

# The “vaccine race”: Metaphorical conceptualizations of the search of an immunization against Covid-19

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## ABSTRACT

Metaphors have been shown to be paramount in health communication in the light of their capacity to make concepts more concrete and, consequently, simple. In the wake of the #ReframeCovid initiative (2020) and similar researches, which highlighted the ubiquity and relevance of figurative language during the coronavirus pandemic, this paper aims at providing a qualitative analysis of metaphors in mass media content with respect to the search of a coronavirus vaccine. The analysis was conducted from a contrastive perspective in Italian, English, German, and Russian. It pinpoints the most frequent source domains of such metaphors and provides an overview of the contexts in which they are used, i.e. the aspects of this phenomenon they frame, through practical examples. Finally, some considerations are made with respect to issues connected to the use of some of these metaphors, also from the translational viewpoint.

## KEYWORDS

Conceptual metaphors, health communication, coronavirus vaccine, mass media content

## 1. INTRODUCTION

The Covid-19 health crisis, an unprecedented event in contemporary history, is having an immeasurable impact on our lives and has highlighted the importance of effective communication. Health communication, however, raises several critical points in normal settings, let alone during a pandemic. Many definitions have been provided for the concept of health communication ever since it gained importance, starting from the 70's – when it reached the status of an independent academic field in the English-speaking areas. One of the most fitting ones is the following: health communication refers to the “conveyance and exchange of knowledge, experience, opinions and emotions which concern health or illness, prevention or treatment, health economics or politics” (Baumann & Hurrelmann 2014: 13, my translation). According to Signitzer (2001), it may be divided into four levels: (1) intrapersonal communication, (2) interpersonal communication (doctor-patient communication), (3) organizational communication (e.g. hospital press releases), (4) mass media or social communication (e.g. medicine journalism, communication campaigns, and TV series regarding medical topics). The present study focuses on this last level.

Information about Covid-19 has been ubiquitous in mass media ever since the beginning of the pandemic, so much that the term “infodemic”, coined during the SARS outbreak in 2003, has gained popularity. This neologism, a portmanteau of the words “information” and “epidemic”, is defined as “a rapid and far-reaching spread of both accurate and inaccurate information about something, such as a disease” (Merriam Webster 2020). Indeed, it is not at all easy to convey proper information about such topics. In this respect, an important role is played, among others, by figurative language.

### 1.1. METAPHORS IN HEALTH COMMUNICATION

The claim that figurative language may help the general public gain an insight into complex subjects like the current pandemic becomes clear if one considers that

[m]etaphors involve talking and thinking about one thing in terms of another, on the basis of perceived similarities or correspondences between them. As such, we use them to make sense of and communicate about new, complex, abstract and sensitive experiences in terms of more familiar, simpler and intersubjectively accessible ones (Semino 2020).

Ortony (1979), in his pre-cognitive view, had already rejected the non-constructivist perspective, which regarded metaphors as mere decorative means, and started considering them as a way to explain abstract and at times also obscure concepts (Colacci 2018: 40). In their well-known Conceptual Metaphor Theory, La-

koff and Johnson (1980: 5) went as far as to state that “the essence of metaphor is understanding and *experiencing* one kind of thing in terms of another” (my italics). Their whole hypothesis, which marked the beginning of modern considerations about metaphors and figurative language from a cognitive point of view,<sup>1</sup> is based on the assumption that “metaphor is pervasive in everyday life, not just in language but in thought and action” (ibid. 3) – as suggested already by the title of their book *Metaphors We Live By*. To provide an even clearer explanation of this theory, “[c]onceptual metaphors are defined as systematic sets of correspondences, or ‘mappings’, across conceptual domains, whereby a ‘target’ domain (e.g. our knowledge about arguments) is partly structured in terms of a different ‘source’ domain (e.g. our knowledge about war)”<sup>2</sup> (Semino 2008: 5). Other similar terms frequently occurring in metaphor studies and first introduced by Richards in *The Philosophy of Rhetoric* (1936) are “tenor” and “vehicle”:<sup>3</sup> the former refers to the concept, object, or person meant, while the latter is the image that actually “carries” the metaphor.

The use of metaphors and, in general, of figurative language is no occasional phenomenon in health communication, as may be inferred from the following excerpt from a paper written by medical experts:

In health communication, non literal meanings play an important role as they frame patient’s [sic] experience of illness, (positively or negatively) influencing their perception of therapy or even of themselves as individuals. [...] Metaphor is indeed a useful device to grasp an unknown (target) concept by using a known (source) concept, thus naming and explaining a phenomenon, i.e. illness, which otherwise would remain unintelligible, obscure (Ervás et al. 2016: 92).

This field has been widely explored by several linguists and scholars, such as Magris (2009; 2021) and Semino. The latter focused many of her studies on metaphors referring to cancer and end-of-life care (see for instance Semino, Heywood & Short [2004], Potts & Semino [2017], Demjen et al. [2016], and Semino et al. [2018]). Magris, instead, studied metaphors in the popularization of science, as they are a means to make complex technical terms and concepts comprehensible to a non-expert audience (cf. also Niederhauser 1999: 217-219), as well as in vaccination campaigns, where beside their explicative role they also have a persuasive function.

- 1 *Metaphors We Live By* may be regarded as “the foundation text for a new, ‘cognitively’ oriented theory of meaning” (Musolf 2012: 302).
- 2 The example refers to the ARGUMENT IS WAR metaphor, highlighted by Lakoff and Johnson in their book in order to clarify the influence that conceptual metaphors have on our everyday life. According to them, not only do we often use expressions which belong to this field (such as “indefensible claims”, “attack weak points”, “demolish arguments”, “win an argument”, “shoot down someone’s arguments”), but “many of the things we do in arguing are partially structured by the concept of war” (Lakoff & Johnson 1980: 4).
- 3 Some decades later, Black (1962) also talks about “topic” and “vehicle”.

## 1.2. METAPHORS AND COVID-19

Metaphors are a prominent feature in the pandemic discourse. This did not go unnoticed, and many researches have been recently devoted to this topic. Some examples are the studies carried out by Spina (2020), Semino (2020), Olšvang (2021), Komatsubara (2021), Signorini & Neves de Brito (2021), Musolff (2021), and Liu & Lu (2021). Furthermore, an interesting initiative concerning metaphors which deal with the pandemic is #ReframeCovid (2020), a collection of metaphors in several languages which attempts at providing the public with source domains to conceptualize Covid-19 that differ from the ones referring to *WAR*. As a matter of fact, it has been shown that a considerable number of metaphors used in discourse regarding the pandemic stem from the military field. Such conceptualizations occur in several contexts: according to Antonelli (cf. Forderi 2020), military metaphors have been used mainly by politicians in order to draw people's attention to the ongoing emergency and thus justify the measures to be taken and sacrifices to be made. However, this raises many critical points, as highlighted by Semino:

[w]ar metaphors, which were widely used at the start of the pandemic, have been criticised for inappropriately personifying the virus as a malevolent opponent, creating unnecessary anxiety, dangerously legitimising authoritarian governmental measures, and implying that those to die did not fight hard enough.<sup>4</sup> Research has shown that war metaphors can actually be useful in some contexts (for example, to convey the need for urgent collective effort), but they can also discourage self-limiting behaviours, such as refraining from our usual activities and just staying home (Semino 2020).

## 1.3. ANALYZED MATERIAL

In the light of the major role played by metaphors in the pandemic discourse, I decided to focus on a specific subfield which has not been widely explored yet, i.e. mass media content concerning the attempts to produce a coronavirus vaccine. For this purpose, mostly articles – but, in limited cases, also online videos of TV channels and podcasts – dating from the beginning of the pandemic until January 2021 were analyzed. The languages examined are Italian, English, German, and Russian.<sup>5</sup> Since metaphorical conceptualizations often pervade illustrations, as well, the analysis will be multimodal and include them, too – as do many other metaphor studies, like the aforementioned initiative #ReframeCovid.

4 The same was observed with respect to cancer and end-of-life care, which, according to some scholars, should not be discussed in military terms (cf. Miller 2010: 20; Semino, Demjen & Demmen 2018).

5 Short phrases were transliterated according to the scientific transliteration of Cyrillic, while longer excerpts were translated altogether, so as not to limit their interest to the field of Slavonic studies.

## 2. SOURCE DOMAINS

Some of the most significant metaphors identified will be listed below and categorized according to their source domain: *inter alia* races in general, horse and car races, hunting, strategy games, gambling, journey, war, mythology and folklore, as well as historical events.

### 2.1. RACES



“Welches Forscherteam macht das Rennen?” in *ZDFheute* (2020)

The most frequent conceptualization undoubtedly sees the SEARCH OF A VACCINE in terms of a RACE: this is shown clearly by noun phrases such as “corsa al vaccino” or “corsa alla sperimentazione” in Italian, by compound nouns such as “Impfstoff-Rennen” and “Impfstoff-Wettlauf” in German, as well as “vaccine race” or “race to the vaccine” in English, and “gonka vakcin” or “gonka za privivkoj” in Russian. Furthermore, it may also be inferred from the frequent verb phrases in metaphorical scenarios framing the competitive nature of races, such as “tenere testa ai leader”, “recuperare”, “seinen Vorsprung verlieren”, “be close behind”, or “dyšat’ v spinu lideru”, just to mention a few. Beside these verb phrases, other noun phrases often highlight the competitiveness of the search: “Despite the advantage of being able to ship and store Moderna’s vaccine using ordinary refrigeration, it’s too early to declare one version a **winner**. That’s because these **frontrunners** might perform differently depending on the population’s demographics” (Richards 2020).<sup>6</sup> Similar is also the instance: “Covid-19 – Risultati in-

<sup>6</sup> Bold letters in the instances added by the author of the article to better highlight metaphors in long excerpts.

coraggianti, ma ancora nessuno **sul podio nella ricerca** per immunizzarsi contro il virus sempre più contagioso” (Buletti 2020).

In race metaphors, references to specific phases of the competition are quite frequent, as is the case in “Corsa al vaccino per Covid-19, quanto manca al **traguardo?**” (Bidetti 2020) or “Covid, piano vaccini **ai blocchi di partenza**” (Tgcom24 2020). In German, examples could be found only with reference to the finishing line,<sup>7</sup> such as “Corona-Impfstoffe: Die **Ziellinie** im Blick?” (Müller 2020).

An interesting feature about such metaphors is that they frame different aspects of the same issue depending on their use: at times the opponent is just the virus, see “[i]m **Wettkampf gegen den tödlichen Erreger** sollen nun Menschen experimentelle Wirkstoffe verabreicht werden” (Schlak 2020). In other frequent phrases, such as “corsa contro il tempo” or “Wettkampf gegen die Zeit”,<sup>8</sup> the need to act hastily is highlighted, although the real opponent is clearly still the virus itself.

The search of a vaccine not only has medical implications, but it is also a chance for countries to affirm themselves politically and economically, hence the frequent expressions such as “corsa geopolitica” or “gara geopolitica”. Similarly, *The Washington Post* stated as follows:

“[t]his is **not a gentlemanly stroll in the park** by a bunch of people who all agree that there’s some common public good we all need to strive for,” said J. Stephen Morrison, director of the Center on Global Health Policy at the Center for Strategic and International Studies in Washington. “This has become a **geopolitical race**, and it’s one that’s seen as tied to domestic stability and support amid lots of adversity.” (Khurshudyan 2020).

Beside the conceptualizations mentioned so far, where the source domain consists in races in general, it was possible to identify a large number of metaphors which refer to more specific types of races and thus frame different aspects of reality: HURDLE RACES, RELAY RACES, SPRINT RACES, and MARATHONS. In an article titled “All eyes on a hurdle race for a SARS-CoV-2 vaccine”, this theme is addressed several times to discuss the difficulties faced by scientists and researchers:

The good news is that the **final hurdle on the way to the finishing line** – the completion of a properly controlled phase III clinical trial – is in sight. Ideally, this process will not be jeopardized by a premature rush, through an Emergency Use Authorization by the US Food and Drug Administration or other international regulators, to get a vaccine into use in the clinic before the trial has generated sufficient safety and efficacy information. As in any **hurdle race**, skill, speed and judgement are all needed to successfully and safely cross the **finishing line** (Gaebler & Nussenzweig 2020).

7 See also the excerpt from the article by Gaebler & Nussenzweig (2020) below for further examples in English.

8 Here, the *TIME IS A MOVING OBJECT* metaphor identified by Lakoff and Johnson (1980: 41-45) may be found as well.

The attempt to produce a vaccine may be conceptualized as a *RELAY RACE*, too. In this case, the metaphor frames the cooperation among scientists which is needed for the search to be successful:

Scientists worldwide are working against the clock to find a viable coronavirus vaccine – but **are corners being cut** for the sake of political gain and profit?

To begin with, it felt like **a sleek performance from a well-honed relay team**. On 11 January, only 10 days after reporting a new respiratory disease, the Chinese published the genome sequence of the virus that causes it. Researchers around the world set to work building vaccines against Covid-19, as the disease became known, and the first candidate entered human trials on 16 March; it was joined, as the months passed, by dozens of others. Scientists were jubilant, and they had every right to be. They'd **broken all vaccinology records** to get to that point (Spinney 2020).

Similar is also the following instance: “The **race for a vaccine** will continue at ‘warp speed’ – but it’s **not an individual sprint**, it’s a **relay race**. **The baton will shortly be passed** to distribution logistics and patient compliance by citizen-patients” (Pitts 2020). Furthermore, both articles are multimodal texts, highlighting the conceptualization through illustrations, as well:

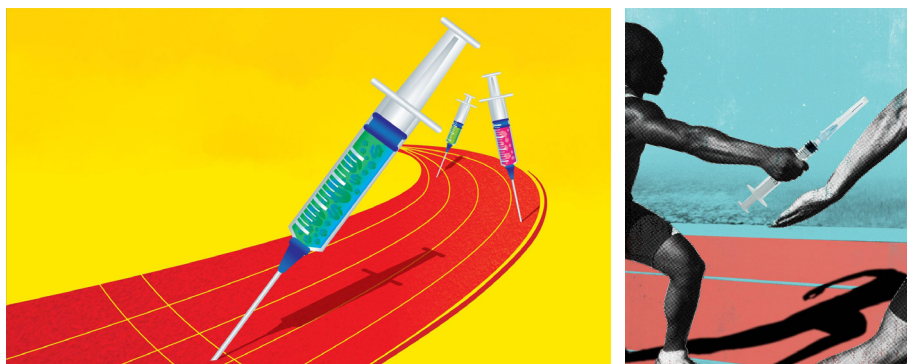


Illustration on the left by James Melaugh, published in *The Guardian* (Spinney 2020); illustration on the right by Linas Garsys (*The Washington Times*) published in the article by Pitts (2020).

The excerpt by Pitts also introduces the expression *sprint*, which is obviously used to underline the speed at which researchers were working; this characteristic is inherent in the term “race”, too, but is even more evident here. See, for instance, “Der **Impfstoff-Sprint**. Es dauert meist viele Jahre, einen Impfstoff zu entwickeln. Die Corona-Pandemie zwingt Unternehmen, Institute und Behörden zu neuen Wegen” (SRF 2020) or “Nello **sprint per il vaccino**, Moderna **tenta il sorpasso**” (Dusi 2020).

However, many view the search of a vaccine in the opposite way, since – as pointed out by SRF 2020 – it takes a long time to achieve such results: hence the frequent metaphors referring to *MARATHONS*. See, for instance: “Warum die Impf-

stoffentwicklung gegen das Coronavirus so lange dauert. Die Entwicklung neuer Impfstoffe ist **ein Marathon, kein Sprint**. Das ist auch gut so. Fatal wäre, wenn am Ende etwas gespritzt wird, das nicht hilft” (Diehm 2020). Similar considerations were made in the following Swiss Italian article with the title “La maratona del vaccino”:

Sulle misure per contrastare il Coronavirus subentra il discorso della ricerca di un vaccino dalla provata efficacia. Le notizie si susseguono e, **più che uno sprint, la corsa** intrapresa da decine di laboratori in tutto il mondo nella ricerca di un vaccino contro il Covid-19 appare come una **maratona**. È oramai palese che il processo di ricerca di un vaccino efficace e sicuro necessita tempi lunghi, così come, a giusta ragione, è lungo il processo di concessione delle licenze, anche in Svizzera (Buletti 2020).

In another article, the contrast between sprint races and marathons is employed in order to frame the logistical issues posed by the vaccination campaign:

Das größte Problem könnte jedoch aus seiner Sicht beim Personal drohen. Die Impfungen können von medizinischen Fachkräften vorgenommen werden, aber es müssen auch immer Ärzte dabei sein, etwa für den Fall, dass Nebenwirkungen auftreten. Und in der aktuellen Corona-Situation würde das medizinische Personal in Kliniken und Praxen bereits “an der Kapazitätsgrenze arbeiten”, sagt Klumpp. “Da ist aus unserer Sicht eigentlich der größte Engpass”, sagt Klumpp. Es müsse jedem klar sein, das sei “**kein 100-Meter-Sprint, das ist ein Marathon**” (Baars & Lambrecht 2020).

In contrast to these examples, which highlight the opinion that the process of finding and distributing a coronavirus vaccine would take a long time, marathon metaphors have the opposite function in the following instance: “Ugur Sahin, CEO der Mainzer Firma BioNTech, erklärt, wie **der jahrzehntelange Marathon der Impfstoffentwicklung** auf ein **4 x 100 m Staffelrennen** reduziert wird” (Müller 2020). An analogous example – albeit not concerning marathons, but 10,000-M RUNS – is the following:

Das wäre wie **ein 10000-Meter-Lauf in 8 Minuten**

Was es hieße, wenn tatsächlich noch im nächsten Jahr ein Impfstoff gegen das neuartige Coronavirus zugelassen würde, illustriert eine Metapher: Ein trainierter 30-jähriger Freizeitsportler läuft 10000 Meter in rund 55 Minuten – zumindest ist das die Anforderung des Deutschen Sportabzeichens. Der Äthiopier Kenenisa Bekele hat bei seinem Weltrekord für diese Strecke noch nicht einmal halb so lang gebraucht, nämlich 26 Minuten und 18 Sekunden. Und nun soll es auf einmal einen Menschen geben, der diese Strecke in 8 Minuten läuft? So unmöglich das klingt – bei der Impfstoffentwicklung ist solche eine immense Steigerung der Schnelligkeit zumindest denkbar (Frick 2020).

Finally, the following marathon metaphor does not present the production of a vaccine as the finishing line, but as a mere intermediate step towards normality: “Ein wirksamer Impfstoff wäre ein **Meilenstein**, aber noch lange nicht die **Zielgerade** auf dem **Marathon zur Normalität**” (Addendum 2020).



## 2.2. CAR AND HORSE RACES

Other conceptualizations are the SEARCH OF A VACCINE IS A CAR RACE and the SEARCH OF A VACCINE IS A HORSE RACE. In the present categorization of metaphors, these fields were separated from other races in the light of their marked differences – while all types of races in 3.1 undoubtedly retain more similarities. An instance is the following excerpt: “[i]n molti si sono domandati perché i dirigenti di una azienda **in pole position nella ricerca di un vaccino** contro il Covid inondassero il mercato con le loro azioni” (Paudice 2020). This metaphor, originally pertaining to the field of horse races, is nowadays used mainly to refer to car races. Another metaphor ascribable to this category, having horse races as a source domain, is the following. *To nobble* is a British English verb which means “to incapacitate (a racehorse) especially by drugging” (Merriam Webster):

[T]ensions began to surface among the team members [of scientists], and lately even the most distracted spectator will have noticed that they appear to be trying to **nozzle each other** openly **on the track**. With accusations that the Russians and Chinese hacked research groups in other countries, biotech executives criticised for cashing in on their own, as yet unapproved vaccines, and Russia approving a vaccine that is still in clinical trials, the quest for a vaccine seems to have turned sour (Spinney 2020).

Finally, another example with horse races as a source domain is the following: “The UK has bought six of the hundreds of vaccines under development. It has two of the three companies **heading down the final furlong** – AstraZeneca’s and Pfizer’s. Bingham says she thinks there is a chance of a vaccine before Christmas” (Boseley 2020). *Furlong* is a measurement unit used mainly in horse races, so in this excerpt *the final furlong* refers to the last phases of a race and may be compared to phrases like “die Ziellinie im Blick” from 2.1.

## 2.3. HUNTING

Another quite effective metaphor conceptualizes the SEARCH OF A VACCINE AS a HUNT. In this case, the German language shows a remarkable predilection for this domain, with a variety of noun phrases such as “Jagd nach dem Impfstoff”, “Jagd nach Corona-Impfstoff”, or “Jagd nach dem Corona-Gegenmittel”. “Die Jagd nach dem Impfstoff” was even the title of a podcast by the NDR television channel which had the aim to keep people updated about the latest research developments. This expression can also be found on an illustration<sup>9</sup> presenting the NDR web page dedicated to this topic:

9 This picture also contains other conceptualizations, such as the widely discussed SEARCH OF A VACCINE seen in terms of a RACE OR even as a CLIMB, highlighting the difficulties and obstacles faced by scientists.



The same conceptualization may be inferred from a video by the German channel ZDF (2020): “Auch andere **sind dem Virus auf der Spur**, wie Professorin Marylyn Addo vom Deutschen Zentrum für Infektionsforschung in Hamburg”.

With respect to the English language, an example is “Novartis jumps into **Covid-19 vaccine hunt**, as Big Pharma and big biotech commit to billions of doses” (Mast 2020), whereas for Italian “caccia al vaccino anti-covid” was found in an article published by *Il Giorno*. However, it may be interesting to note that most phrases like “caccia al vaccino” occurring in Italian newspapers in 2020 actually refer to the distribution of flu vaccines before the winter season and their scarcity in some regions.

Finally, a Russian noun phrase, “ochota na Covid-19” (Strana.ua 2020), is deemed to be of interest, since it implies a change of perspective from most aforementioned metaphors (except for the German example with the expression “dem Virus auf der Spur sein”). As a matter of fact, here the prey to be hunted by scientists is no longer the vaccine, but the virus itself.<sup>10</sup>

#### 2.4. GAMES

A fourth interesting metaphor depicts the SEARCH OF A VACCINE AS A GAME – usually, a strategy one. An example is the reference to chess in the following excerpt from *La Repubblica*:

<sup>10</sup> As shown by the article title, which may be translated as “When will a vaccine be created and by whom”, the topic is still the vaccine.

Il titolo della biotech americana impegnata contro il coronavirus [Moderna] vola in Borsa. La settimana scorsa Pfizer aveva annunciato il successo nel 90% dei casi. Pronti tra poche settimane i dati di AstraZeneca, a gennaio quelli di Sanofi e Johnson&Johnson. La **scacchiera** comincia a riempirsi. Presto **muovere tutti i pezzi** richiederà **strategia**. [...] Due giorni dopo [l'11 novembre] era arrivata la Russia, con il 92% per il suo Sputnik 5, che al momento però non è destinato a **giocare sul terreno europeo** (Dusi 2020).

In another instance, found in the newspaper *Il Resto del Carlino*, the vaccine distribution is conceived of in terms of a REBUS: “Vaccino Coronavirus, nelle Marche resta un rebus. La Protezione civile al lavoro per predisporre i luoghi dove conservare le circa 40mila dosi. Ancora nulla su dove e come saranno somministrate” (Curzi 2020). Finally, an illustration in the newspaper *Der Spiegel* represents a dartboard in the shape of a coronavirus and the dart as a vaccine syringe:



Illustration in *Der Spiegel* (Weber 2020), by KrizzDaPaul / Getty Images

## 2.5. GAMBLING

Another – in this case not really frequent, but still expressive – conceptualization is the one that refers to THE SEARCH OF A VACCINE AS GAMBLING, thus underlining its unpredictability. An example is to be found in the following excerpt, from the Russian news agency TASS, where the global efforts to invent a vaccine are depicted as a lottery:

[...] observing the simultaneous efforts of several countries to find a vaccine, it is more correct to talk about **a lottery rather than a race**. Each team has its own **ticket**, and its winning does not depend on its speed or abilities as much as on fortunate circumstances. Here it is worth noting that the more teams are playing, the more chances

there are to be successful soon. From the point of view of business, elaborating a vaccine is a risky undertaking. In fact, only a few candidates will be able to make it to clinical trials (Beljaev 2020).

Furthermore, a German article from ZDF (Hickmann 2020), discussing the distribution of the vaccine doses, mentions “der unfaire Poker um Impfstoffdosen” in the attempt to highlight that poorer countries are doomed to have more difficulties buying the vaccine, which will exacerbate social differences. Another instance is offered by an Italian article (Bidetti 2020), which states that “[l]a somministrazione di massa di un vaccino – quale che sia – senza aver portato a termine tutte le fasi della sperimentazione è un vero e proprio **azzardo** sulla pelle delle persone”. Here, however, the target domain is slightly different, since it is the VACCINE itself rather than its SEARCH, thus implying skepticism with regard to vaccination. Finally, the English play on words “a shot in the arm or a shot in the dark” (Sheen 2020) may be ascribed to the latter mapping, too, based on the meaning of *shot* as a vaccination and the idiom *shot in the dark* that – although not pertaining to gambling – denotes something arbitrary, subject to chance, exactly like gambling.

## 2.6. WAR

Some of the most frequent metaphors concerning the pandemic are – as mentioned in 2.1 – to be ascribed to the military field. Some conceptualizations are THE PANDEMIC IS WAR, THE VIRUS IS AN ENEMY, THE VACCINE IS A WEAPON and THE SEARCH OF A VACCINE IS WAR. So, in the instances “Der Impfstoff, den ‚Biontech‘ aus Deutschland und ‚Pfizer‘ aus den USA gemeinsam entwickeln, hat am Montag Optimismus verbreitet, dass die Pandemie bald **besiegt sein** könnte” (Dittrich 2020) or “Non ci sono ancora terapie capaci di **vincere il Covid**” (Verdelli 2020), the verbs *besiegen* and *vincere* imply a battle with winners and losers. Another example is the following title, referring to pharmaceutical companies attempting to find a vaccine: “Welche Pharmafirmen sich am Corona-Abwehrkampf beteiligen” (Ehrhardt 2020). Similar is also another Italian excerpt:

“Per dare una svolta è necessario che i vaccini non proteggano solo dai sintomi della malattia o dalle sue forme più gravi ma che siano anche in grado di bloccare la trasmissione del virus”. Così la giornalista e divulgatrice scientifica bergamasca Roberta Villa, laureata in medicina e chirurgia, evidenzia quello che potrà rappresentare uno snodo cruciale nella **lotta all’epidemia da Covid-19** (Ghisleni 2020).

Another instance highlighting the frequently military nature of pandemic mappings is to be found in an Italian article reporting an interview with Maria Rosaria Capobianchi, the virologist who isolated the coronavirus, which describes her undertaking as “prendere prigioniero ‘il nemico’” (Verdelli 2020).

Furthermore, a whole subclass of metaphors consists in spatial ones, i.e. those which describe where war is being waged, such as: “azienda **in prima linea** nella produzione di un vaccino contro il Covid” (Paudice 2020) or “L’Emilia Romagna è in prima linea contro il Covid non solo **sul fronte della cura**, ma anche sotto il profilo della ricerca. E ricerca oggi vuol dire soprattutto vaccino” (Il Resto del Carlino 2020a). The *front* is also mentioned in an article about Moderna’s vaccine, which states that “[i]t’s still early days, but the news from the COVID-19 vaccine front continues to bring much-needed hope to a virus-ravaged world” (Richards 2020). Besides, the aforementioned article reporting the interview with Maria Rosaria Capobianchi refers to her as

[u]na **veterana** molto autorevole, che non ha partecipato alla recente e permanente giostra degli esperti in tv, ma che ha **combattuto nella trincea della ricerca molte battaglie insidiose**, dalla prima Sars del 2002 all’influenza suina del 2009, fino all’Ebola” (Verdelli 2020).

Another interesting subclass of war metaphors is the one referring to WEAPONS. The most general instances are: “Weltweit suchen Experten nach einem Impfstoff, etwas, was die Pandemie aufhalten kann. [...] Die Forscher sind optimistisch, **eine Waffe gegen das neuartige Coronavirus** bauen zu können” (ZDF 2020) or “Der Impfstoff CoronaVac des chinesischen Herstellers Sinovac Biotech gilt als vielversprechendes **Mittel im Kampf gegen die Corona-Pandemie**” (FAZ 2020). An analogous instance is the Russian “sredstvo dlja bor’by s COVID-19”, referring to the attempt to find a vaccine made by researchers in the EU, USA, Australia, Israel, China, Japan, and Russia (TASS 2020). Another general example is provided by the Italian *Il Sole 24 Ore* with the following excerpt:

Tra gli **avamposti** mondiali **nella lotta al Covid** c’è un pezzo di Centro Italia. Nel Lazio e in Toscana si lavora infatti alle due **armi** più attese in questa **battaglia contro il virus** che ha messo in ginocchio tutto il mondo: innanzitutto il vaccino che vede collaborare insieme, a due passi da Roma, piccole biotech company e colossi farmaceutici. [...] (Bartoloni & Pieraccini 2020).

A more specific instance is “La Regione [Emilia-Romagna] **schiera l’artiglieria pesante**: il Policlinico Sant’Orsola di Bologna e l’azienda ospedaliera-universitaria di Modena” (Il Resto del Carlino 2020a).

As far as vaccination itself is concerned, in a German article in the *Augsburger Allgemeine* it is defined as an “Impf-Offensive” (Lange 2020). Also an Italian article from *La Repubblica*, while discussing vaccine administration, employs army metaphors, such as “Giovani laureati, infermieri, assistenti sanitari: la **carica** dei 20mila vaccinatori”.

A last interesting subclass of war metaphors is the one which frames the competition between countries, as in 2.1. A podcast by *Die Zeit* is titled “Der **globale Impfkrieg**: Wie China mit Spritzen seine Macht ausbaut” (Brost & Grabitz 2020).

Similarly, an article by the Russian agency MBK mentions a “vojna vakcin” between Sputnik, Moderna, and other vaccines elaborated by several pharmaceutical companies (Tajzhetinova 2020). Finally, an article title by *Il Corriere della Sera* reads “Vaccino Covid, la **battaglia** tra Pfizer e Moderna per la ‘rivoluzione mRNA” (Modeo 2020).

Finally, in German an interesting metaphor which could be added to this category is the following: “Wann kommt **der Corona-Killer**?”. This instance may also remind of terms such as “natürliche Killerzellen”, which entail a metaphorical connotation – that is also quite frequent in immunology (cf. Magris 2021).

## 2.7. JOURNEY

One of the conceptual metaphors *par excellence*, discussed in Lakoff and Turner (1989), is LIFE IS A JOURNEY.<sup>11</sup> Similarly, a frequent conceptual mapping in mass media narration in this field is THE SEARCH OF A VACCINE IS A JOURNEY. Some of the most evident instances are the following: “I risultati dello studio segnano un passo importante in questo storico **viaggio di 8 mesi per un vaccino**” (Il Messaggero 2020), “Pfizer e BioNTech hanno fatto sapere di essere **‘sulla buona strada**’ per sottoporre il loro vaccino alla *regulatory review* già in ottobre” (Paudice 2020), “Le prime dosi del vaccino targato Pzier-BioNTech arriveranno in Europa all’inizio del 2021, ma ‘bisogna essere chiari con i cittadini: **la strada da percorrere è ancora lunga**” (Bresolin 2020), or the German title “**Der weite Weg** zur Corona-Impfung” (Lambrecht & Baars 2020).

Other metaphors ascribable to this source domain are: “È vero, quindi, che questi vaccini sono soggetti allo stesso iter degli altri, **non sono state prese scorcioie** e avranno le stesse garanzie di un vaccino nuovo, appena uscito sul mercato di un altro tipo” (Ghisleni 2020) and the English equivalents “**are corners being cut** for the sake of political gain and profit?” and “**Short cuts** in testing for vaccine safety and efficacy endanger millions of lives in the short term” (both Spinney 2020).

Some interesting conceptualizations concern the obstacles that may be found on a journey: the title of an article published in *The Economist*, for instance, reads “The **path** to a Covid-19 vaccine may be quick, but it will be **bumpy**” (Carr 2020). An article in *Die Zeit*, instead, states that “ [e]rst vor zehn Tagen berichtete die Nachrichtenagentur Reuters, dass mehrere Moskauer Kliniken wegen **Engpässen** beim Impfstoff kurzzeitig keine neuen Freiwilligen mehr für die Tests aufnehmen konnten” (Kireev 2020).

Another interesting example in Italian frames competition between countries. After pointing out that research in China had slowed down as cases of coronavirus infection were decreasing, but that it gained momentum again after the

11 See also, *inter alia*, the AN ARGUMENT IS A JOURNEY metaphor in Lakoff and Johnson (1980).

progress of Pfizer, Moderna, and AstraZeneca, the article states as follows: “I cinesi insomma non vogliono **perdere il treno** dopo gli annunci di Pfizer e Moderna che hanno suscitato molto interesse degli investitori” (Il Sole 24 Ore 2020).

## 2.8. MYTHOLOGY AND FOLKLORE

An interesting source domain consists in MYTHOLOGY and FOLKLORE. A frequent metaphorical expression is “panacea”, mainly used in negative contexts, with the aim to warn readers that vaccines may not mark the end of the pandemic. See: “Kyriakides: “Un solo vaccino non sarà la panacea. La strada è lunga” (Bresolin 2020), or “Die Impfungen gegen Covid-19 sind ein großer Hoffnungsträger im Kampf gegen die Pandemie, jedoch kein Allheilmittel” (Rohwedder 2021). In an article title, a Russian Ukrainian newspaper goes as far as to wonder whether the Russian vaccine will be a panacea or a poison (Iščenko 2020).

Mythological metaphors are also quite effective in framing the complexities with which a vaccine production and distribution is riddled. A frequent compound noun in German is “Herkulesaufgabe”, as in “Das Verteilen des Impfstoffs wird eine Herkulesaufgabe” (Walker 2020) or – further strengthened by the adjective *wahr* – “Vor allem deshalb, weil das Land besonders an diesem Wochenende die Durchimpfungsrate stark steigern möchte, wäre die Impfung der Hochrisikopatienten eine wahre Herkulesaufgabe” (Rufin 2021). In English, the noun phrase “gargantuan task” was recorded – its origins date back to the 16th century, with the satiric novel *Gargantua* by François Rabelais, which depicts a giant king (cf. Merriam Webster):

After you identify the neutralising antibodies for different coronaviruses, then you've got to work out how to induce them through a vaccine, which could take years, he [Prof Dennis Burton, chair of the department of immunology and microbiology at Scripps Research] said. Altogether, at least five companies are taking on the gargantuan task of developing vaccines that can broadly protect against beta-coronaviruses (Grover 2020).

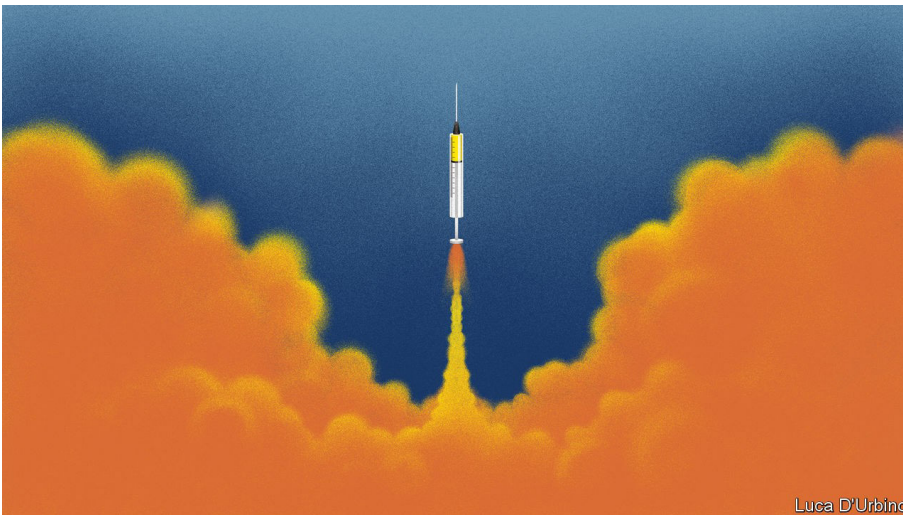
Another interesting metaphor, “silver bullet”, has its roots in mythology and in the fantasy genre, since this weapon was thought to be capable of killing supernatural creatures, typically werewolves. Many newspapers reported a statement by Tedros Adhanom Ghebreyesus, head of the World Health Organization (WHO), claiming that there was “no silver bullet at the moment - and there might never be” (BBC News 2020). In Italian, an analogous instance referring to a “proiettile d'argento” was found in *Il Sole 24 Ore* (Finotto 2020). However, according to terminologist Corbolante, who in August 2020 discussed the translation of “silver bullet” in her blog *Terminologia.etc*, Italian newspapers mentioning a “pallottola d'argento” or “proiettile d'argento” translated the figurative expression used by Tedros Adhanom Ghebreyesus too literally, since these Italian equivalents are

not as idiomatic as the English expression. In her opinion, in fact, “silver bullet” should have been translated as, for instance, “formula magica”.

Beside “silver bullet”, another metaphor mentioned by Corbolante in her blog is “magic bullet”. This figurative expression was indeed found in a German newspaper during the present research: *FAZ* mentioned a “magische Kugel”, “Zauber-kugel”, or “‘magic bullet’ frei nach Paul Ehrlich”<sup>12</sup> referring to the attempts to produce a vaccine made by chemists Rittner and Bourdeaux (Zoske 2020).

## 2.9. HISTORICAL EVENTS

Another source domain consists in *HISTORICAL EVENTS*. An extremely frequent parallelism refers to the space race, which is similar to the source domain of *RACES* for what it frames (competition and speed) but with the addition of the historical reference. An instance is the following: “The spectre arises of nations already engaged in a vaccine ‘space race’ trying to corner supplies for their own populations” (Spinney 2020) or “With governments all over the world pouring money into it, the effort to get a vaccine has come to resemble a more urgent version of the space race” (The Economist 2020). The latter newspaper article highlights the reference to the source domain of space exploration through the following picture, too:



As far as Russia is concerned, the reference to the space race was made explicit by the name of its vaccine Sputnik V, showing its pride in being the first country to register one. The parallel is further enhanced by the promotional

12 The Nobel Prize scientist who coined the term “magic bullet”, referring to substances that could target specific diseases. Therefore, this reference now pertains to the field of medicine rather than to the military one from which it originally stemmed.



video of this vaccine by the Russian Direct Investment Fund,<sup>13</sup> which shows a view of the Earth from space, menacingly surrounded by a brownish layer with spikes, depicting the coronavirus. This layer is gradually destroyed by the satellite Sputnik, which starts revolving around the Earth until it becomes covid-free.<sup>14</sup>

Getting back to newspapers, an article by *Lenta.ru* discussing vaccines was titled “Eto kak cholodnaja vojna” (Švarcman 2020), thus entailing a simile which compares the vaccine search to the Cold War due to its political implications.

Furthermore, another frequent parallelism refers to the arms race, as is the case in the simile “Covid, la corsa ai vaccini come quella agli armamenti: ecco il ‘nazionalismo antiviruses’” (Sabadin 2020).

Finally, another interesting historical reference is that to the D-Day, i.e. the Normandy Landings, which may be inferred from the front page of *La Repubblica* on the 9th December 2020: “V-day, il vaccino sbarca in Europa”.

## 2.10. MISCELLANEOUS SOURCE DOMAINS

Here we will discuss metaphors ascribable to several source domains, which, due to the overall scarcity of examples to be provided, were not reported in separate sections.

A relatively frequent metaphor in Italian refers to vaccines as ANTIDOTES: “Dall’Oms arriva la notizia che si sta lavorando agli standard per la privacy dei certificati vaccinali, pensati in modo tale da consentire agli individui di dimostrare di essere aver [sic] ricevuto l’antidoto contro il Covid-19” (Capponi 2021). It is not rare in Russian newspapers, either: “protivojadie koronavirusu možet ob”javitsja [sic] uže k sentjabrju”<sup>15</sup> (Dmitrieva 2020).

A quite transparent metaphor, referring to VACCINES as a LIFEBOUY, was found in the Russian newspaper *Lenta.ru*: “Spasatel’nym krugom v nynešnej situacii dolžny stat’ vakciny, kotorye ostonovjat rasprostranenie zaraženija”<sup>16</sup> (Švarcman 2020).

Other metaphors are those with the source domain FIRE – highlighted by Semino (2020) for their efficacy, as mentioned in 2.1. However, while they are quite frequent for the target domain PANDEMIC, they are not as common for the more circumscribed domain of VACCINES. Two analogous instances were identified in German and Italian:

13 <https://sputnikvaccine.com/rus/newsroom/press-kit/video/>

14 This instance does not stem from articles (or channels and podcasts) like all the other examples provided in the present paper, and neither is it linguistic content *stricto sensu*, but it is a clear instantiation of the mapping which is dealt with in this paragraph.

15 “An antidote for the coronavirus could appear already in September.”

16 “A lifebuoy in the current situation should be provided by vaccines, which will stop the coronavirus from spreading.”

Medikamente gegen Corona sind also **wie ein Löschwasserschlauch im Kampf gegen einen Waldbrand** – mal hier, mal da wird vielleicht ein Haus vor den Flammen gerettet. Aber nur **eine Schneise, die in den Wald geschlagen wird**, kann die Ausbreitung stoppen – und das ist in dieser Metapher ein Impfstoff. Denn nur wenn genügend Menschen immunisiert werden, kann die Ausbreitung effektiv gestoppt und Menschenleben gerettet werden. (Beck 2020).

In this excerpt, the concept of fire hoses is first introduced through a simile describing drugs used against the virus, and then followed by a metaphor about firebreaks to refer to vaccines. In the Italian version, instead, only firebreaks are hinted at:

Il professor Burioni ha [...] illustrato come il vaccino anti-Covid – “un’impresa incredibile avere un farmaco efficace così presto” - possa “impedire al virus di propagarsi come si farebbe con un incendio in una foresta: anziché tagliare gli alberi, si vaccinano le persone per isolare il virus” (Il Resto del Carlino 2020b).

Interestingly, in the anglophone area this metaphor is used only with regards to Wales and its “fire-break lockdown”, introduced in 2020 so as to reduce cases of coronavirus infection.

A last source domain is RELIGION. It is clear in examples such as *vaccine miracle* (Allen-Mills 2020) or *Impfwunder* (Von Altenbockum 2020), in the following contexts, respectively: “One newspaper described the results from a trial conducted by Pfizer, the American pharmaceutical giant, as a ‘vaccine miracle’”, and “Das Impfwunder wird nicht nur mit Begeisterung aufgenommen werden, sondern, eben weil es alle Rekorde bricht, auch auf Skepsis und Ablehnung stoßen – von der grundsätzlichen Impfgegnerschaft einmal ganz abgesehen”. Also in Italian miracle references are not rare, see: “Miozzo: ‘Il vaccino anti-Covid è un miracolo scientifico. In sei mesi risultati tangibili’” (Carratelli 2020). Other religious references in this language are “E le cure? I vaccini tanto attesi? Non saranno loro a **liberarci dal Male?**” (Verdelli 2020, with a clear allusion to the Lord’s Prayer, further underlined by the capitalization of *Male*) and “L’attesa messianica del vaccino”, title followed by this paragraph:

Una costante dalla scorsa primavera sono stati i periodici annunci dei leader per il prossimo vaccino risolutore – Putin l’ha annunciato per inizio autunno, Trump lo assicurava in perfetto tempismo con le elezioni Usa, Conte lo prevede per la primavera 2021 – generando una sorta di attesa messianica (Finotto 2020).

### 3. CONCLUSIONS AND OUTLOOK

In sum, the most frequently framed concepts are the speed at which research had to be conducted (e.g. through races, horse and car races metaphors), competition between countries as well as against the virus (e.g. through races, games,

gambling, war metaphors, historical references), and the general state of danger (particularly well-conveyed by war metaphors).

With respect to the source domains, the most frequent ones were definitely RACES and WAR. As far as the former is concerned, it must be noted that such metaphors are quite productive: see, for instance, well-attested terms like “arms race” or “space race”<sup>17</sup> (both also used as source domains in some examples provided in 2.9). This may be one of the factors that have led to the high frequency of this source domain.

Conceptualizations are sometimes combined or put in contrast in order to highlight some particular aspects of the target domain (see the instances referring to SPRINTS and MARATHONS in 2.1, or the podcast illustration with HUNTING as well as RACE and CLIMB as source domains in 2.3). However, it should be noted that the phenomenon of mixing metaphors ascribable to different source domains, known as “conceptual blending”, is not always ideal and is sometimes due to insufficient mastering of metaphor use (cf. Magris 2009: 99).

Another issue connected to the use of metaphors is the confusion they may cause in certain cases. In Italy, for instance, there have been debates about the use of “siero” and “antidoto” instead of “vaccino” in the media (cf. Accademia della Crusca, Di Carlo 2021; Corbolante 2021). Here, the question arises as to what extent “antidote” is a clear-cut metaphor and when, instead, it becomes an improper use of a technical term. According to me, such uses are appropriate if the metaphorical connotation is easily inferable from the context, otherwise this type of metaphorization ought to be avoided. In the example provided in 2.10, the Italian use of “antidoto” seems to be particularly ambiguous, since it refers to a concrete setting – where a vaccine has already been injected and a certificate needs to be issued – and not to vague assumptions and hopes for the future, where, in my opinion, “antidoto” would be more acceptable as a metaphor.

Another potential issue is connected to the prominent use of war metaphors, already pointed out in 1.2. While metaphors are influenced by what is occurring around us, our perception of reality, and the most widespread ideologies, the opposite is also true, as their use impacts on our perceptions, ideas, and opinions. In this respect, Komatsubara (2021) states that “metaphors build, bias, and balance our views on the situation we are faced with”. In the same vein, Colaci (2018: 38) – discussing the language of politics, its conative function and its realizations – maintains that metaphors activate the hidden associations on which our value system is based, and are therefore able to influence the audience’s emotional response. It goes without saying that this potential to manipulate readers’ perception may be dangerous. At the same time, war metaphors should not be demonized altogether.<sup>18</sup> A possible solution may be that provided by Komatsub-

17 Or, in Italian, also other similar terms like “corsa all’oro”, “corsa al ribasso”, etc.

18 Cf. also Musolff (2021) and his reflections about war metaphors in the Covid-19 discourse: “blanket criticism’ of all war/fighting terminology seems unjustified”.

ara (2021), who suggests that variation in metaphorical sources<sup>19</sup> could reduce conceptual bias and the risks associated with it.

Finally, another issue highlighted by the present analysis – specifically, by the case of “proiettile d’argento” in Italian newspapers, see 2.8 – consists in the translation of metaphors. This aspect, incidentally, has attracted the attention of many linguists and translation scholars for quite some time. One of the most celebrated and known models was put forward by Newmark (1981: 87-91), who proposed seven translation strategies to tackle the rendition of metaphors in another language: 1) reproducing the same image in the TL; 2) replacing the image in the SL with a standard TL image; 3) translating the metaphor by simile; 4) translating the metaphor (or simile) by simile plus sense; 5) converting the metaphor to sense; 6) deleting the metaphor; 7) combining the same metaphor with its sense. Similarly, Magris (2009: 100-102) highlights the need to select well-attested, natural-sounding metaphors in the TL, as metaphorical conceptualizations and phraseology are tightly intertwined. Consequently, the most suitable translation of the “silver bullet” metaphor would have been provided through the second strategy put forth by Newmark, i.e. the replacement of the SL image through a standard TL image. This instance, along with the discussion mentioned above with respect to the incorrect use of “antidoto” and “siero” in Italian newspapers, unfortunately confirms what has already been noted by Magris (*ibid.* 100), i.e. the fact that Italian journalists seem to use metaphors more erratically than, for example, German journalists (and, even more so, when translation comes into play).

In conclusion, a potential outlook of the present study, suggested by instances like the play on words “shot in the arm or shot in the dark”, the newspaper title which wonders if the vaccine will be a panacea or poison, or the skeptical excerpt regarding the “Impfwunder” (2.5, 2.8, and 2.10, respectively), is to examine in detail metaphors employed for the vaccination campaign in order to decrease vaccine hesitancy – as well as, conversely, those used by no-vax movements and in similar skeptical environments, as has been done by Signorini and Neves de Brito (2021) with respect to Facebook discussions on coronavirus vaccines in Brazil or Magris (2021) for general vaccination campaigns.

19 In my opinion, though, this should not be done within the same sentence or paragraph, so as to avoid the aforementioned conceptual blending.

## REFERENCES

- Black M. (1954) "Metaphor". In *Proceedings of the Aristotelian Society*, 55, Hoboken, Blackwell Publishing, pp. 273-294.
- Colaci L. A. (2018) *Politologia del linguaggio italiano e tedesco. Metafore concettuali e strategie retorico-narrative al Parlamento Europeo*, Milano, FrancoAngeli.
- Corbolante L. (2020) "Munizioni d'argento contro il coronavirus?", *Terminologia etc.*, <http://blog.terminologiaetc.it/2020/08/07/significato-silver-bullet/> (consultato il 23.01.2021).
- Corbolante L. (2021) "Promemoria per i media: vaccino ≠ siero ≠ antidoto", *Terminologia etc.*, <http://blog.terminologiaetc.it/2021/01/04/differenza-vaccino-antidoto-siero/> (consultato il 17.07.2021).
- Demjen Z., Semino E. & Koller V. (2016) "Metaphors for 'good' and 'bad' deaths. A health professional view", *Metaphor and the Social World*, 6:1, pp. 1-19.
- Di Carlo M. (2021) "Siero, antidoto e vaccino: facciamo chiarezza", *Accademia della Crusca.it*, <https://accademiadellacrusca.it/it/consulenza/siero-antidoto-e-vaccino-facciamo-chiarzza/2955> (consultato il 17.07.2021).
- Ervas F., Montibeller M. et al. (2016) "Expertise and metaphors in health communication", *Medicina & Storia*, 16:9-10, pp. 91-108.
- Foderi A. (2020) "Le parole del 2020", *Wired.it*, 31.12.2020.
- Hurrelmann K. & Baumann E. (2014) (Hrsg.) *Handbuch Gesundheitskommunikation*, Mannheim, Huber.
- Komatsubara T. (2021) "Variation in metaphor reduces risk in conceptualization: Metaphors on the COVID-19 pandemic in Japan". In *Paper of the 17th International Pragmatics Conference "The Pragmatics of Inclusion"*, Winterthur, 27th June-2nd July, being printed.
- Lakoff G. & Johnson M. (1980) *Metaphors We Live By*, Chicago/London, The University of Chicago Press.
- Lakoff G. & Turner M. (1989) *More than Cool Reason: A Field Guide to Poetic Metaphor*, Chicago/London, The University of Chicago Press.
- Liu N. & Lu S. (2021) "Metaphor use on the People's Daily Newspaper during public health emergencies: A diachronic and quantitative study". In *Paper of the 17th International Pragmatics Conference "The Pragmatics of Inclusion"*, Winterthur, 27th June-2nd July, being printed.
- Magris M. (2009) "Medizinische Fachbegriffe in der populärwissenschaftlichen Vermittlung: Ein Vergleich zwischen Deutsch und Italienisch". In P. Taino, M. Brambilla & T. Briest (Hrsg.), *Eindeutig uneindeutig. Fachsprachen – ihre Übersetzung, ihre Didaktik*, Frankfurt, Lang, pp. 89-104.
- Magris M. (2021) "Metaphern in der Impfkommunikation: zwischen Wissensvermittlung und Persuasion". In E. Agazzi, R. Calzoni, G. Carobbio et. al. (Hrsg.), *Übersetzen. Theorien, Praktiken und Strategien der europäischen Germanistik*, Bern, Peter Lang, pp. 363-375.
- Merriam Webster (2020) "Words We're Watching: 'Infodemic'", <https://www.merriam-webster.com/words-at-play/words-were-watching-infodemic-meaning> (accessed 23-01-2021).
- Miller R. S. (2010) "Speak up: 8 words and phrases to ban in oncology!", *Oncology Times*, 32:12, p. 20.
- Musolff A. (2012) "The study of metaphor as part of critical discourse analysis", *Critical Discourse Studies*, 9:3, pp. 301-310.

- Musolff A. (2021) "War against COVID-19": Is the pandemic as war metaphor helpful or hurtful?. In *Paper of the 17th International Pragmatics Conference "The Pragmatics of Inclusion"*, Winterthur, 27th June-2nd July, being printed.
- Newmark P. (1981) *Approaches to Translation*, Oxford, Pergamon Press.
- Niederhauser J. (1999) *Wissenschaftsprache und populärwissenschaftliche Vermittlung*, Tübingen, Narr.
- Ol'svang O. (2021) "Metaforičeskaja model' 'Pandemija – eto vojna' v russkom i anglojazыčnom medicinskom diskurse (na materiale publicističeskich tekstov)". In *Conference paper of "Methodological and Linguistic Problems of LSP"*, Samara, 18-19th May, being printed.
- Ortony A. (1979) *Metaphor and Thought*, Cambridge, U.P.
- Potts A. & Semino E. (2017) "Healthcare professionals' online use of violence metaphors for care at the end of life in the US: a corpus-based comparison with the UK", *Corpora*, 12:1, pp. 55-84.
- ReframeCovid (2020) "The initiative", <https://sites.google.com/view/reframecovid/initiative> (accessed 23-01-2021).
- Richards I. A. (1936) *The Philosophy of Rhetoric*, London, Oxford University Press.
- Semino E. (2008) *Metaphor in Discourse*, Cambridge, Cambridge University Press.
- Semino E. (2020) "A fire raging: Why fire metaphors work well for Covid-19", <http://cass.lancs.ac.uk/a-fire-raging-why-fire-metaphors-work-well-for-covid-19/> (accessed 23-01-2021).
- Semino E., Demjen Z. et al. (2018) *Metaphor, Cancer and the End of Life: A Corpus-Based Study*, London, Routledge.
- Semino E., Demjen Z. & Demmen J. (2018) "An integrated approach to metaphor and framing in cognition, discourse, and practice, with an application to metaphors for cancer", *Applied Linguistics*, 39: 5, pp. 625-645.
- Semino E., Heywood J. & Short M. (2004) "Methodological problems in the analysis of metaphors in a corpus of conversations about cancer", *Journal of Pragmatics*, 36: 7, pp. 1271-1294.
- Signitzer B. (2001) "Ansätze und Forschungsfelder der Health Communication". In K. Hurrelmann & A. Leppin (Hrsg.), *Moderne Gesundheitskommunikation*, Bern, Huber, S. 22-35.
- Signorini I. & Neves de Brito L. A. (2021) "Mappings and metaphorical scenarios in contemporary discussions on Facebook about the Brazilian vaccine 'crisis'". In *Paper of the 17th International Pragmatics Conference "The Pragmatics of Inclusion"*, Winterthur, 27th June-2nd July, being printed.
- Spina S. (2020) "La peste, il terremoto e altre metafore. Il coronavirus nel discorso della stampa italiana", *Treccani*, 10.04.2020.
- MASS MEDIA REFERENCES
- Allen-Mills T. (2020) "Who will get the Pfizer Covid vaccine first?", *The Times*, 15.11.2020.
- Addendum (2020) "COVID-19: Ist der Impfstoff-Hype berechtigt?", *Addendum*, 02.06.2020.
- Baars C. & Lambrecht O. (2020) "Coronavirus: Der große Impfplan für Deutschland", *ndr*, 06.11.2020.
- Bartoloni M. & Pieraccini S. (2020) "Vaccini e terapie, il Centro Italia avamposto nella lotta al Covid", *Il Sole 24 Ore*, 30.10.2020.
- BBC News (2020) "Coronavirus: WHO warns of 'no silver bullet' amid vaccine search", 03.08.2020.
- Beck D. (2020) "Was bringen Medikamente im Kampf gegen Corona?", *SWR*, 21.10.2020.
- Beljaev D. (2020) "Eto daže ne gonka, a lotereja. Kto pervym najdet vakcinu ot koronavirusa?", *TASS*, 18.03.2020.
- Bidetti M. (2020) "Corsa al vaccino per Covid-19, quanto manca al traguardo?", *Galileo*, 01.10.2020.
- Bocci M. (2020) "Giovani laureati, infermieri, assistenti sanitari: la carica dei 20mila vaccinatori", *la Repubblica*, 02.12.2020.
- Boseley S. (2020) "'It's possible': the race to approve a Covid vaccine by Christmas", *The Guardian*, 30.10.2020.
- Bresolin M. (2020) "Kyriakides: 'Un solo vaccino non sarà la panacea. La strada è lunga'", *La Stampa*, 12.11.2020.
- Brost M. & Grabitz I. (2020) "Der globale Impfkrieg: Wie China mit Spritzen seine Macht ausbaut", *Die Zeit*, 18.12.2020.
- Buletti M. G. (2020) "La maratona del vaccino", *Azione*, 24.08.2020.
- Capponi M. (2021) "Vaccini, Sanofi al lavoro per produrre quello di Pfizer-Biontech. Impennata di casi in Cina", *Milano Finanza*, 15.01.2021.
- Carr E. (2020) "The path to a covid-19 vaccine may be quick, but it will be bumpy", *The Economist*, 16.11.2020.
- Carratelli N. (2020) "Miozzo: 'Il vaccino anti-Covid è un miracolo scientifico. In sei mesi risultati tangibili'", *La Stampa*, 27.12.2020.
- Curzi P. (2020) "Vaccino Coronavirus, nelle Marche resta un rebus", *il Resto del Carlino*, 27.11.2020.
- Diehm C. (2020) "Warum die Impfstoffentwicklung gegen das Coronavirus so lange dauert", *Handelsblatt*, 26.03.2020.

- Dittrich B. (2020) "Trotz Corona-Impfstoff: Auch 2021 müssen wir noch Abstand halten", *vorwärts*, 10.11.2020.
- Dmitrieva O. (2020) "Vakciny protiv koronavirusa COVID-19 obeščali k sentjabrju", *Rossijskaja Gazeta*, 11.04.2020.
- Dusi E. (2020) "Nello sprint per il vaccino, Moderna tenta il sorpasso: 'Il nostro è efficace al 94,5%'", *la Repubblica*, 16.11.2020.
- Ehrhardt M. (2020) "Welche Pharmafirmen sich am Corona-Abwehrkampf beteiligen", *Deutschlandfunk*, 16.03.2020.
- FAZ (2020) "Machtkampf um Corona-Impfstoff", 10.11.2020.
- Finotto C. A. (2020) "Coronavirus, il vaccino potrebbe non essere il proiettile d'argento e la lotta sarà ancora lunga", *Il Sole 24 Ore*, 14.11.2020.
- Gaebler C. & Nussenzweig M. C. (2020) "All eyes on a hurdle race for a SARS-CoV-2 vaccine", *nature*, 19.10.2020.
- Ghisleni P. (2020) "Vaccino Covid, Roberta Villa: 'Bisogna verificare se bloccherà la diffusione del virus'", *BergamoneWS*, 06.12.2020.
- Grover N. (2020) "The long game: the race for a vaccine against all coronaviruses", *The Guardian*, 13.11.2020.
- Haas S. (2020) "Wettlauf um Corona-Schutz. Diese Firmen liegen im Impfstoff-Rennen vorn", *zdf*, 16.12.2020.
- Hickmann M. (2020) "Kampf gegen Coronavirus. Der unfaire Poker um Impfstoffdosen", *zdf*, 25.07.2020.
- Il Giorno* (2020) "Vaccino anti Covid: in Lombardia si parte il 15 gennaio", 10.12.2020.
- Il Messaggero* (2020) "Vaccino Covid, annuncio di Pfizer: 'Efficace al 95%'. Test su 43.500 persone senza problemi. Oms: seconda ondata combattuta senza cure", 18.11.2020.
- Il Resto del Carlino* (2020a) "Vaccino Covid: Emilia Romagna in prima linea. 'Test a dicembre'", 22.11.2020.
- Il Resto del Carlino* (2020b) "Vaccino Covid, Burioni e Gorini: 'Funziona ed è sicuro'", 29.11.2020.
- Il Sole 24 Ore* (2020) "Da Pfizer a AstraZeneca ai 5 vaccini cinesi: annunci e progressi sulla cura al Covid. Possibile ok in Europa a dicembre", 18.11.2020.
- Iščenko A. (2020) "Rossijskaja vakcina ot koronavirusa dlja Ukrainy: jad ili panaceja", 24 *Novosti*, 15.10.2020.
- Khurshudyan I. (2020) "In race for coronavirus vaccine, Russia ramps up rhetoric to defend Sputnik V", *The Washington Post*, 04.10.2020.
- Kireev M. (2020) "Russlands Impfstoff gerät ins Hintertreffen", *Die Zeit*, 16.11.2020.
- Lambrecht O. & Baars C. (2020) "Der weite Weg zur Corona-Impfung", *Tagesschau*, 06.11.2020.
- Lange S. (2020) "Schutz im Eiltempo: Wie komplex wird die Impf-Offensive?", *Augsburger Allgemeine*, 21.12.2020.
- Mast J. (2020) "Novartis jumps into Covid-19 vaccine hunt, as Big Pharma and big biotech commit to billions of doses", *Endpoints*, 28.05.2020.
- Modeo S. (2020) "Vaccino Covid, la battaglia tra Pfizer e Moderna per la 'rivoluzione mRNA'", *Il Corriere della Sera*, 20.11.2020.
- Müller H. (2020) "Corona-Impfstoffe: Die Ziellinie im Blick?", *Labor Journal*, [https://www.laborjournal.de/rubric/hintergrund/hg/hg\\_20\\_09\\_01.php](https://www.laborjournal.de/rubric/hintergrund/hg/hg_20_09_01.php) (consultato il 23.01.2021).
- NDR (2020) "Das Wichtigste zu Corona-Impfstoffen", <https://www.ndr.de/fernsehen/>
- sendungen/panorama\_\_die\_reporter/Coronavirus-Impfstoff-Zulassung,impfstoff128.html (consultato il 23.01.2021).
- Paudice C. (2020) "Gli affari opachi dietro la corsa al vaccino", *HuffPost*, 14.11.2020.
- Pitts P. J. (2020) "The sprint to a COVID-19 vaccine is a relay race", *The Washington Times*, 25.11.2020.
- Richards S. E. (2020) "Why Moderna may have an edge in the vaccine race: refrigeration", *National Geographic*, 20.11.2020.
- Rohwedder W. (2021) "Geimpft - und dann?", *Tagesschau*, 19.01.2021.
- Rufin M. (2021) "Wer jetzt geimpft wird", *Die Neue Südtiroler Tageszeitung*, 16.01.2021.
- Schlak M. (2020) "Das riskante Wettrennen der Pharmakonzerne", *Der Spiegel*, 14.03.2020.
- Sheen M. (2020) "Shot in the arm or a shot in the dark? Complacency fears over Covid-19 vaccine equity market boost", *Investment Week*, 13.11.2020.
- Spinney L. (2020) "How the race for a Covid-19 vaccine is getting dirty", *The Guardian*, 30.08.2020.
- SRF (2020) "So steht es im Rennen um den Impfstoff", 23.11.2020.
- Strana.ua (2020) "Ochota na Covid-19. Kto i kogda sozdast vakcinu ot koronavirusa", 24.03.2020.
- Švarcman V. (2020) "'Eto kak cholodnaja vojna'", *Lenta.ru*, 15.10.2020.
- Tajzhetinova M. (2020) "Sputnik ili Moderna: kak prochodit vojna vakcin i kto vpered", *MBK*, 24.10.2020.
- TASS (2020) "Eto daže ne gonka, a lotereja. Kto pervym najdet vakcinu ot koronavirusa?", 18.03.2020.
- Tgcom24 (2020) "Covid, piano vaccini ai blocchi di partenza: possibilità di requisire frigoriferi

alle industrie e fiale tracciate su un portale”, 29.11.2020.

Verdelli C. (2020) “Covid, la scienziata che isolò il coronavirus: ‘Il vaccino da solo non basterà a far sparire il virus’”, *Il Corriere della Sera*, 22.11.2020.

Von Altenbockum J. (2020) “Wann kommt der Corona-Killer?: Das Impfwunder”, *FAZ*, 09.11.2020.

Walker B. (2020) “Das Verteilen des Impfstoffs wird eine Herkulesaufgabe”, *Badische Zeitung*, 24.11.2020.

Weber N. (2020) “Was Allergiker jetzt wissen müssen”, *Der Spiegel*, 23.12.2020.

ZDF (2020) “Suche nach Impfstoff”, <https://www.zdf.de/nachrichten/zdfspezial/zdf-spezial---coronavirus-clip-4-100.html> (consultato il 23.01.2021).

Zoske S. (2020) “Eine magische Kugel aus Tuberkulose-Bakterien”, *FAZ*, 10.11.2020.