.

Our research objectives are as follows: 1) to reveal the main patterns of metaphor use in each book by identifying the main groups of metaphors and ways of exploring their conceptual potential; 2) to identify creative metaphors and analyze their conceptual structure; 3) to compare the use of metaphors in the two books to reveal the possibility of conceptual experimentation despite the pressure of general discursive conventions.

The methodological foundation for this research is the Conceptual Metaphor Theory (CMT), which was pioneered by G. Lakoff and M. Johnson [Lakoff, Johnson 1980] and further developed and refined by Z. Kövecses [Kövecses, 2020], G. Steen [Steen, 2015], J. Zinken [Zinken, Hellsten, Nerlich, 2008] and others.

The basic tenet of the theory is that metaphor is not just a speech embellishment, but the main mechanism of cognition, which enables us to establish a systemic set of correspondences between two domains of experience [Kövecses, 2020, p. 1] and understand something new in terms of something already well-known.

While the CMT pioneers ignored the communicative dimensions of metaphors and exclusively focused on their conceptual features, contemporary theorists prioritize research into their real functioning in discourse. They look into ways metaphors are developed, modified and reinterpreted to serve the needs of a certain communicative act. Metaphor is seen as a dynamic phenomenon [Cameron, 2003] which is pluripotent [Kirmayer, 1992, p. 335]. The latter means that metaphor possesses remarkable

flexibility and is conceptually inexhaustible: it can always be used in new, unconventional ways to interpret and reinterpret our experience.

This new perspective has contributed to the emergence of several theories and ideas which are particularly relevant to our research. The first one is the Deliberate Metaphor Theory, which argues for the possibility of a deliberate effort in metaphor production and poses that a conceptual metaphor can be represented in discourse by a variety of linguistic structures, including those traditionally classified as similes (cf: *like a ghost*) and their morphological derivatives (cf: *ghostlike*), as well as analogies (see: [Steen, 2015]). The Deliberate Metaphor Theory is crucial for us, as a vast proportion of the metaphors that we analyze were introduced into the narrative consciously in order to promote a certain vision of cancer.

Another important recent development is the Discourse Metaphor Theory proposed by J. Zinken. Its central idea is that a metaphor can become the main means of framing a particular discourse at a certain period of time [Zinken, Hellsten, Nerlich, 2008, p. 241]. As a framing device, it imposes a definite conceptual logic on any piece of discourse and may eliminate the use of alternative metaphors. In our case, of particular interest are the CANCER IS WAR metaphor, which has been deliberately promoted in oncological discourses since the early 1970s, and the CANCER IS A JOURNEY metaphor, which has been the highly recommended substitute for military metaphors since the 2010s.

Elevation to the status of a discourse metaphor is rarely a natural process. As a rule, it is the result of a series of deliberate discourse interventions aimed at promoting a desirable vision of the subject. Thus, metaphor is an important tool in discourse construal and an indispensable means of sustaining certain ideologies. However, it can also be used “to disrupt prevalent thinking” and challenge “dominant cultures and practices” [Heracleos, Jacobs, 2011]. New metaphors do not only diversify, but destabilize the discourse, divert its flow and can thus serve as a driver of its development. Therefore, it is crucial to study not only standard, frequently occurring metaphors, which is often the case, but unconventional metaphors, even if they are not presented systemically.

On the other hand, we should never underestimate the cognitive and communicative potential of old metaphors. Multiple but fruitless attempts to eliminate the use of military imagery in cancer discourses have inspired scholars to reconsider their views on the concept of metaphor obsolescence. One cannot but agree with A. Wohlmann who maintains that metaphors “are precious resources that we can and need to work with rather than throw away” [Wohlmann, 2022, p. 1]. A metaphor can always be “repaired” or “repurposed” “in the spirit of upcycling.” We should always be ready for its “active reuse, maybe even creative misuse” [Wohlmann, 2022, p. 2]. By being conceptually thrifty we do not only “extend a metaphor’s longevity,” but “discover new value” [Wohlmann, 2022].

This new perspective distinctly echoes the idea of metaphorical creativity. According to Z. Kövecses [Kövecses, 2015], a creative metaphor does not have to present a principally new source domain. It can be based on a new mapping between conventional domains. As A. Wohlmann states, “generating new meanings from existing metaphors is a creative act” [Wohlmann, 2022, p. 176]. Kövecses further points out that creativity can even be exercised at the verbal level, when an old metaphor is presented with a new word. If we operationalize this broad definition of metaphorical creativity, we can see that no metaphor has to be “retired” [Wohlmann, 2022, p. 63] as it can always be rejuvenated to suit new communicative needs.

Guided by the above listed methodological principles, we used the continuous sampling technique to make up a corpus of metaphors from the two chosen books. We limited our selection to metaphors which are used to conceptualize cancer as a disease, ignoring those that cover other spheres (e.g., descriptions of the time period, activities of medical professionals, the general condition of the healthcare system, etc.). While utilizing the Metaphor Identification Procedure (MIP) [Pragglejaz Group, 2007], we also relied on intuition, whose importance is widely acknowledged by contemporary metaphor scholars (see: [Navarro i Ferrando (ed.), 2019]). It must be noted that the specificity of the genre we are dealing with consists in using a lot of documentary data, which inevitably leads to the inclusion of quoted metaphorical contexts from

political speeches, scientific research, newspaper articles and other sources. All these contexts are included in the sample as they are an integral part of the narrative and make up its metaphorical landscape.

To make the procedure more rigorous, each of the authors did the sampling independently, with the findings further compared and negotiated. The finalized sample for S. Mukherjee’s “The Emperor of All Maladies: A Biography of Cancer” included 274 contexts, while the sample for J. Fung’s “The Cancer Code: A Revolutionary New Understanding of a Medical Mystery” included 215 contexts. We use the term “context” very much in the spirit of E.F. Kittay, who introduced the notion of “a complete metaphorical utterance” [Kittay, 1987, p. 65] to denote a unit of discourse which is sufficient to identify a metaphor. A context may include several instantiations of the same metaphor and even incorporate other metaphors, which play a secondary role in the development of discourse.

Remarkably, if we count the frequency of cancer metaphors per page, we discover an additional highly relevant similarity between the two narratives, as the rounded mean for both is 0.8 metaphors per page. Metaphors were further classified into groups according to the source domain they present, and their conceptual and verbal features were subject to analysis. Metaphors dominating each narrative were identified. Finally, the two narratives were compared to reveal similarities and differences in the metaphorical conceptualization of cancer. We tend to believe that the equality of relevant metaphorical density makes the comparison of the data more revealing.

## Results and discussion

### *Metaphors of cancer*

#### *in “The Emperor of All Maladies:*

#### *A Biography of Cancer” by S. Mukherjee*

S. Mukherjee’s “The Emperor of All Maladies: A Biography of Cancer,” published in 2010, is an outstanding piece of creative nonfiction. It was awarded the Pulitzer Prize in 2011, was immediately included in the “All-Time 100 Nonfiction Books” by the *Time* magazine and has regularly appeared in various top-ten charts

of medical nonfiction ever since. Its best-seller status is due not only to the subject, which has always been of interest to the general public, and the human angle from which the history of cancer research is presented, but the rich and vivid language the author uses as well. His narrative is especially notable for masterly metaphor use. Mukherjee calls cancer *a disease of symbols* (p. 320), by which he primarily implies that seemingly unrelated events in cancer research can influence each other. However, symbolism permeates the language he uses to describe cancer itself. The importance of metaphor becomes instantly apparent from the name of the book, which personifies cancer by giving it a title (*emperor*) and life story (*biography*). Furthermore, the narrative itself suggests that the author possesses a remarkable metaphorical competence [Danesi, 1992] and uses metaphors with a great degree of deliberation. It can be confirmed by a copious use of metalinguistic comments and special markers, such as *metaphorically*, *to find a metaphorical analogue*, *to use Egan's vivid metaphor*, *the Laskerites' favorite metaphor*, *dreamy and visceral metaphor*, etc. Moreover, Mukherjee ponders on the use of some metaphors considering their "social benefits and social costs" [Mey, 2001]. For instance, he believes that the crusade metaphor for anticancer campaigns ideally suited the 1950s cancer discourse, as it successfully encapsulated the fanatical commitment that activists like Sidney Farber and Mary Lasker had to their cause (p. 90). In another context, he pinpoints the negative impact of the war metaphor, which can "whip up a froth of hype and hope" and lead to a catastrophe if the desired victory is never achieved (p. 142). He further questions its validity for cancer research, accusing it of neglecting the "colossal diversity" of the disease and presenting it as "a single, monolithic entity" – the enemy (p. 132). The latter observation is of particular value as it presents an angle which is absent in wide public discussions of the military metaphor. CANCER IS WAR seems to distort the scientific view of cancer, dangerously simplifying the picture.

From the start, we expected to find a wide range of military metaphors in Mukherjee's book, as it takes a chronological look at the history of cancer research and gives a detailed account of

the 20<sup>th</sup> century developments. Since the genre of the book is nonfiction and the author heavily relies on documentary sources, it is inevitable that he replicates the most influential discursive patterns of the period, the military metaphor being the most prominent of them.

Indeed, contexts with the CANCER IS WAR metaphor make up ≈50.7 per cent of our sample ( $n = 139$ ). A considerable proportion of them (14 contexts) are reproductions of the basic metaphorical "formula" "War on Cancer", the use of capital letters suggesting that it is a quote from the dominant political rhetoric of the time. Cf.: *Testifying before Congress in 1969, Watson had lambasted the War on Cancer as ludicrously premature* (p. 332). These examples are of little research interest, as are conventional phrases like *attack on cancer*, *battle against cancer*, *conquest of cancer*, *losing the war against cancer* and others. Alongside them, Mukherjee uses less common but still highly conventional metaphorical formulae like *confronting and annihilating cancer* and *obliterate cancer* (p. 59).

However, we can find some metaphors which can be deemed creative. Thus, following the conceptual logic of presenting cancer as an enemy, Mukherjee suggests a new metaphorical mapping focusing on the type of aggressive behavior and finding a new aspect of the source domain. The cancer cell becomes a *marauder*, as it does not only occupy the territory it is not entitled to, but steals somebody else's property. Cf.: *a marauding cell that crawled out of one's own body and occupied it from the inside* (p. 139).

Another noteworthy conceptual innovation is experimentation with the conventional idea that treatment methods are weapons. On the one hand, he suggests focusing on the properties of the weapons and describes them as *blunt* (p. 231). This descriptor immediately evokes the image of traditional cold steel weapons, rather than modern firearms. More efficiently than anything else it conveys the idea that scientists are using outmoded approaches and methods, which are doomed to failure in the war against such a potent enemy as cancer.

On the other hand, Mukherjee metaphorically aggregates anticancer weapons, presenting their sum total as *armamentarium* and *armada*. Cf.: *Before the 1980s, the armamentarium of*

*cancer therapy was largely built around two fundamental vulnerabilities of cancer cells* (p. 296); *As the armada of cytotoxic therapy readied itself for even more aggressive battles against cancer, a few dissenting voices began to be heard along its peripheries* (p. 158). While *armamentarium* can be seen as a substitute for the more traditional *arsenal* and suggests creativity at the verbal level, *armada* represents a truly conceptual innovation. It profiles the idea of a consolidated effort made by different forces to achieve a common goal. It is especially apt given the variety of approaches to cancer treatment and the need to carefully calculate the force of the impact.

One of the important points of Mukherjee's narrative is the nonlinearity of the progress in cancer research and treatment. He describes periods of stagnation and moments of important breakthroughs, as well as multiple mistakes and gridlocks. This narrative logic necessitates the use of conceptual and verbal means that would efficiently convey the idea of discontinuity. Staying within the military conceptual framework, Mukherjee creates the truce metaphor to refer to a period when the introduction of new treatment protocols won the scientists some time during which they were able to think of more efficient anticancer measures. Cf.: *Adjuvant chemotherapy and hormonal therapy were like truces declared in the battle – signs, merely, that a more aggressive attack was necessary* (p. 167). Discontinuity is also conveyed by the attack metaphor which is creatively represented with the predicate *charge on*: *So cancer medicine charged on, even if it meant relinquishing sanctity, sanity, or safety* (p. 167).

Another notable example of creativity at the verbal level is the context *She soldiered through the punishing regimen of high-dose chemotherapy and its multiple complications* (p. 239). The PATIENT IS A SOLDIER metaphor is commonly used within the military conceptual framework to refer either to patients who fight cancer or to medical professionals who maintain a united front in the battle against cancer. In this context, however, we have a verbal metaphor, which is unusual. By casting the metaphor in the syntactic role of the predicate, the author somewhat defocuses it, shifting our attention from the patient's agency to the impact of the therapy.

It should not escape notice that Mukherjee uses a number of metaphors rooted in mythology. He refers to two famous plots: the Trojan War and Beowulf. In the first case he exploits the popular theme of Achilles' vulnerability to describe cancer's susceptibility to treatment: *One could direct endless arrows at the Achilles' heel of cancer* (p. 324). In the second case, Mukherjee quotes a researcher who likens the scientists' attempt to conquer cancer to Beowulf's battle with Grendel (p. 264). This mythological touch correlates with the tendency to present anticancer efforts not just as a war, but as a crusade, which is mentioned in our sample seven times.

Interestingly, the prominence of the CANCER IS WAR metaphor in the narrative somewhat revitalizes the imagery that underlies very conventional medical terms. Chief among them is *invade* and its derivatives, which is now used to denote the kind of cancer that spreads from the original spot (*invasive cancer*). In Mukherjee's narrative the truly metaphorical and terminological uses are so intertwined that it is not always possible to differentiate between them. Cf.: *Cancer is an expansionist disease; it invades through tissues, sets up colonies in hostile landscapes, seeking "sanctuary" in one organ and then immigrating to another* (pp. 36-37) vs *To investigate the possibility of a brain invasion by cancer cells, Frei and Freireich looked directly at the spinal fluid using a spinal tap, a method to withdraw a few milliliters of fluid from the spinal canal using a thin, straight needle* (p. 112). A similar situation can be observed with the term *target* which is now used for special types of cancer therapy. The author reminds us of its original "military" meaning by putting it into contexts semantically dominated by the war metaphor. Cf.: *Even targeted therapy, then, was a cat-and-mouse game. < ... > We were locked in a perpetual battle with a volatile combatant* (p. 324); *Targeting these hyperactive genes, while sparing their modulated normal precursors, might be a novel means to attack cancer cells more discriminately* (p. 297).

In summary, it appears that popular speculations about the exhausted conceptual and communicative potential of the CANCER IS WAR metaphor in cancer discourse are groundless, and A. Wohlmann's ideas about the

possibility of active reuse of old metaphors and the need to treat them as precious resources are confirmed.

While CANCER IS WAR, which has been a discourse metaphor since the 1970s, is richly represented in Mukherjee's book, its more recent counterpart CANCER IS A JOURNEY is barely noticeable. Only  $\approx 1.8$  per cent of the contexts ( $n = 5$ ) in our sample contain this metaphor. Predictably, all of them refer to the process of cancer treatment and cure, in many cases representing the experiential perspective of the patient (see: [Nagornaya, Nwankwo, 2023]). Curiously, in three out of the five contexts cancer experience is described as a voyage, the type of journey which is long (Cf.: *a long journey, especially by sea or in space* [Oxford Advanced..., 2008]) and rather precarious, depending on the conditions a person is unable to predict or control. Cf.: *Ben Orman had been definitively cured of Hodgkin's lymphoma. It had not been an effortless voyage* (p. 291).

One context in this part of the sample is particularly remarkable as it unfolds a detailed journey scenario. Mukherjee provides an extensive quote from M.K. Jencks's essay "A View from the Front Line," in which she describes her experience of getting a cancer diagnosis as *being woken up midflight on a jumbo jet and then thrown out with a parachute into a foreign landscape without a map*". On this journey, she has neither a map nor a compass and lacks special training, while people who are supposed to guide her are unaware of the final destination (p. 243).

Mukherjee's own contribution to the promotion of the trendy CANCER IS A JOURNEY metaphor is very modest. Explicitly profiling the length of the cancer treatment, he presents the experience as *a marathon*: "It's going to be a long haul. **A marathon**," I stammered apologetically, groping for an analogy. "But we'll get to the end." (p. 117). He also considers another aspect of the scenario, the destination, completely depriving it of any positivity: *Orman epitomized the afterlife of cancer – eager to forget the clinic and its bleak rituals, like a bad trip to a foreign country* (p. 291).

A much better represented metaphor in the sample is CANCER IS A LIVING BEING ( $n = 70$ ,  $\approx 25.5$  per cent). As noted above, this

metaphorical perspective is established in the title of the book, in which cancer is explicitly anthropomorphized. Mukherjee confesses that he originally opted for a much more neutral title, intending to write a *history* of cancer. However, the deeper he delved into the topic, the stronger he felt the *metaphorical seduction* (p. 37) to personify cancer, to give it a biography. Cancer has a *personality* (pp. 118, 122) rather than "characteristics"; each of its numerous types has its own *temperament* (p. 122) rather than "diagnostic signs"; cancer *behaves* (pp. 122, 217, 224, 282, 284, 289, 331, 334) rather than "manifests itself". He describes cancer as an *individual* that is *enigmatic, deranged* (p. 37), *capricious* (p. 120), *uninhibited* (p. 159), *doggedly recalcitrant* (p. 240). Cancer is *a desperate individualist* and *a nonconformist* (p. 36). It is capable of performing deliberate, well-planned and ill-intended actions, such as *stripping people of identity* (p. 13), *disobeying* (p. 49), *gripping patients* (p. 95), *shrugging off new drugs* (p. 118), *sneaking up on people* (p. 122), *feasting and feting* (p. 275), *humiliating patients and sentencing them to death* (p. 342), acting as a *thief* (p. 192), etc. It has very distinct human morphological features, leaving *fingerprints* in history and having *eyes* (p. 39) people can look in. Moreover, cancer acquires human physiology becoming capable of being *born, dying, starving*, etc. Cf.: *If prostate cancer could be starved to near-death by choking off testosterone, then could hormonal deprivation be applied to starve another hormone-dependent cancer?* (p. 160). Experimenting with anthropomorphization, Mukherjee resorts to what can be termed grammatical metaphor, deliberately playing with the category of animacy. Cf.: *But it felt, inescapably, as if I were writing not about something but about someone* (p. 37). Surprisingly, though, he never elaborates the superior status perspective that he gives in the title by calling cancer *emperor*.

At the same time, Mukherjee utilizes two more metaphoric tactics within the general personification strategy. On the one hand, he zoomorphizes cancer. This conceptual maneuver is prompted by the very name of the disease, which, as is well known, was called after a respective crustacean it begins to resemble when

metastasizing. Cf.: *Crablike and constantly mobile, it could burrow through invisible channels from one organ to another* (p. 64). Alongside this evident metaphoric development, Mukherjee offers a more creative image of cancer as a snake-pit, profiling the idea of danger that the disease poses and, at the same time, realizing the affective dimension of the zoological metaphor by referring to the creature that traditionally causes awe and aversion. Cf.: *It was a snake-pit – only of cancer, a seething, immersed box coiled with illness, hope, and desperation* (p. 96). Studying the nature of cancer, scientists can clearly identify its animal features: *Biologists looking directly into cancer's maw now recognized that roiling beneath the incredible heterogeneity of cancer were behaviors, genes, and pathways* (p. 284).

On the other hand, Mukherjee presents cancer as a different kind of species, which is neither human nor animal. He means to profile its otherness, continually pointing out the feature that makes it truly unique: relentless and adamant strife for survival. Cf.: *To confront cancer is to encounter a parallel species, one perhaps more adapted to survival than even we are* (pp. 36-37). Calling it *an internal alien* (p. 139), he reminds the reader that it is generated by the body itself, and this genetic inseparability gives rise to two similar but different metaphors. At the cellular level, cancer can be conceptualized as a twin, with a focus on the genetic kinship between benign and malignant cells. Cf.: *Perhaps cancer, the scrappy, fecund, invasive, adaptable twin to our own scrappy, fecund, invasive, adaptable cells and genes, is impossible to disconnect from our bodies* (p. 338). However, at a more general and partly metaphysical level, it is presented as our doppelgänger, a sinister ghostly creature that replicates our appearance but is totally alien to us. Cf.: *This image – of cancer as our desperate, malevolent, contemporary doppelgänger – is so haunting because it is at least partly true* (p. 37). The ability of cancer to behave like a ghost, haunting both our bodies and our imagination, is mentioned in the narrative several times. Cf.: *cancer haunted them generation upon generation, appearing and reappearing in parents, children, and grandchildren* (p. 276). The metaphysical character of cancer as a creature is also reflected

in the metaphor of incarnation, which appears in the narrative thrice. Cf.: *For an oncologist in training, too, leukemia represents a special incarnation of cancer* (p. 12). This incarnation can be diabolic, *ghoulish* (p. 139).

The next group of metaphors, made up of 7 contexts (≈2.8 per cent), is CANCER IS A PLANT. Paradoxically, this image is largely inspired by the term *radical*, which is used in reference to a surgical protocol and is interpreted etymologically as *uprooting*. Cf.: *...The word radical was a seductive conceptual trap. Halsted had used it in the Latin sense of "root" because his operation was meant to dig out the buried, subterranean roots of cancer* (p. 58). Such examples do not only confirm the old observation that any language is "a graveyard of dead metaphors" (see: [Kövecses, 2020, p. 23]), but demonstrate the possibility of their resuscitation, creative reuse and repurposing [Wohlmann, 2022, p. 1]. In this particular case, the reuse was highly manipulative, as advocates of the radical surgical protocols justified the unnecessary damage inflicted on the patients' bodies and unbearable sufferings associated with it. Once the conceptual framework for the plant imagery is established, it opens up possibilities for other mappings to be presented. A particularly interesting example is the context, in which the terminal stage of cancer is conceptualized as the blossoming of a plant: *Cancer had reached its full, lethal bloom that month* (p. 290).

So far, we have discussed metaphors which are common in cancer discourse and considered their creative variations. However, Mukherjee uses a number of conceptual forms which possess a higher degree of originality. Among them is the spatial interpretation of cancer, which is presented in 18 contexts (≈6.6 per cent of the sample). The quintessentially spatial metaphor is *Cancerland* (p. 82), which demonstrates the ludic aspect of metaphor use, at the same time emphasizing the vastness of cancer as a research object.

The most prominent metaphor, however, is CANCER IS A LANDSCAPE. Cf.: *By the autumn of 1968 <...> the landscape of cancer witnessed a seismic shift* (p. 131). The landscape metaphor has at least two distinct conceptual benefits. Firstly, it successfully conveys the idea of the complexity of cancer as a disease, lack of



uniformity and, consequently, impossibility of universal, silver bullet solutions. Secondly, it profiles the importance of the vantage point: the vision of cancer depends on the stance a researcher takes, and a “panoramic view” is hardly attainable. In one of the contexts, Mukherjee explicitly uses the term *geological metaphor* to describe a research project aimed at getting a comprehensive picture of cancer forms. To follow the logic of the proposed metaphor, he calls this process *charting the entire territory of cancer* (p. 329).

Notably, Mukherjee does not only stress the wide variability of the already discovered cancer forms, but also predicts its further expansion. This conceptual perspective is set by the use of the metaphor CANCER IS A UNIVERSE, cf: *the bizarre, cavitory universe of cancer* (p. 116). A “cosmic” view of cancer invites experimentation with different astrophysical notions. Mukherjee, for instance, describes cancer as possessing a *gravitational tug* and following a certain *orbit* (p. 13). It must be stressed, though, that the author uses this group of metaphors only when he speaks about cancer as a research issue.

When it comes to the biology of cancer, Mukherjee pays special attention to the speed at which cancer cells grow. He offers a rather unusual metaphor CANCER IS AN EXPLOSION, which is represented in 7 contexts (≈4.7 per cent of the sample). Primarily focusing on the speed, this metaphor also profiles unpredictability of cancer and the destructive impact it has on the patient’s body. Cf.: *Cancer, even when it begins locally, is inevitably waiting to explode out of its confinement* (p. 64).

An alternative metaphor, which specializes in presenting the biology of cancer and is presented fairly systemically, is CANCER IS A MACHINE ( $n = 7$ , 2.6 per cent of the sample). Mukherjee resorts to it when he describes the ability of the cancer cell to divide endlessly, with a mechanical tirelessness which contradicts the laws of nature and is unusual even for mechanisms. Cf.: *Cancer is that **machine** unable to quench its initial command (to grow) and thus transformed into an indestructible, self-propelled automaton* (p. 36). Uncontrollable growth is further conceptualized as a breakdown: *The cancer cell was a broken, deranged **machine*** (p. 276). Mukherjee offers more specific mechanical images

as well, presenting the cancer cell as *a malevolent pinwheel* (p. 147), a car with a *jammed accelerator* or *missing brakes* (p. 269). At the onset of cancer, the afflicted organ turns into a *factory in overdrive, a deranged manufacturing unit for cancer cells* (p. 29).

The rest of the metaphors in the sample (5.3 per cent) are isolated examples, among which are such metaphors as CANCER IS CHAOS, CANCER IS A PRISON, CANCER IS DARKNESS, CANCER IS A FLAW and others. Of particular note here is the language metaphor, that profiles logic and systematicity in cancer development, and even a certain aesthetics which natural languages typically possess. Cf.: *The language of cancer is grammatical, methodical, and even – I hesitate to write – quite beautiful* (p. 331).

#### *Metaphors of cancer in J. Fung’s “The Cancer Code: A Revolutionary New Understanding of a Medical Mystery”*

J. Fung is a Canadian nephrologist and specialist in functional medicine. He is an experienced writer who has authored seven medical nonfiction books. The book we are considering in this paper is part of a series that discloses the biological nature of common health conditions: diabetes, obesity and cancer. Unlike Mukherjee’s bestseller, it has not won any awards but is regularly included in top ten cancer nonfiction lists.

What catches attention is that although Fung demonstrates remarkable mastery in the use of metaphors, he does not explicitly mark them. The only metalinguistic comments to be found in the narrative are *Consider this analogy* (p. 201) and *Consider another analogy* (p. 95). Neither does the author reflect on the use of metaphors, which is another point of difference with Mukherjee’s book. Fung seems to have taken a much more utilitarian approach to metaphors, using them as “problem solving tools” [Hidalgo-Downing, Kraljevic Mujic, 2020, p. 6] whenever he wants to eliminate the barrier between specialist and lay knowledge and explain difficult concepts.

Following the order in which metaphors were analyzed in the previous section, we will start with the metaphor CANCER IS WAR, which is

presented in 70 contexts (≈32.6 per cent of the sample). Just like in S. Mukherjee's narrative, alongside highly conventional metaphors like *winning the war on cancer*, *weapons to defeat cancer*, *to prevent and fight cancer*, *battle against cancer*, etc., there are a number of creative forms. The most notable of them pertains to cancer treatment. In line with the general conceptual logic of the war metaphor, which prompts the use of weapon imagery for such situations, Fung comes up with a new metaphor for chemotherapy. Considering its indiscriminate character, enormous destructive potential for the whole body and prolonged aftereffects, he metaphorizes it as *carpet bombing* (pp. 69, 266). The novelty of the metaphor, as well as its deliberate use, is proved by the fact that its first occurrence in the narrative is explicitly marked as a conceptual experiment. Cf.: *If chemo could be considered a kind of carpet bombing...* (p. 69). Furthermore, the creative metaphor CHEMOTHERAPY IS CARPET BOMBING makes up a conceptual backdrop against which another metaphor is effectively construed. The author introduces the image of a *smart bomb* to refer to new target therapy. As *smart* is an acronym for **s**pecific, **m**easurable, **a**ssignable, **r**ealistic and **t**ime related, it successfully conveys the idea of precision and, additionally, reinforces the semantics of unnecessary violence that the *carpet bombing* carries. Fung appears to be an ardent advocate of target therapy, constantly reminding the readers about its apparent advantages and calling it a *precision-guided missile* (p. 262). Another conceptual maneuver that throws its benefits into sharp relief is referring to older treatment methods as *the trench warfare of World War I*, which infamously *dragged on without noticeable progress*, and *the bodies piled up* (p. 14). Reference to this well-known historical event conjures up a complex affectively charged scenario, which makes a profound impression on the reader. In a similar vein, J. Fung refers to a fictional scenario to evoke a complex set of associations and emotions in the reader: *Cancer is like the postapocalyptic world of Mad Max, where small bands of people fight one another for resources* (p. 129).

A much less specific scenario, which is repeatedly used in the book, is the conquest of a new territory. J. Fung resorts to it to describe the

process of metastasizing, constantly enriching it with new details. Cancer cells advance slowly, aiming to *gain a foothold* (p. 211) on *distant shores* and avoid being *slaughtered* (p. 212). Their goal is strategic; they intend not just to invade a new territory, set up an *outpost* (p. 221) and *survive on the hostile shores* (p. 212), but to *settle* (p. 214) there, find a *safe harbor* (p. 212), to fully own the new land.

One more notable innovation within the general military frame is the metaphor CANCER TREATMENT IS A VENDETTA. Cf.: *Nobel laureate Dr. James Allison harbored a deep personal vendetta against cancer; having lost his mother to lymphoma, his uncle to lung cancer, and his brother to prostate cancer* (p. 260). This metaphor conveys the idea of a very local conflict, driven by personal and highly emotional motives. It seems like a perfect means of denoting an individual endeavor, which cancer research history is so rich in.

While heavily relying on the war metaphor, J. Fung also offers its "lightened" version, CANCER IS A COMPETITION. Although it retains the semantics of opposition, the competition metaphor is much less violent and actively profiles the importance of strategic thinking. The total number of relevant contexts is 7 (≈3.3 per cent of the sample). In some cases, Fung explicitly refers to the domain of sport to highlight the qualities and physical capabilities that cancer seems to possess. Cf.: *Cancer plays chess, an everchanging, constantly evolving, strategic game* (p. 139). In other contexts, the author mentions an important feature of a certain sport and leaves it up to the reader to build up the whole picture. Thus, in the context below, the reader can easily imagine a boxing match with cancer as the winning opponent: *Cancer was delivering punishing uppercuts to our face, and we had managed only to tousle its fancy hairdo* (p. 14). Besides, Fung experiments with the idea of status in sport, for instance, calling breast cancer *a major-league cancer* (p. 70).

One context here stands out as the competitive opposition is described through reference to a famous literary plot: *Cancer is playing a cellular Game of Thrones. You win or you die* (p. 204). The predicate *play*, which belongs to the sports and games domain, clashes with the violence conveyed in the second sentence

of the context. Its use was obviously inspired by the word *game* rather than by the features of the struggle that is being alluded to.

As for the metaphor **CANCER IS A JOURNEY**, it can be found in 14 contexts ( $\approx 6.5$  per cent). However, the angle it presents is quite different from the one usually conveyed by this metaphor. Instead of presenting the experiential perspective of the cancer patient, Fung's journey metaphor highlights the behavior of cancer cells. It appears most relevant to cancer metastasis, which is described as a *traumatic journey* to the *distant shores of a foreign organ* (p. 208), a *travel* along a *highway to distant sites* (p. 207), *following a guided path rather than a random walk* (p. 147), a *circulation like a raft adrift in the ocean* (p. 220).

The next group of metaphors, which is the most prominent in the sample, is **CANCER IS A LIVING BEING**, presented in 71 contexts ( $\approx 33$  per cent of the sample). Here J. Fung uses basically the same strategies as S. Mukherjee, presenting cancer as a human being, an animal, and an alien species, and the same tactics, highlighting specific features of human and animal behavior that can be attributed to cancer. Cf.: *Again, cancer is like a crab, sending invisible microscopic pincers out into adjoining tissue* (p. 23). What merits attention, however, is the choice of imagery within the zoomorphization strategy, which is not very common. Among the most intriguing examples here are the camel metaphor, which is used to describe cancer's insatiability, and a most unusual locust metaphor, which successfully conveys the idea of cancer's vitality and indestructability. Cf.: *Because glycolysis generates much less ATP per glucose, cancer cells must drink up glucose like a camel drinks water after a long desert trek* (p. 198); *Suppose you spray one billion locusts with pesticide to reduce that population by 99.9 percent to one million. Those one million remaining locusts now have no competition for food and begin to expand their population exponentially. Eventually, you end up with a billion pesticide resistant locusts. Cancer cells are no different. You can kill 99.9 percent of cancer cells with chemotherapy, but those surviving cells face reduced competition and therefore plenty of resources to thrive. Also, the new population of cancer cells will be treatment-resistant* (p. 266).

However, there are a number of original conceptual suggestions. For instance, Fung describes the cancer cell not as an isolated individual, but as part of a community that refuses to follow generally accepted rules. Its anti-social behavior mostly manifests itself in refusal to cooperate. Cf.: *Cancer is the breakdown of multicellular cooperation* (p. 130). Fung offers some very detailed and vivid metaphorical scenarios to demonstrate cancer's destructive individualism. Of particular note is the following context in which cancer is explicitly anthropomorphized: *Cancer is the guy who deliberately drives his pickup truck over his neighbor's lawn. Competition can involve making yourself better or making your competitors worse. Both strategies work. Welcome to the jungle. As in a society, cells in a multicellular organism must be good neighbors. Multicellular organisms must maintain the extracellular environment (called the extracellular matrix) so as not to harm their neighbors. Normal liver cells, for example, cannot simply dump their waste next door into the lung's backyard. Normal breast cells can't start destroying neighboring skin cells* (p. 125).

Another interesting innovation within this group of metaphors is the presentation of cancer as a prodigal son: *These prodigal sons of cancer return to settle back in their ancestral home, which provides them a have* (p. 212). The use of the well-known biblical plot enables the author to enliven and simplify the complex notion of cancer cell circulation and, at the same time, bring home to the reader the errant logic of cancer metastasis. In another context, Fung refers to cancer as a *delinquent child* (p. 82). This time, however, he does not focus on cancer's antisocial behavior as such, referring instead to insufficient attention given to cancer research and lack of evident progress in its study.

Finally, J. Fung evinces creativity in finding effective similes exploiting popular plots to describe the features of cancer in a compact and vivid way: *We thought cancer was crazy, like the Joker, when it is actually more akin to Lex Luthor: wickedly smart* (p. 114).

A surprisingly high proportion of metaphors in the Fung sample belongs to the **CANCER IS A PLANT** type ( $n = 32$ ,  $\approx 14.9$  per cent). Fung

explicitly mentions the authorship of the metaphor, which belongs to Stephen Paget (p. 107), and links its popularity to the radical procedure pioneered by W. Halsted (p. 23). While most of the contexts metaphorically present cancer as a seed ( $n = 21$ ), Fung also describes it as a full-grown plant. In one context, he deliberately chooses the type of plant which is deemed useless, undesirable and uncontrollable, and which is, basically, a side effect of intentional and successful farming – a weed: *Feeding cancer lots of vitamins is like sprinkling fertilizer onto an empty field in the hope of getting a nice, lush lawn. You want the grass to grow, but the **weeds**, being the fastest-growing plants in the field, also take up the nutrients and grow like... well, **weeds**. When vital nutrients like beta-carotene are available in large doses, cancer cells are highly active and grow like **weeds*** (p. 165). In two other contexts cancer is presented as a tree. This image is completely devoid of negativity, mostly profiling the strength of cancer and its ability to survive against all odds. Cf: *Think about a **tree**. You can cut it down with a single ax blow aimed at the **trunk**, but it's difficult to chop through it. If you remove side **branches**, you won't likely impede the **tree's** overall growth, because you are pruning the **tree** rather than cutting it down. Cancer is the same. The **trunk** is usually too tough to cut, and targeting hundreds of small side **branches** is inefficient* (p. 137).

However, the high relevance of the plant metaphor to J. Fung is accounted for by a different factor. A proponent of functional medicine and advocate of holism, Fung draws the reader's attention to the condition of the human body that metaphorically serves as a fertile soil that enables the cancer seed to grow and the cancer plant to flourish. As he emphasizes, ***cancer seeds** are everywhere, but they are irrelevant without fertile soil* (p. 219). Stressing the importance of the soil in 12 contexts, Fung demonstrates the possibilities for expanding the conventional metaphor, smoothly and seamlessly incorporating new meanings in familiar and well-tested conceptual forms.

The remaining 9.7 per cent of the sample are isolated examples which include such

metaphors as *CANCER IS CHAOS*, *CANCER IS A GENETIC LOTTERY*, *CANCER IS A MISTAKE*, *CANCER IS A CHANGELING*, etc. Of special note are two contexts. In one of them cancer is presented as a work of art, a metaphor which gives credit to cancer's unique features which give it outstanding vitality: *Evolution has worked at cancer like a sculptor works at stone, designing, chiseling, rounding, edging, and perfecting its survival genes. Gradually, the finished piece emerges: a lethal work of art* (p. 157). The other one is a quintessentially visual metaphor which efficiently conveys the idea of cancer's exponential growth in the body, simultaneously profiling the idea of its otherness: *The cancer grows larger, like a drop of red wine on a white tablecloth* (p. 209).

#### Comparison of cancer metaphors in S. Mukherjee's and J. Fang's books

Despite the common topic and considerable similarities in the narrative logic, S. Mukherjee and J. Fung demonstrate significantly different approaches to the metaphorical conceptualization of cancer. The relevant metaphors and their distribution can be seen in the Table below.

As can be seen from the table, both authors prioritize the war and personification metaphors. While the use of the war metaphors is largely inspired by the historical contexts that both authors recount, personification metaphors reflect a more ancient conceptual tradition and seem to give the authors more freedom in describing cancer itself, rather than the attitude to it. It is noteworthy that both authors evince remarkable metaphorical creativity finding new ways of presenting the war metaphor and thus proving that it still has a lot of conceptual potential. At the same time, neither of the authors seems enthusiastic about the use of the trendy metaphor *CANCER IS A JOURNEY*, which is being aggressively promoted in English cancer discourses.

What merits a special comment is the higher degree of systematicity in metaphor use in Mukherjee's text, which has only 5.3 percent of isolated metaphors compared to 9.7 in Fung's narrative.

**Distribution of conceptual metaphors in the texts under study (in percent)**

Conceptual metaphor	S. Mukherjee	J. Fung
CANCER IS WAR	50.7	32.6
CANCER IS A COMPETITION	0	3.3
CANCER IS A JOURNEY	1.8	6.5
CANCER IS A LIVING BEING	25.5	33
CANCER IS A PLANT	2.8	14.9
CANCER IS SPACE	6.6	0
CANCER IS AN EXPLOSION	4.7	0
CANCER IS A MACHINE	2.6	0
Miscellaneous	5.3	9.7
<i>Total</i>	<i>100</i>	<i>100</i>

**Conclusion**

Creative nonfiction about cancer utilizes conceptual metaphors to explain the biology of cancer, present it as a subject of scientific scrutiny and describe the impact it has on human lives. As part of a much larger domain of cancer discourse, creative nonfiction largely conforms to the discursive and conceptual conventions that permeate public discussions of cancer. However, writers working within this genre may bend metaphorical conventions modifying discourse metaphors and introducing new conceptual forms. Our analysis revealed pronounced discrepancies in metaphor use between the two authors under study notwithstanding the same sociocultural context of text creation and equal metaphorical density of their narratives. While S. Mukherjee systemically utilizes 7 source domains (WAR, LIVING BEING, SPACE, EXPLOSION, MACHINE, PLANT and JOURNEY), J. Fung uses 5 source domains (WAR, LIVING BEING, PLANT, JOURNEY and COMPETITION). Whereas Mukherjee demonstrates a remarkable loyalty to the dominant discourse metaphor CANCER IS WAR (50.7 per cent of contexts), J. Fung only uses it in 32.6 per cent of the contexts, showing a preference for the CANCER IS A PLANT METAPHOR (33 per cent of contexts). At the same time, Fung demonstrates a stronger inclination toward metaphorical creativity presenting isolated metaphors in 9.7 per cent of contexts against Mukherjee's 5.3 per cent. Another important difference is that S. Mukherjee seems to possess a higher metaphorical competence, marking metaphors linguistically 40 times in the text and pondering on their use, while Fung refrains from any comments. Our analysis proves that despite the pressure of general discursive conventions pertaining to the representation of cancer, the genre

of creative nonfiction gives writers an ample space for conceptual and verbal experimentation.

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