

Swarthmore College

Works

Senior Theses, Projects, and Awards

Student Scholarship

Fall 2022

Translation *al Mercato del Pesce*: The Importance of Human Input for Machine Translation

Emma Y. Schechter , '23

Follow this and additional works at: <https://works.swarthmore.edu/theses>



Part of the [Linguistics Commons](#)

Recommended Citation

Schechter, Emma Y. , '23, "Translation *al Mercato del Pesce*: The Importance of Human Input for Machine Translation" (2022). *Senior Theses, Projects, and Awards*. 316.

<https://works.swarthmore.edu/theses/316>



This work is licensed under a [Creative Commons Attribution-NonCommercial 4.0 International License](#).

This work is brought to you for free by Swarthmore College Libraries' Works. It has been accepted for inclusion in Senior Theses, Projects, and Awards by an authorized administrator of Works. For more information, please contact myworks@swarthmore.edu.

Translation *al Mercato del Pesce*: The Importance of Human Input for Machine Translation

Emma Y. Schechter

A thesis submitted in partial fulfillment of the requirements for
the degree of Bachelor of Arts in Linguistics

Bryn Mawr College
December 2022



Abstract

This thesis investigates translation of Italian idioms and metaphors into English, and the difficulties encountered by Machine Translation in this process. I use a framework of foreign concepts to explain many of the difficulties, as well as interviews with native Italian and English speakers to provide further context for the cultural knowledge encoded in figurative language. I conclude that in Machine Translation a consistent human input interface as well as a continuous training in language corpora is crucial to improve the accuracy of translated metaphors and idioms, using Italian to English translation as a case study.

Table of Contents

1 Introduction.....	3
1.1 Research Question and Hypothesis.....	4
2 Cultural Introduction.....	4
2.1 Foreign Concepts.....	5
2.2 MT Introduction.....	6
2.2.1 BERT.....	9
2.2.2 Natural Language Processing.....	9
2.2.3 Neural Machine Translation.....	9
3 Data Introduction.....	10
3.1 Participant Interview Methods.....	11
3.2 Phrase Analysis Methods.....	12
3.3 Dataset: Phrases Translated.....	14
3.4 Interview Data.....	29
3.4.1 Italian Interviews.....	30
3.4.2 English Interviews.....	39
4 Conclusions/Discussion.....	43
Appendix A.....	46
References.....	52

1 Introduction

Idioms and metaphors are used across languages to describe situations and concepts through different phrases and utterances which hold parallels to the current society associated with the language from which the metaphors and idioms originate (Turner, 2003). However, utilizing idioms and metaphors whose origin is in a totally different language than the one being spoken, proves to be quite difficult when certain concepts are foreign to another culture. A main characteristic of both metaphors and idioms includes their non-literal use of many words in the phrase (Gibbs & Nayak). Davies (1983) argues that idioms are known as such because of their unique ability to have a constructed literal meaning entirely different from the figurative intent of the idiomatic phrase, wherein each word's generally known definition on its own has no aid in understanding the idiom. A somewhat agreed upon distinction between idioms and metaphors notes that idioms require less figurative understanding of the phrase's words combined than the usage of general knowledge shared by speaker and audience (Davies, 1983). This implies that metaphors utilize more figurative concepts than idioms, and idioms can be defined as such because generally speaking, some of the words' general definitions in an idiom contribute to the overall understanding of the idiom itself. Most children in America are introduced to the concept of metaphors as phrases that use the words "like" and/or "as," but I will utilize a definition of metaphor which in the correct context, can be more generally understood than a typical idiom due to a figurative nature which can be more readily translated into a phrase of equivalence in another language (here, English). Idioms will thusly be distinguished as phrases that convey a figurative meaning of words not meant to be taken literally and are not solely understood through a shared cultural knowledge of the speakers and general audience.

In an Italian dissertation on a pragmatic and psycho-social analysis of Italian insults, Stancato (2011) briefly mentions the cultural struggle of translating from one language into another; whether to translate the intended meaning or doing so while keeping in mind the culture of the language into which an utterance is translated. I will touch upon this inherent struggle as it relates to fluent Italian-speaking participants', Google Translate/Machine Translation's, and my translations of the given phrases. In some cases, culturally distinct understandings and references for certain words go hand-in-hand with the translation offered by either me or by the voluntary participants and their translation.

As Davies (1983) puts it, the reason idioms cannot be "translated" from one culture to another includes the lack of background knowledge that a foreign listener has on the possible references made in the original language. In this way, an accurate and apt translation of a metaphor or idiom should include equivalent cultural knowledge in the target language to describe the figurative language utilized in the original language of the metaphor. This ranges from Italians trying to understand metaphors in English, to Americans trying to understand metaphors originally in Italian. Within Italian dialects and regional cultures, interview data suggest that while metaphors

and idiomatic phrases may not be common in a certain area, their meaning is generally understood by those that may not have the phrase in their linguistic repertoire. For this reason, we can assume that for the most part, this cultural knowledge is “baked in” to the Italian language as a whole, especially when these phrases are in proper Italian and not in regional dialects, which cannot be mutually understood by all Italians. Aptly, Davies (1983) also mentions general phrases such as “how the world works” to help describe his examples for English idioms – at least one of which includes inferences about shared cultural knowledge in America when the book was written. These words offer a glimpse into how past authors have aimed to philosophically explain cultural linguistic knowledge as a general understanding of a population’s surroundings and average life. In this way, those general understandings that one population has intertwined with language, will be considered “foreign concepts” as they relate to the understanding of metaphorical and idiomatic phrases in Italian translated to English.

1.1 Research Question and Hypothesis

This thesis will examine the syntactic and semantic differences between machine translation and human translation of metaphors and idioms translated from modern Italian into modern English. In order to determine and establish the differences between the two possible translations, I have collected sayings and metaphors that my family uses regularly in Italian, which cannot easily be directly translated from Italian to English. Human translation can take long periods of time, especially without the addition of cultural and societal knowledge sustained by a language’s people. Machine Translation continues to fail in providing metaphorical equivalents and idiomatic phrases when translating metaphors and idioms. If humans can use L1 (first language) and L2 (second language) to combine language repertoires for a better understanding of metaphors and idiomatic expressions, because of the possible inner matrix that one creates to combine and contrast those concepts, I propose that a Machine Translation is also capable of doing so with different (yet limited) corpus’ which offer equivalents across languages. I also propose the consistent addition of a user-interface with the option of a user-input for humans to provide their best translation of different phrases, so that the machines may take this information and build upon it as its own corpus for continued learning.

2 Cultural Introduction

Multilingualism goes hand in hand with the appropriate integration of conceptual differences between languages. In fact, De Cock and Munoz (2018) claim that the conceptual and contextual dissimilarity between phrases, which multilingual students were asked to translate from their second language (L2) Spanish to their first language (L1) French, affected their ability to infer the correct interpretations of metaphors. The authors suggest this may imply that the students rely on general embodied experiences when translating and conceptualizing metaphors in a different language (De Cock & Munoz, 2018). Just as these students had to rely on their past experiences in their second and first language to translate phrases into their first language, any

multilingual person aiming to translate a metaphor is able to consider and rely on cultural knowledge to translate figurative phrases from one language to another. Schoos and Suñer (2020) claim that metaphors should be approached in terms of concept maps from a source domain/language onto target domain/language. Specifically, humorous metaphors rely on a concept map with connections that may be considered incongruent or unprecedented to someone that is unfamiliar with that language and therefore culture (Schoos & Suñer, 2020). Christina Schäffner's essay "A roof is an umbrella" in Sidiropolou's (2005, page 49) book *Identity and Difference: Translation Shaping Culture* claims that metaphors can be considered as a model for understanding thought processes in society, not simply a matter of language they become a device to conceptualize the surrounding world. Thusly, metaphors present in a society offer cultural and ideological predispositions to those that exist within their paradigm. Schäffner introduces Lakoff & Johnson's (1980) Conceptual Metaphor Theory as a way to understand a population's thought, not merely language. This is emulated in Pertti Hietaranta's essay "Language, culture and the Internet: to globalize or not to globalize through translation?" again part of Sidiropolou's (2005, page 27) book mentions that internet translation has the potential to shape other language's culture through the rendition of terms into another language. Cultures gradually and unconsciously develop mutual bonds through cultural borrowing, facilitating communication between them (Sidiropolou, 2005, page 27) and the translations of phrases, especially metaphorical or idiomatic which can relay information about a population's sentiments and thoughts about concepts involved in said phrases. Pertti (Sidiropolou, 2005, page 27) also argues this has given rise to terminological decisions wherein more common expressions from the target language are utilized in translations rather than international ones. However, critical considerations of this sort can only *currently* be performed by human translators, who are aware which metaphors have novel uses and those whose idiomatic effects are dulled after too much usage by the general public (Krishnakumaran & Zhu, 2007).

2.1 Foreign Concepts

Tate and Pearlman (2016) use the term "foreign concepts" to reference health risks and scientific innovations that the general public might not understand without the aid of metaphors, specifically military ones, in health care. For example, "Mom battled as hard as she could," or "my consultants [attending physicians] recognized that I was a born fighter," (Tate & Pearlman, 2016). These metaphors aid doctors in relaying news that they may not otherwise know how to word, while simultaneously giving the patient/patient's family a sense of power and strength for a given situation. The article discusses patients understanding their own health better once doctors offer metaphors for situations at hand (Tate & Pearlman, 2016). While the metaphors are not necessary to understand the medical contexts, they make it easier to do so in a stressful situation where a patient may not be fully acquainted with medical words or knowledge; these metaphors give language to pain while respecting the presence of war in many patient's lives, according to the authors. Meanwhile, Gorbatenko et al. (2019) reports that, after performing an experiment which

asked Russian participants to interpret English-language legal concepts and documents, with the aid of dictionaries and encyclopedias, foreign concepts were understood more often than not by non-native speakers because of their professional legal knowledge – even if it was originally only in Russian. While the first example equates the information being conveyed to being a “foreign concept” to those listening, and the second example equates the legal knowledge as a “foreign concept” for the general public, I argue that the cultural knowledge necessary for a non-Italian to understand metaphors and idioms in Italian can similarly be considered “foreign concepts” to the listener. Czarnecka (2005) argues that translating concepts must be represented in source and target languages by utilizing different ideas and images in the target language. In order to “transplant a foreign concept into the native concept,” (Czarnecka, 2005) loosely, stylistic devices and grammar must be somewhat maintained so long as is allowed in the target language, all while the context and environment of the phrase must be considered. While Czarnecka (2005) writes about Polish-British English translation, I find this explanation apt to better understand the concept of creating a somewhat *new* metaphorical or idiomatic phrase when translating ones from Italian into English – either via Machine Translation or human translation. Lakoff and Johnson (1980) coined Conceptual Metaphor Theory, which claims there exist commonalities between types of metaphors with similar concepts, each with different physical or social bases. As will be seen later in this thesis, in order to see whether concepts in Italian metaphors would translate into existing or similar English-American metaphors or metaphorical concepts, I asked English interview participants whether they knew any metaphors similar to the translation of those provided. As will be seen in certain examples offered, phrase numbers 4, 5, and 9, equivalents in other languages are offered with their respective English translation. In these instances, the metaphors and idioms can be translated and still hold metaphorical and idiomatic qualities in a different language and *foreign* place.

The contextual cultural and societal concepts and knowledge required to understand metaphors and idioms, inherently cannot be easily translated into a different language. This is especially hard when metaphors are known to require the phrases surrounding them to offer a somewhat allegorical framework in order to be understood (Lakoff & Johnson, 1980) . These cultural and societal concepts contained in metaphors and idioms are, for the most part, foreign to non-speakers of the language which contains said metaphors and idioms aimed to be translated.

2.2 MT Introduction

The two main Machine Translators that are utilized in this thesis include the commonly well-known Google Translate, and the DeepL Translator, less well-known, both of which are found online. Google used something called a “Phrase-Based Machine Translation,” until the “Google Neural Machine Translation” system was introduced in 2016 (Le & Schuster, 2016). The Google Research page which states this information explains that this system utilizes a training method to improve qualities of translation; their Neural Machine Translation views input sentences

for translation as a single unit for translation, compared to the Phrase-Based, which looked at words and phrases within input sentences to be translated independently (Le & Schuster, 2016). The newer version of Google Translate’s algorithm still makes mistakes translating input sentences out of context, sometimes offering direct translations of nouns which are less common than what is colloquially used today. DeepL Translator, as of 2021, also uses artificial neural networks-which are trained on huge corpuses of data and is shown different examples many times so that it may compare its own translations to those from the training data (*How does DeepL work?*, 2021). According to the DeepL website, the translator also automatically assesses the quality of other translations on the internet for a given input via “special crawlers,” but the specifics of the algorithms used by DeepL are not discussed (*How does DeepL work?*, 2021).

All Machine Translation systems must receive training, which includes a manually given corpus of data, so that the machine can begin to store knowledge of how to translate from one language to another. In very early work contemplating the mechanisms of Machine Translation, Weaver (1952) proposed that when a machine “senses” the components of a word to determine whether it already contains information about the word, the system does not consider homonyms, context, or word order. At the heart of Weaver’s (1952) claim exists a problem which arises to this day in Machine Translation; ambiguity of words in multiple contexts and of metaphorical or idiomatic phrases provides an added layer of difficulty for machines to discern correct meaning, even after utilizing training corpuses. However, one thing which scientists continue to understand is the necessity for a model of conceptual mapping similar to that of humans; as of 2012, Melby et al., describe that post-editing of Machine Translation had become more common as the final step between the MT’s raw output; output which is then corrected by human editors for phrases that cannot be accurately translated by the Machine Translation’s offered output. This has its limitations however, because of the lack of enough skilled human translators for a given language, allowing the proposal of two software apps to facilitate this assessment – one which aids to establish post-editing specifics (the Ruqual Specifications Writer) and one which provides a table rubric for machine use (the Ruqual Rubric Viewer)(Melby et al., 2012). Since then, an open-sourced algorithm has been created which can give someone the semantic distance between two words within a user-specified language transcript, those with closer meaning have a lesser distance, and while this article discusses the usage of this R package in English, I find that something of this sort for languages in translation would offer machine translation another route to achieve more accurate output for metaphors and idioms (Reilly et al., 2022).

These proposed solutions though, were not meant to apply to general public consumption of Machine Translation (Mely et al., 2012), leaving the general public to completely rely on the mechanical aspects of Machine Translation to this day. For this reason, I propose that these Machine Translate interfaces offer users an option to input their own best translations for phrases the machine incorrectly translated. This alone would not solve the issues of metaphors and idioms incorrect translations, however paired with a possible continuous training system it may. While

this system may not currently exist, by which the machine continues to use inputted data, if newer articles and corpuses could be added to the machine's knowledge repertoire then newer colloquial phrases may be more accurately translated into different languages. This would help the machine continue to assess the quality of its own translations as compared to both a corpus of phrases and words translated and to the inputs offered by general users (Khanmohammad & Osanloo, 2009). I propose utilizing more recent additions to the growing corpuses of translated works, especially because in my own research none of the phrases in this thesis were in Lakoff et al.'s Master Metaphor List as of 1991.

2.2.1 First subsection in Section 2.2: BERT

BERT, or Bidirectional Encoder Representations from Transformers, is a technique for the translation machine to learn Natural Language Processing, developed by Google (wikiBERT, 2022). This is a way of pretraining machine models, in either BERT, which is a masked language model, which weighs and optimizes inputs to create an equivalent output, or in BiBERT which is a bilingual pre-trained language model (Xu et al., 2021). Two main goals of BERT are to optimize language modeling and next sentence prediction (wikiBERT, 2022). As a large pre-trained Neural Network (Clark et al., 2019), BERT can be used in conjunction with NLP or NMT (Clinchant et al., 2019 and Clark et al., 2019). According to Google Blogs, BERT utilizes a bidirectional and unsupervised representation of language, and pre-trained using Wikipedia as a text corpus. These two representations of language allow for context-free and contextual representations which can then be unidirectional or bidirectional to connect concepts to one another within and presumably between languages (Delvin & Chang, 2018). In 2019, a BERT model was trained in the Italian language from Tweets and named AIBERTo, it aimed to create a linguistic resource for social media Italian that could address NLP problems in English (Basile et al., 2019). This was done mainly because up until this point, BERT was most efficient in single-language models, but the authors of this article found that the model was well suited for classification and prediction tasks (Basile et al., 2019).

2.2.2 Second subsection in Section 2.2: Natural Language Processing

Natural Language Processing is an intersection between linguistics and computer science that aims to gather information on how humans use and understand language in order to allow for Machine Translation to understand and utilize in different tasks (Chowdhury, 2003). A main technique includes the machine's automatic acquisition of words and their representations of semantic content on individual lexical levels, which allows it to complete a central task of processing potentially ambiguous colloquially used language (Chowdhury, 2003). NLP was initially distinct from IR (information retrieval) statistical software, which indexed and searched most efficiently (Nadkarni et al., 2011). Ultimately, NLP is meant to extract meaning from a text, and it has been used alongside other training methods for machines to better understand language by machines- AKA computational linguistics such as sentiment analysis, spellcheck, text-to-speech.

2.2.3 Third subsection in Section 2.2: Neural Machine Translation

While Neural Machine Translation is computationally expensive for both the training process and in translation itself, it offers a learning approach to automated translation (Yonhui et al., 2016). Neural Machine Translation (NMT) builds a single neural network which is jointly tuned to maximize translation outputs (Bahdanau et al., 2016). This means that for each sentence input, one neural network is created to generate more knowledge based on the input, depending on the valued weight of the output as compared to the input and the training corpus. While some

Neural Networks retain data forever and continue learning until reset or retrained, others simply retain the conclusions learned from input/output sequences, but do not apply the information in future usages, presumably because of the difficulty in applying new knowledge which was not covered in training data (Han, 2021). The NMT training and translating process utilizes encoders to encode a source sentence into the fixed-length vector, which is then used by the decoder to create a translation (Bahdanau et al., 2016). Bahdanau et al., (2016) proposes that the NMT should automatically (soft-)search for parts of the source sentence which might be relevant to predicting target words, without having to create these parts as hard segments explicitly. This is the process which Google Translate has used since 2016, as mentioned before, and causes mishaps in translating rare words. As the name suggests, this approach to Machine Translation uses a model which aims to replicate the brain's neural networks artificially in order to help predict the chances and order of certain words used in a given translation (Team T.B.L., 2020). In Chapter 13 of Koehn's (2017) book, tone is described as a required sentiment analysis component to neural machine translation, determining how people feel about things ranges from very to not complex at all. However, idioms are understood lexically, meaning that an NLP model contains a lexical definition at its base, while a neural machine translation system must judge the truth value of literal versus non-literal words when a metaphor is being translated (Koehn, 2017).

3 Data Introduction

In this section I will introduce Italian phrases, classified as either metaphor or idiom, and offer an analysis of my decision based off of my cultural knowledge and the syntactical structure of the Italian phrases as compared to their direct and loose/general translations I created in English. After these initial translations and morphological gloss' of the Italian phrases, the Google Translate and DeepL Translator (both Machine Translators) outputs can be seen respectively. I was able to pull from my own language and cultural knowledge of Italian to provide initial translations and analyses of the metaphorical and idiomatic phrases, since Italian was my first language. In order to best describe the figurative concepts in each phrase, social pragmatics from my personal life and that of my interview participants offer a better understanding of cultural knowledge present in certain words which hold more figurative meaning in the phrases.

3.1 Participant Interview Methods

Native Italian speakers (4) and Native English speakers (2) were both interviewed. All interviews were entirely voluntary, and no compensation was given for participating. Interviews conducted with Italian participants included some professors of Italian Studies and several friends of mine from Italy between the ages of 23 and 33, while interviews with American-English speaking participants were conducted with peers at Bryn Mawr College. The questions in both Italian-speaking and American-English-speaking participant interviews were formatted to parallel one another as much as possible. The goals of interviews with Italian participants were to determine whether Native speakers of Italian would accept translations offered by machines, determine the accuracy of said translations, offer their cultural perspectives on the metaphorical and idiomatic phrases, and offer possible solutions to faulty Machine Translations. On the other hand, the goal of interviews with American English-speaking, monolingual, participants were to compare their understandings of each metaphorical and idiomatic phrase's translation to the intended meaning of these phrases as offered by Italian participants and their cultural knowledge they comparted. The interviews conducted with American English-speaking participants aim to offer a perspective of a person utilizing Machine Translation for Italian metaphors and idioms.

Italian participants were asked to first offer their own translations of the nine Italian idiomatic and metaphorical phrases. Upon hearing the phrases to translate, many Italian participants started to explain their reasoning and cultural knowledge regarding certain words and the phrases themselves. While this question instructed participants to refrain from simply explaining the metaphor or idiom, I refrained from interrupting or stopping participants from explaining their understanding of the usage of the phrases or their initial reactions to them – this was when many participants offered relevant cultural and societal knowledge as it related to the phrases. Next, Italian participants were asked for their judgements of the Google Translations of each phrase. The Italian participants were then asked how Google Translate could better translate metaphors and idioms, and what that might include in their opinions. Then, they were asked why they believed their own translations to be the best translation of the phrase, and whether they would consider a true metaphor/idiom translation as one that transforms the phrase into a preexisting one in English. The third-to-last question prompted interviewees to think of metaphors or idioms in Italian that could be translated into a different yet equivalent metaphor in English, and whether they have ever heard anyone attempt this – this question proved to be quite difficult for many participants since they were put on the spot to think of multilingual instances with other English-speaking Italians. Second-to-last, I asked whether Italian interview participants would understand each Machine-Translated metaphor or idiom from English to Italian in an English sentence; whether they could contextualize it or understand it alone. Finally, I offered the Italian participants the English idiomatic phrase “Rome was not built in a day,” translated into Italian by myself and Machine Translation. Using this phrase as an example, I asked whether interviewees could understand the

intended meaning of the phrase when translated by Machine Translation, how they would possibly improve the translation, and whether the two translations offer any stark similarities or differences.

American English-speaking interviews were conducted after all Italian interviews were completed. The first question English-speaking participants were asked was whether they thought they could understand the intended meaning of a translated metaphor/idiom. This first question depends on the translations offered by the Italian participants; it would be asked for the Machine Translation of each phrase, the average translation offered by Italian participants, and the initial translation which I provided upon gathering the phrases. The interviewees were then prompted to explain what their understanding is of each translation for each phrase. Next, the American English-speaking participants were asked how difficult or easy it was to discern a meaning from the translated iterations of each metaphorical phrase and idiom. Then the participants were asked whether they know any existing metaphors or idioms in English which accurately convey the target meaning of each Italian metaphor or idiom, and whether the English phrase could contain similar or different connotations depending on its meaning and usage. Finally, American English-speaking participants were asked whether they would understand the intent of a metaphor or idiom created using the original Italian phrases as a backbone, which contexts they might need in order to understand the metaphor, and how it differs from the Machine Translation of the Italian metaphor.

3.2 Phrase Analysis Methods

The phrase structure of Italian metaphorical and idiomatic phrases, for which I have provided a morphological gloss, contain first the literal Italian meaning and are then followed by the figurative meaning and translation of each phrase in English. Where applicable, as a Native Italian speaker I have added metaphors and idioms that already exist in English as equivalents for the Italian phrases. A syntactical analysis of the original Italian phrases can be found along with a historical etymology and explanation of the phrase's usage in Italian. This analysis is then compared to an interpretation of the English equivalent or literal translation, to further highlight the cultural differences and knowledge necessary to understand the Italian metaphors and idiomatic phrases.

I have chosen one modern English expression to translate into Italian, to exemplify the change in the expression's meaning with literal translations of each word. The following expression shows an example of figurative speech translated from a classic English expression into a modern Italian metaphorical phrase:

1. "Roma non è cresciuta in un giorno" / "Roma non è costruita in un giorno"
Rome not is grown_3 in one day / Rome not is built in one day
"Rome was not built in a day" / "Rome was not built in a day"

Google Translate:

“Rome didn’t grow in a day” / “Rome was not built in a day”

DeepL Translator:

“Rome didn’t grow up in a day” / “Rome is not built in a day”

“Rome did not grow up in a day” / “Rome isn’t built in a day”

“Rome didn’t grow in a day” / “Rome is not built in one day”

“Rome did not grow in a day”

As can be seen in this expression, the word *cresciuta* or *grown* is meant to replace the word *built* in my Italian metaphorical translation. I chose this word in my Italian translation because I had not yet found out that the expression already existed in Italian – and in a very similar way. Using a word rather than *built* in my Italian metaphorical translation sounded more natural to me because of the somewhat “meta” quality of the reference to not just a place in Italy, but the capital city. The simple change of utilizing a figurative word (*cresciuta* / *grown*) rather than the literal translation of a word (*costruita* / *built*), makes sense when considering the English metaphorical use of the process of “growing” something. English metaphorical usage of the word and concept of “growing/growth/grow” mainly focuses on processes in the plant world used to describe emotions surfacing in different relationships (Esenova, 2008). In English, one’s budding emotions for another or even the slow decay of a friendship, connotes the experience of *growth* (Esenova, 2008), whereas the Italian literal usage of this word acts upon an inanimate object- the city of Rome. Regardless of the fact that the city was clearly built by people, animate beings, the city itself is not an acting force of matter that can multiply itself by utilizing time and energy like humans or plants inherently do. In either Italian or English colloquial usage of this word though, the phrase’s analogy may be used to describe a growing relationship to something or someone which requires commitment and dedication.

Utilizing the third person verb *cresciuta* / *grown*, the first version of this phrase in Italian alludes to the past tense in the conjugation of the verb, whereas the verb *costruita* / *built* is a transitive verb in passive tense which defaults to present tense in the English Machine Translations. The second version of the English saying, “Rome was not built in a day,” is much more similar to the English version from which the phrase is borrowed. This first version of the metaphorical phrase emphasizes the figurative value of the word *grown* to convey the same meaning as the direct translation. However, both Machine Translations very literally translate the phrase to use the literal word “grow” rather than the figurative concept of “build,” considering the imagery of the stones *growing* out of the land with the human help of the builders, to then *create* the city of Rome. This phrase holds overall metaphorical status – the concept of Rome being created in a day is clearly not literal since something so grand and sturdy has been standing somewhat intact to this day, yet the implied meaning has little to do with Rome; rather the phrase is meant to convey a sense of great things taking time to be created. While this first version of the English metaphor is understandable to some Italians, including myself, the Machine Translations do not pick up on the overall figurative meaning of the phrase.

When discussed with Native Italian interview participants, very few appreciated either translation of the common English phrase; *creciuta/grown* does not make much sense while the grammar of the second version is incorrect. The second phrase is in present tense, “*non è/not is,*” which was frequently corrected to “*non è stata*” which loosely translates to “was not” (“not is was”). While some participants said the phrase was strange, all said that they could understand it, but they would never utter it or expect a Native Italian to say it either. There may be something to say about the fact that I found the first version an adequate metaphorical equivalent for an Italian version of this English phrase: having been raised in America while speaking Italian at home and knowing the American-English metaphorical connotations with the word *grow*, it is possible I substituted *built* in one version because of my own emotional attachments to the Italian language. When Italian participants were asked whether they would understand the modified phrase (*creciuta/grown*), they agreed that in the correct context, they would be able to. However, none of them said that they would naturally utter the modified metaphorical phrase (*creciuta/grown*), either in English or in Italian.

3.3 Dataset: Phrases Translated

While there exist corpuses of metaphors in English and Italian (Deignan & Potter 2004, Lakoff & Johnson 1980), there are many less resources that examine translation of figurative phrases between the two languages: Özbal et al.’s (2016) piece about English proverbs and their Italian equivalents; Deignan & Potter’s (2004) corpus of Italian metonyms in English and Italian; and Phillip’s (2003) corpus investigation on the use of color words in English and Italian. This section will offer an interpretation and translation- both human and machine- of ten phrases which do not exist in any of these corpuses as found here. Ten colloquially and commonly used metaphorical and idiomatic phrases in Italian were collected after spending a summer with my extended family in Milan, Italy. These phrases are not only ones which I have heard uttered by family members over the years, they are also phrases which I have used and continue to use when speaking Italian.

In order to determine whether each respective phrase can be considered an idiomatic or metaphorical phrase, I will operationally define each one. Idiomatic expressions are ones which utilize the literal definitions of words to help understand the figurative meaning of a phrase – these are phrases which generally convey more information through commonly understood cultural and societal knowledge and may seem awkward in a different language and cultural context. Metaphorical expressions therefore will be defined as phrases whose meaning can be discerned without any background cultural or linguistic knowledge necessary; these phrases may utilize more figurative concepts than idiomatic ones. Each example is numbered and contains a direct word for word analysis in the first line, followed by a morphological analysis of the phrase in the second

line, and an English translation which I offer in the third line. This initial gloss is followed by the Google Translate and DeepL Translator outputs for the phrase, respectively.

1. “Non capisci un tubo”
Do_not understand_2 a tube
“You don’t understand a thing”

Google Translate:

“You don’t understand a pipe”

DeepL Translator:

“You don’t understand a thing/damn thing/damned thing/a tube”

This example utilizes a placeholder word, *tube* to convey the concept that someone does not understand anything to which may be referred to in a given moment. The English translation, however, is forced to utilize the word *thing* because there is no widely accepted item that is culturally or societally agreed upon to be generally simple and clear to understand – i.e., how a cylindrical tube in Modern Italian is viewed. I decided to classify the Italian phrase as an idiom because of the lack of a general use of figurative words. While the term “a tube” is a placeholder for *anything* that is colloquially understood as simple, it does not hold inherent metaphorical value since the concept of a tube does not replace any other concrete idea or concept.

The direct translation of this idiom makes enough sense in English, that a random American would be able to mostly figure out what is being said to them, even though it more or less uses the command form “don’t understand” to convey a pretty rude judgement or observation about the listener. While the colloquial English translation of this phrase is “you don’t,” the Italian phrase conjugates the word “understand,” *capisci*, to the second person after the initial negator *non*, “do not/don’t.” Going off of Stancato’s (2011) insight that a translator has a choice of where to include the listener’s cultural knowledge in a given translation, I decided to google search the words “un tubo” and “a tube” to find that the Italian version offers mostly industrial and metal tubing whereas in English, *tubes* of toothpaste and other gel-substances also resulted in the search (Appendix A). Upon speaking to other Italians, it was a general consensus that the word *tubo*, in Italian, is more prototypical as an industrial/architectural term, rather than its other usage as a tube of toothpaste or art supplies such as acrylic or oil paint. This is a very simple example of the inherent cultural differences in the associations someone may have for the same exact word, but in different languages. For this reason, an English speaker that has no Italian cultural and semiotic knowledge may not inherently understand why the word “tube” is meant to signify an incredibly simple concept that everyone should understand.

This phrase’s structure in Italian, includes an unspoken subject (*you*, the listener), which is implied by the conjunction of the Verb Phrase “non capisci,” which is in the second person

singular. The initial word, “non” is a negator and is separate from the Verb Phrase which includes “capisci” followed by the Noun Phrase “un tubo.” The English syntax is somewhat similar, wherein the subject of the phrase “You” is not unspoken – the Verb Phrase followed by the Noun Phrase in this instance is parallel to the Italian idiom.

The google translation of “tubo” with no language prompt, and with a google search of “tubo in inglese” (“tubo” in English), outputs the detect language as Filipino and a translation of “pipe.” While this may not imply any particular finding, it is interesting to consider that the Machine Translation could have utilized data from translating homonyms in other languages to aid its translation of a specified language. However, once the language on Google Translate is changed to Italian, it outputs the definition as “tube,” with “pipe” as a second-best option. This is interesting because it may indicate that the Google Translate system somewhat detects the figurative, or possibly foreign to the machine, language in the phrase inputted to the system. The Machine Translator could be detecting a parallel word between two different languages, or it is possible that the word *tubo*/tube is holding figurative meaning due to the possibility of being translated in two different ways, one of which has an entirely different meaning (i.e., a smoking pipe). The DeepL Translator’s outputs for this phrase seem to encapsulate the intended meaning of the phrase, suggesting that this interface for translation can somewhat detect the metaphorical place-holder of the word “tube” to mean something simple or anything for that matter.

All Italian interview participants felt that the machine translation outputs for this phrase did not encompass the cultural meaning of the placeholder word “tube,” and none felt that they could come up with a similar expression to describe an empty pipe as an allegory for an empty brain (Participant 3’s explanation). American participants, however, had mixed reactions to this phrase’s literal translation as offered by Google Translate- one mentioned that they might not initially understand if they didn’t have any Italian knowledge, and the other understood the intended meaning immediately without any Italian knowledge available to them.

2. “Allunga la zampa” / “Allunga il piatto”
Elongate the paw / Elongate the plate
“Pass your hand (to me)” / “Pass me your plate”

Google Translate:

“Stretch your paw” / “Extend the plate”

DeepL Translator:

“Stretch your paw” / “Stretches the plate”

“Stretch out your paw” / “Stretches the potato”

“Stretches its paw” / “Stretches the dish”

“Stretches out your paw” / “Stretches the plato”

This example has two equivalents in Italian, one which includes an animal's body part (the paw) and one which includes the real object at hand (the plate). What is interesting is the metaphorical usage of the word *elongate* in Italian, which enacts a sort of personification of the verb for both speaker and listener; with the physicality of bringing not only the plate closer to the speaker, but also one's hand and therefore body. The first version of this metaphor implies the presence of a plate, or an object with which another person in dialogue can interact, and therefore offers the listener an array of possible new interpretations given the context of the utterance. Beyond the similarities in the first two thirds of the Italian metaphor here, the utterance of either metaphor requires that the listener is physically holding something that the speaker will utilize in some way for the mutual benefit of speaker and listener. While the literal meaning of the second version of this metaphor is unlikely to occur or be generally useful in a language, the usage of the word *plate* holds literal meaning necessary to understanding the humanly corporal reason for its equivalent to exist; the intrinsic use of one's hands holding an object of significance to the speaker who references said object or literally one's hands.

A quick search on Google Scholar with the phrase "allunga la zampa" shows its' commonality in young children's books and plays – the figurative and metaphorical nature ("elongate" and "paw") of the phrase allows it to be used frequently in magical realism and descriptions of characters reaching for something near them. This seems to be more of a culturally acceptable saying because of the generations of sayings and metaphors in Italian which contain different parts of the animal body (Sisto, 2010).

This Italian metaphor takes on a command form when used colloquially, presumably with those close to the speaker, via the first word "allunga," a verb conjugated in second person. This verb is followed by the noun phrase "la zampa"/"the paw" or "il piatto"/"the plate." The unspoken subject of either phrase is the listener to whom this phrase was directly spoken, followed by the vagueness of the figurative object the audience must "elongate"/"pass." The noun phrase in either instance is presumed to be an object within arm's reach of the listener, possibly offering a glimpse into the cultural figurative value of "paws" and "plates" in Italian culture.

Strangely enough though, a Google Translate search of the Italian word "zampa" ("paw"), outputs the English word "leg," initially, with the word "paw" as a second-best option. Google Translate outputs the Italian translated word "allunga" into two different English words with similar figurative meaning to the Italian word; "stretch" and "extend." While I am unsure whether the phrase "allunga la zampa" could have any English equivalent beyond "pass me your hand," which arguably has figurative value because of the general inability of a person to detach their hand from their body to then give it to someone else, and the comparison inferred by a paw equating one's hand. The DeepL Translator uses the word "stretch" to translate *allunga*, in both phrases, whereas the Google Translate engine does so only for the first – possibly because of the association of the act of stretching with a living body, which is inferred by the presence of a *paw*.

DeepL Translator seemed to have some problems with the second phrase, offering the word “potato” and “plato,” as viable translations for the word *piatto*, or *plate*. One American-English speaking interview participant, who is familiar with the Italian language, mentioned that the DeepL Translator may have outputted these words because it had not yet seen metaphorical usage of stretching a plate rather than the usage of the word “extend” in the American-English phrases “extend an invitation,” or “extend an offer.” This seems to make sense since the words “to stretch” and “to extend” are not frequently used in metaphorical phrases that require an acting body to perform a verb toward the speaker; English uses of “extend” and “stretch” are utilized to describe moving-time and moving-ego in metaphors (Brdar & Brdar-Szabó, 2017).

Yet, a simple addition of two personal pronouns and the change of the determiner in the second iteration of this Italian phrase translated into English would make it easier to understand for an English-speaking audience: “Extend to me your plate,” or colloquially could possibly be said as “Extend me your plate.” The latter of the two, arguably, could still hold metaphorical value since the words imply that someone should extend a plate between two people, which is clearly not the intended meaning of simply passing a plate to the speaker.

Two Italian participants specified that it is almost considered colloquial and grammatical Italian to utilize the word “allunga” or “extend” when asking someone to pass something to the speaker of the utterance. This was interesting because at first, these two interview participants were confused by the presence of these phrases among other metaphors and idioms – to them, “allunga il piatto” did not even register as a metaphor until explained in English (one cannot literally elongate a plate or a paw). This simple introspective observation that the two participants offered upon realizing the metaphorical nature of the word “allunga,” furthers Lakoff and Johnson’s (1980) approach to metaphors as a pervasive conceptual system which reflects a person or group of person’s thinking and acting in everyday life. In general, American English-speaking participants were put off by this phrase, and felt that it would require explanation to understand the metaphorical meaning of these phrases in their natural use.

3. “Tra i piedi”
Between the feet
“In the way”

Google Translate:

“Between the feet”

DeepL Translator:

“Between the feet/your feet/in between the feet”

This metaphor, after human translation, consists almost entirely of figurative meaning – either as a phrase as a whole and/or within in each word. The word “way” in English holds some figurative

value, since it conveys a path or direction that has been deviated but is not entirely obvious whether the literal definition is meant to aid in understanding the phrase. To me, this speaks to this phrase's loose idiomatic properties when uttered in English; the ambiguity of what "the way" truly references offers leeway for the phrase to be used in literal senses as well as figurative. In Italian this might be considered an implicit command as it can convey that something is in someone's way, without directly mentioning to the audience that the speaker would prefer said something to be gone.

The major difference between usage of this metaphor, loosely an idiom, between Italian and English, includes a more figurative use of the word "feet" in Italian. For example, this phrase could be utilized in Italian, to reference many planes that make loads of noise near one's residence; the planes are "tra i piedi," meaning they are generally bothersome. However, if one were to utilize the saying "underfoot" from English to try to describe something bothersome, most Italian participants in interviews confirmed that they would not understand the phrase.

In both Italian and English, this phrase mainly is made up of a Noun Phrase ("the feet") after a preposition ("between"). I would even argue that the placement of this phrase, both in English and Italian is predominantly found at the end of an observation or complaint someone is casually saying to their listener. An example is as follows:

"Vivo vicino alla fermata del treno, allora lo sento a tutte le ore, è sempre tra i piedi!"
"I live near the train stop, so I hear the train at every hour, it is always *between the feet!*"

Both the Google Translation and DeepL Translator outputs for this Italian idiomatic phrase are literal with the words translated and in the same order as the Italian. Neither of these Machine Translations offer any insight to the Italian phrase inputted. This could be the case because the phrase's usage could very well be literal, yet it is culturally considered metaphorical in Italian, possibly because of the figurative usage of the word "feet" here. The bothersome aspect of having something at your feet when it is not wanted, or possibly using feet to convey this metaphor is simply not heard of in American-English. In fact, the *Master Metaphor List Second Draft Copy* of Lakoff et al. (1991) has no mention of feet in any similar capacity. While most Italian interview participants felt that they would understand this phrase in an English context, the American English-speaking interview participants mentioned that very specific contexts would be necessary to understand this phrase in its intended meaning.

4. "Testa di cavolo" / "Testa di legno"
"Head of cabbage" / "Head of wood"
"Cabbagehead" / "Blockhead"

Google Translate:

“Cabbage head” / “Wooden head”

DeepL Translator:

“Cabbage head” / “Blockhead”

“Knucklehead” / “Wooden head”

“Cabbagehead” / “Beachhead”

none / “Loggerhead”

This phrase holds metaphorical value because of the similarities in both Italian and English speaker’s figurative knowledge of cabbage and wood as they relate to one’s head, i.e., brain. While in Italian this phrase can be uttered in exclamative instances in response to someone’s actions or words, the English equivalent requires a more complete sentence for it to relate to most appropriate contexts. This is presumably because the idiomatic phrase in Italian is more of an exclamation, whereas the English equivalents might not be as widely considered a common insult in English; if exclaiming the phrase “cabbagehead!” in response to someone’s actions were more accepted though, these equivalents would feel more natural to an English-American listener. Wiktionary agrees that “cabbage head” means a stupid person, which matches the general Italian metaphorical meaning of the phrase as I know it; someone with nothing of substance in their mind. However, in an essay about cabbage and its many spoken uses, Batini (2007) promptly describes the Italian phrase “testa di cavolo” to describe someone who does not seem too awake, i.e., a sleepyhead.

The second version of this idiomatic phrase feels the same in its English translation to me; alluding to someone that is a bit dense. The phrase “testa di legno” is engrained into the Italian culture through so much as a theory that links it to the creation of the classic children’s movie, *Pinocchio*, created by an Italian in 1883 (Ponti, 2018). In fact, while searching for the phrase “testa di legno” I was met with an Italian paper which discussed the phrase’s borrowing from Turkish into the Russian language (Imanalieva, 2006) immediately after a Russian paper which quoted the phrase in Italian as well (Топалова, 2017). These links across languages may play a part in the Machine Translation of the phrase, since it may recognize it from the other inputs it received with those literal words combined together.

In terms of the structure of the Italian phrase “testa di cavolo,” the prepositional phrase “di cavolo” follows a noun “testa,” with no verb, making the phrase sort of ambiguous and alluding to the metaphorical value it holds.

While the first version of this phrase had no second-best options output by Google Translate, the second phrase “testa di legno” offered “loggerhead” as a second-best option, with “zuccone” as its Italian translation. Italian interview participants have said that the word *zuccone* has a similar intended meaning to “testa di legno,” even if it has no mention of wood in it. The outputs of DeepL Translator included those of Google Translate, and offered slight variances in the phrase’s word structure in English. Generally, Italian participants confirmed that these translations were

applicable for the Italian phrase. Several Italian interview participants mentioned the origin of these two idiomatic phrases as the same; one that uses an explicit word in place of “cavolo” or “legno;” with the word “cazzo,” which loosely means “fuck” or “dick.” To these participants, the word “cavolo” is used as a substitute for the explicit word because of the phonetic similarities between the two. English-speaking American interview participants found that these metaphors already exist in English, and for the most part accepted them as equivalents even though the translations are literal.

5. “Non vali una cicca”
Do_not worth_2 a gum/cigarette
“You’re not worth a damn/a dime”

Google Translate:

“ You’re not worth a butt”

DeepL Translator:

“You’re not worth a fag” / “You are not worth a fag” / “You’re not worth a fart” /

“You’re not worth a stub”

This phrase will be classified as an idiom because the phrase holds grammatically, even when taken in a somewhat literal way – in fact, the direct/literal translation of the Italian phrase offers insight to the figurative meaning of the idiom because of the same usage of the key word “worth” in either language. The general definition of this Italian phrase is the same as the many translations into English that exist; someone not having any value or being of bad quality. As can be seen in the third line of the gloss, the English equivalents to this phrase are plentiful; even something as ridiculous as a “bucket of warm spit” could substitute the “gum” or “cigarette” placeholders for the concept of a monetary value in Italian. The word “cicca” in Italian has the more colloquial and modern usage to mean “gum” or a slightly older usage to mean “cigarette.” The Italian phrase “non vali una cicca” (“not worth a cigarette”) was used in a campaign in Italy to discourage people from throwing their cigarettes into the sea and other bodies of water (Lombardi et. al, 2009), but Google Scholar contained nothing relating the meaning of “cicca” to the word “gum.”

The phrases in Italian both start with the unspoken noun “you” attached to the negator “non,” followed by the verb phrase initiated by “vali” or “worth” and again followed by a noun phrase “una cicca” or “a gum/cigarette.” The conjugated verb, “vali” is in the active form, making this phrase a bit more direct and ruder. Yet this word, “vali” “worth” or “value,” holds idiomatic value while still somewhat retaining literal meaning as well to convey a feeling of putting someone on a scale of morality or agreed-upon values that play into one’s “worth.” The figurative meaning comes into play with the concept of worth in general and especially when gauging someone’s worth.

The translation offered by Google Translate seems quite fitting to me because of the similarity in the ambiguity of the word “butt” and the ambiguity of the word “cicca” mirroring one another. “Butt” could mean one’s posterior, which admittedly would not make much sense in my mind, or could make a reference to a *cigarette* butt, which would have direct correlation to the Italian version of this idiom (Treccani, 2003). I find the DeepL Translator’s outputs for this phrase quite interesting; presumably *fag* is meant to reference a cigarette, a term thought to originate in WWI when cigarette smoking was considered a feminine trait for a man to have when cigars were more common (Eisiminger, 1984). This usage of the word *fag* to mean *cigarettes*, is therefore somewhat outdated, not only in the United States but also in Great Britain because of its more conventional understanding of it as a slur to discriminate against the homosexual community at large (Croom, 2015). The geographical proximity between England and Italy may contribute to this “similarity” between slang words for cigarettes in UK English and Italian, possibly contributing to the reason DeepL outputted this version. The last two outputs that DeepL Translator offers, substitute the translation of the word *cicca*, with what seem to be choices resembling metaphorical equivalents according to the machine: *fart* and *stub*. These two substitutions might mimic the absurdity of a literal translation that utilizes a more explicit word; this phrase in Italian is a much gentler version of telling someone “non vali un cazzo,” which is the equivalent of “you’re not worth shit,” because of the explicit word “cazzo,” which can be loosely translated as either “fuck” or “dick,” depending the context. Several Italian participants which were interviewed mentioned the fact that this phrase alludes to the more explicit version “non vali un cazzo,” without using such strong language. Both Italian participants were a bit more unsure of the use of the word “butt” to mean “cigarette,” once explained though, they understood.

6. “Non trovi l’acqua nel mare”

Do_not find_2 the_water_in_the sea

“You cannot find the water in the sea”

Google Translate:

“You do not find water in the sea” / “You can’t find the water in the sea”

DeepL Translator:

“You don’t find water in the sea” / “You do not find water in the sea” /

“You can’t find water in the sea” / “Do not find water in the sea”

This phrase has a joking tone in Italian, as compared to its strangeness in English. According to some websites online, the Italian phrase has origins in Sardinian dialect, and it means that someone is distracted or incapable of accomplishing a simple goal such as finding the water at sea (Editoriale, 2014). In Italian, this phrase can be substituted with “patate sugli occhi,” which directly means “potatoes on the eyes,” but more loosely translates to someone not capable of noticing their surroundings. However, in English, equivalents may include “you can’t see the forest for the trees” which implies that someone is incapable of seeing the bigger picture of a topic or

situation, “you can’t see further than the end of your nose,” which has a similar feel and is more based on location of the audience in respect to the goal at hand, and finally “you can’t punch your way out of a paper bag” or even “you can’t find your way out of a paper bag,” meaning that someone is inept or incompetent.

The subject of the sentence is unspoken and the verb “to find” is conjugated in the second person singular form allowing the audience to understand that the subject of the phrase is “you, the listener.” The first word acts as an adverb in Italian, alluding to an imperative command form which the phrase somewhat takes on. While this may sound counter-intuitive to an English speaker, placing this negating word in front of a verb phrase in Italian gives the phrase an imperative command tone; while the phrase itself does not instruct the listener to not find the water in the sea, it implies that the listener would not be able to do it if they tried. This is not a strict usage of the imperative command form because the speaker in this case is not demanding that someone not see the water in the sea, rather pointing out that metaphorically the listener has already “missed” the water at sea or is so oblivious to their surroundings that they already performed the task at hand without realizing it. The “l’ ” in front of “acqua” is the determiner “the” attached to “water,” which acts as a noun phrase together, followed by the prepositional phrase “nel mare” or “in the sea.”

Shockingly, however, bab.la, a different translation engine which translates from Italian to British English, offered the following translation:

Bab.la Dictionary/translator:

“Non troverebbe l’acqua nel mare”

“He couldn’t organize a piss-up in a brewery”

Phrase 6 translated via the British machine translation produced an utterance that I would have difficulty understanding if uttered to me in English or even if directly translated into any other language. This translation offers insight into a Machine Translation engine utilizing metaphorical equivalents to translate phrases from one language into another. I was not able to interview native Italian speakers about this metaphorical equivalent, only because none of them learned (and continue to learn) English via British grammar and spoken rules, rather than American. However, American English-speaking interview participants understood the directly intended meaning of the Italian phrase when directly translated into English via machine translation and when Italian participants offered the same translation.

7. “Sei fuori come un balcone”
You_are out(side) like a balcony
“You are crazy”

Google Translate:

“You are out like a balcony”

DeepL Translator:

“You’re out like a light” / “You’re out on the balcony” / “You’re out like a balcony” / “You’re out on a balcony”

This phrase is a typical metaphor, which cannot be used in other scenarios other than the metaphorical meaning of the phrase itself. It uses a physical place, the balcony, to represent an area away from the generalized and normalized public. Balconies are known to be part of a whole, i.e., the house, and yet still removed and secluded at the same time. While this phrase might mean that someone is removed or secluded, it contains additional implications that the reason a person is removed or secluded from the rest of a group is that they are a little bit crazy – or at least this is a fact recognized by the rest of a group because of possible self-seclusion behavior of the listener. This phrase would be uttered to the person that is considered “out of their mind,” when they are performing some unreasonable act or have said something unreasonable in front of others/the speaker. In Italian culture, this phrase is the title of a song from 2006, a love song which recounts that since the singer is in love, something they never expected, they must therefore be a little crazy, “sono fuori come un balcone, faccio a luglio colazione con il panettone” / “I am out like a balcony, I eat a panettone breakfast in July,” by Simone Tomassini’s song “Fuori Come Un Balcone.” The second half of this lyric, “faccio a luglio colazione con il panettone,” references a common Italian winter cake, panettone, which can typically only be bought in grocery stores in the winter – so the fact that the singer is eating this breakfast in July is meant to indicate his craziness, or questionable sanity. Possible English expression equivalents include one being “off their rocker,” with a rocker initially being another word for a trolley, meaning that the person this is being said to is compared to a train off its tracks. However, in more colloquial uses of this English expression, it is assumed that a rocker is short for a rocking-chair, illustrating a senile old person that may have lost touch with reality because they are out of their rocking-chair.

The first word in Italian, the second person conjugated verb “to be,” *sei* forces this version of the phrase to be said directly to a listener. The next word, “out,” or *fuori*, is an adverb which later describes the “balcony,” or *balcone*, connected by the adjective “like,” or *come*, and the determiner “a,” or *un* in Italian. The entire section of the phrase which offers figurative meaning in Italian, “fuori come un balcone,” is substituted by the word “crazy” in American-English, thusly changing the metaphorical quality of the phrase in Italian to an idiomatic phrase in English. In terms of literal translations, Google Translate’s output for this Italian metaphorical phrase is spot on. However, DeepL Translator’s first output for this phrase has very different connotations in English, wherein being “out like a light” in colloquial American slang makes reference to one being “blackout” drunk (so drunk that the next day, one cannot remember entire chunks of their night drinking) or so drunk that a person falls asleep (Urban Dictionary, 2019). The additional offered translations by DeepL include the extra adverb “like” and preposition “on,” which change

the sentence ever so subtly to make a more physical and concrete reference to the balcony in relation to the listener.

Italian participants of the interview mentioned that this is a saying typically found in the northern parts of Italy- one participant in particular noted that they say this phrase in an accent that mocks Northern Italy when they use it. With the aid of the DeepL translator outputs, the singular American English-speaking interview participant was able to discern the tired-interpretation of this phrase.

8. “Siamo al mercato del pesce”

We are at the market of the fish

“We are at the fish market”

Google Translate:

“We are at the fish market”

DeepL Translator:

“We are at the fish market”

This phrase falls into a similar category to the idiomatic expression “non capisci un tubo,” our first example, due to the metaphorical usage of the phrase alongside the literal words providing context clues for understanding the idiomatic value of the phrase. Physically, one can imagine that being “at the fish market” would include a combination of a large crowd and a fish stand with people yelling the daily deals – quite the busy scene and alluding to the surrounding chaos someone might reference when uttering this phrase.

Of the many pieces discussing the historical importance of an outdoor fish market in Italy, only Piccolino’s *La battipotta, ovvero Boccaccio al mercato del pesce* (2010) made a possible reference to the idiomatic phrase/metaphor described here; the article speaks of a Roman word for stingray “battipotta,” and its etymology. I argue that the title uses the idiomatic sense of the phrase because the only other mention of a market in the article, is the title of an image from 1855 used to depict the fish market scene. The image of the fish market in Piccolino’s article(2010) offers a literal view into the linguistic marketplace the scene holds: quieter private conversations between pairs of people amid a scene rich with speech. The author’s etymological and historical linguistic definition of “battipotta” is a winding road with many side-notes and an intense paper trail of the history of a stingray’s electricity, to a scientist/philosopher Antonio Carnevale-Arella in 1839 to write the *Story of Electricity*, wherein the word’s origin is unknown yet theorized to have a figurative meaning the author suspected (Piccolino, 2010). To me, an Italian-American reading an article written in this style, following along the path of the author’s historical etymology at times felt as though I were trying to understand the many voices of the fish market. A bit more

contemporarily, in a recent Italian politics blog, several Italian politicians have used this phrase to convey a meaning of disorder and mayhem in the socio-political state of Italy (Grillo, 2022).

Nonetheless, this idiomatic phrase does not seem to have any English equivalents with similar concepts, rather it feels similar to asking “are we at the circus?” or “What is this, the circus?” Both Google Translate and DeepL Translator very literally translated this phrase, and many of the Italian participants in interviews were not surprised by this since the phrase out of context, is not an unusual one. However, many Italians interviewed also noted that outdoor fish markets and their inherent chaos may not be as inherent to American culture as it is to Italian culture. This fact makes the phrase’s context the determiner of the metaphorical value that the phrase holds – such as a politician commenting and referencing Italian politics and society as a fish market.

The Italian phrase begins with an unspoken noun phrase with the subject “we,” in English, and the Italian verb “to be” in first person plural, followed by the preposition phrase starting with “al”/ “at,” and the noun phrase with the noun “mercato” followed by a final prepositional phrase “del pesce,” concluding the object of the sentence. In English, the subject of the sentence is spoken first, followed by the verb “are,” the preposition “at,” and the determiner “the,” finally with the object of the sentence “fish market” at the end. This Google Translate output clearly does not encapsulate the metaphorical meaning that the direct translation contains in modern Italian.

During interview sessions, Italian participants emphasized that they had never been to fish markets in America and felt that because of this fact they could not judge the accuracy of this phrase. This caused the American English-speaking participants to also mix up possible interpretations of this phrase.

9. “Mani come pasta frolla”
Hands like pastry-dough
Butterfingers (the quality that someone may have)

Google Translate:

“Hands like short crust pastry”

DeepL Translator:

“Hands like shortcrust pastry” / “Hands like shortbread” / “Hands like short pastry” /
“Hands like pastry”

This phrase, to me, holds in its English equivalence; whether one is talking about the brittleness of the chocolate-and-peanut butter candy or the concept of having one’s hands covered in butter, the figurative outcome is the same as having hands that would crumble as easily as pastry-dough; that would make it difficult to hold anything that weighs more than a feather. An Italian site with Italian explanations of multiple metaphors in alphabetical order, has this exact phrase explained

(Modi di dire con la A, 2020). Bekhzod (2022) utilizes the Italian idiomatic phrase among others to exhibit the convergence of language and its inherent culture (“linguoculturology”, as she coins it) as it relates to phrases with direct equivalents in Uzbek. Her definition of this idiomatic expression is the same one would give to the English expression “butterfingers,” and it seems as though the Uzbek version requires a similar short phrase as is seen in the Italian idiomatic expression (Bekhzod, 2022). The phrase in this corpus is in the infinitive form, a general exclamation of someone *having* (whom has) hands like shortcrust pastry, or butterfingers:

“Avere le mani di pastafrolla”

Having the hands of shortcrust-pastry

“Oggi ho già fatto cadere una tazzina e un uovo: ho proprio le mani di pastafrolla!”

Today I already made a teacup and an egg fall: I really have hands of shortcrust-pastry!

“Bugun men chashka va tuxumni tushirib yubordim: Men juda ham qo’polman!”

(Bekhzod, 2022).

Presumably the equivalent in Uzbek is “Men juda ham qo’polman,” since this source does not contain the commonly accepted gloss’ for each Uzbek phrase’s translation and morphological parts, I assume this source is meant for Uzbek speakers learning Italian. Another short corpus, Писулин (2021) describes the existence of an equivalent expression for this English phrase in Russian as well, wherein it is a single word just like the English version. The Russian phrase is explained to have similar origins to that of the English one; if someone’s hands are covered in a slippery substance such as butter, holding much of anything will become a surefire issue. This word in Russian is represented by “растяпа.”

I am classifying this phrase as an idiom because in both Italian and English, the word/s which hold metaphorical meaning ask that the audience imagine the subject-noun (either hands or fingers, which denote a person’s hands) with the qualities or properties of the object-noun in the phrase (either butter or pastry-dough). The delicate food-item describes the listener’s hands just like the phrase is meant to describe a quality of the person; someone that is clumsy and cannot hold anything. In Lakoff et al.’s (1991) *Master Metaphor List Second Draft Copy*, the section which considers English metaphors utilizing the human body, and specifically the section on hands, while it does not include the idiomatic phrase “butterfingers,” notes that hand control can be equated to mental control. This can be seen in the examples listed under section 2b of Mental Control Is Physical Control, wherein “losing mental control” is equated to “having it leave your hand,” in phrases such as “The idea just slipped through my fingers / It’s getting out of hand / I washed my hands of it,” (Lakoff et al., 1991).

The Google Translate output for this phrase is not much different from the direct translation I offered above. In fact, I would say that it is similar enough that if someone uttered this Google Translate output, a typical American would understand that the person meant to use the phrase

“butterfingers” instead. In Italian, this phrase is mostly made up of noun phrases, with the second word “come” as an adjective, similar to “like” in colloquial English (i.e., “red like cherries”). In the English equivalent, “butterfingers,” some kind of a modified noun is happening – two nouns, “butter” and “finger” are complimenting each other to create a new combined concept. What is interesting about the DeepL Translator’s output for this phrase, includes the very last one which it offered, “Hands like pastry,” which to me is probably the most colloquially acceptable translation in English – even though it does not mention butter, the word *pastry* is probably more commonly understood than *short crust pastry*, *shortbread*, or *short pastry*. This simple translation also most closely resembles the simplicity of the English equivalent “butterfingers.”

Now I’m not yet exactly sure whether it would be possible for a Machine Translation system to access short articles like these, but if it could, I would imagine that its deductive reasoning would allow it to understand that this Italian phrase has the equivalent of “butterfingers,” in English, as was translated in these two articles. Neither American English-speaking interview participants understood this phrase as translated by either Machine Translation or humans, and Italian interview participants noted how strange this phrase was in the direct English translations.

10. “Sei più di là che di qua”

Are_2s more of there than of here

You are more over there than you are over here

Google Translate:

“You are more over there than over here”

DeepL Translator:

“You are more that way than this way”

This phrase is often said in Italian when someone is very tired, when saying “over there,” it references a “dream-land” or possibly just someone’s bed, whereas being “here” would mean that the person is not as present as they would normally be. I will consider this phrase a metaphor because the literal definitions of the literal translation of this phrase do not aid integrally aid in understanding its metaphorical meaning. An English equivalent that feels accurate enough to me, includes someone being “out for lunch,” to depict that someone is no longer interested or invested in the conversation or situation at hand. However, I would argue that in Italian this phrase has a kind-joking tone, whereas in English saying that someone is “out for lunch” or “checked-out” is a bit more insulting and ruder in American culture.

Among Italian participants from especially Rome, this phrase commonly had two possible meanings; either the listener is very tired, and the speaker has noted it, or the person being referenced/spoken to is very close to being on their death bed. In the first instance, the “over there”-ness of the listener is grounded in a dream-land or sleep-state, whereas in the second interpretation,

one could think of the “over there”-ness as “the other side,” or the after-life. When participants felt this way, they specified that the first interpretation’s utterance could be considered light-hearted given the correct circumstance with friends, whereas the second one would be quite a strong and rude statement. This interpreted difference in a person’s state of being, either tiredness or near-death-ness, can be more easily inferred by the translation of DeepL Translator than that of Google Translate. This is because DeepL’s semantics for this phrase include (being) “more that *way* than this *way*,” rather than the locative semantics of Google Translate’s (being) “more *over there* than *over here*,” where the usage of the word *over* in both parts of the sentence connotate some general or loose location. Being more of a certain *way* rather than being in a certain direction, more closely resembles the phrase’s intentions of noting someone’s demeanor as too tired. However, one could argue that being in a certain direction, more closely resembles options in the afterlife – especially those of Christianity in Italy, as it is well-known that the religion is very popular given the Pope’s residence in the Vatican City, of Rome.

This Italian phrase begins with an unspoken noun, “you,” which is inferred in the conjugation of the verb “to be” / “*sei*,” in the second person (denoted by the 2s in the second line), followed by an adjectival phrase with the adjective “more” / “*più*” and then a prepositional phrase with the preposition “*di*” / “of,” and finally a complementizer “*che*” / “than” connecting a final noun phrase with preposition “of” / “*di*” before “here” / “*qua*.” Interestingly, in Italian the complementizer, “*che*” can mean “than” as much as “that,” which is a determiner, depending on the surrounding words. While Italian interview participants were not

3.4 Interview Data

Six interviews total were conducted, four with native Italian speakers and two with native American-English speakers. One of the two American-English speakers has had some experience with the Italian language and mentions this where applicable. The questions asked of each participant aimed to better understand how humans judge machine translation and what possible changes different people suggest for the advancement of machine translation for the sharing of cultural knowledge. Questions also included asking participants for their judgements and opinions of the translations offered by different machines. Below are all notes and transcriptions from interview sessions first with Italian participants and then with English-speaking American participants. In order for Italian interview participants to feel that they could easily explain their thoughts on phrases and their translations, they were instructed to speak in Italian as well if they felt it necessary. For this reason, Italian interviews are a mix of Italian and English responses – when conducted, while the questions were all addressed in English, I answered participants’ questions in Italian when appropriate.

Each participant that answered questions about the phrases is numbered, and their number stays the same throughout all answers to each phrase’s respective questions. In Italian interviews,

participant 3 frequently tried to contextualize the foreign concepts in Italian which are required in order to understand said phrase, participant 1 gave very quick and direct answers, and the rest varied between questions. Important to note throughout the Italian transcripts are the comments about whether a phrase requires correct context in English to be understood – this is especially seen in phrase number 5, wherein understanding that a “cigarette butt” and “piece of gum” are both *cicca* in Italian slang so this phrase could be translated in a number of ways to be understood in different contexts; also phrase number 8, wherein Italian *and* American English-speaking participants mention that the cultural context of understanding the ambiance of an Italian fish market is necessary to understand the intended meaning of this phrase. At the end of the interview, Italian participants were asked whether they could think of any metaphorical phrases that may have equivalents in either language – and nearly all participants mentioned “the grass is always greener on the other side,” which changes in translation in Italian to “the grass is always greener at the neighbor’s.” This slight change in the wording only vaguely changes the semantics of the phrase, but the necessity of the phrase to have a possessor for the grass, which is being compared, offers Italians the chance for a cheeky response that makes reference to illicit substances.

American English-speaking interview participants frequently offered metaphors and idiomatic phrases that they felt were similar to translations of the Italian ones; be it the Machine Translation or human translation. Phrases that the two participants recognized or were somewhat familiar with, were offered plenty of equivalents in English, and frequently American English-speaking participants viewed more phrases as acceptable in English translations than Italians did.

3.4.1 Italian Interviews

In this section I provide the responses from Italian interviewees regarding the questions I detailed earlier. Each participant is given a number so as to retain their anonymity. At the end of the translated phrases, direct questions about participant’s views on Machine Translation and metaphorical equivalents can be seen in bold lettering. When Italian interview participants answered mostly in Italian, I provide translations of their answers beneath in italics.

1. “Non capisci un tubo”

Participant 1: “I would translate this as ‘you don’t understand anything.’ Machine translation makes sense, should make sense for anyone that speaks English, you can understand how a pipe works because you should.”

Participant 2: “Literal translation, no I don’t feel satisfied with this translation. But English is not my first language, so a native speaker might understand, but if I say this in my opinion, this doesn’t mean what I know. I don’t really know where this comes from, why do we use “un tubo,” it must be a very simple thing to look at and understand, because it’s not very complicated. This is the shape of a pipe I don’t feel like understanding a pipe is very equivalent. Tubo is a basic element of a structure, but when you’re building something, it’s a piece you start with in order to build something. If you cannot understand that then how can you build on it for construction, basics of intelligence and construction- engineering and architectural metaphor. I

think my translation is better, yes, but not because these translations are mine, but google translate is kind of automatic tool. So sometimes when, GT works for literal, doesn't take into account sayings or metaphors. For a literal translation, these cases are more than that. And if you know the two languages, even though I know Italian better, I am able to navigate the meanings better because I have an additional level of interpretation.

Participant 3: "I don't think this would work because if you are not Italian you would not understand this. When connected to the culture, a good translation has appropriate metaphorical expressions with the same meaning and if not a paraphrase is the only thing that works. I would not understand this translation out of context or said to me in English, tubo is a pipe, and then I would first explain an empty pipe, and then you get a visual of an empty brain. This expression, it's the symbol of not understanding anything."

Participant 4: "I'm not satisfied with the machine translation. It's the correct translation but doesn't work in English with same effect. 'You don't understand a shit' might be better. Or even, 'you're dumb,' because this is a strong phrase. 'You don't understand anything at ALL' or even 'you are hopeless,' this is a very strong phrase. I wouldn't be happy to receive. Depends on the tone used, can also be playful with certain contexts – still emphasizes a lack of understanding. I would not say this phrase to friends, in Italian, it's a bit old fashion- 'una mazza' which means 'axe' these are all euphemisms for un 'cazzo,' tubo is a bit old fashion for this."

2. "Allunga la zampa" / "Allunga il piatto"

Participant 1: "these don't make sense, allunga isn't stretching you want to say, 'give me a hand,' or 'pass the plate'. I would translate these as 'give me your hand' and 'pass me the plate.'"

Participant 2: "Paw I feel good about it, even though I think yeah. Stretch, because 'allunga la zampa' is when you want to congratulate someone. Maybe use the expression 'high-five!' it is an animal term, but we wouldn't say this to an animal unless a very literal training of animal situation, I am congratulating another human when I say this. Takes from the act of training an animal, like a dog learning to stand straight you give them a cookie with their paw. Translating to human interaction makes me think of human equivalent. Stretching feels like a solitary action, doesn't really involve anyone else, also 'allungare' but 'allunghi' you are reaching but not for the purpose of touching just for the purpose of exercising or doing something for your body. 'Allunga' alludes to the movement including someone else, another acting body. 'Extend the plate' but extend sounds too fancy, its fine, but this is what you use in a casual setting filing someone's plate at a family dinner, when your parents or grandparents want you to eat more, this is a bit too posh for the family environment. Would not be said in a formal situation. 'Passami il piatto' is a bit more formal, but 'allunga il piatto' gives the image of literally extending the plate so that it can have MORE food, it is an extension of the body. Either way, I would understand these and translate them as 'Give me your paw' and 'Give me your plate,' or maybe it could be stretch out."

Participant 3: "Extend the plate - this feels natural enough, but stretch your paw, I would understand it. But the paw equals the foot or arm, but the question I still have is whether an

American will understand this. I tried not to give literal translations beyond “hit two birds with a stone” because I am not a native English speaker because this is what is missing from my answer. ‘Reach out your leg,’ in Rome this can be used for your arm like ‘dammi qui’ the parts of the body, legs and arms, and they can be converted to animal ways. ‘Zampe’ are the legs of the animal, reach out to me. Very Roman saying, ‘dammi la zampa,’ or even ‘give the dish to me,’ allungare has a visual idea of extending the arms, that they stretch out moving a dish from the sink to the table to feed someone.”

Participant 4: “Allunga la zampa – to a person? Very playful, I would translate this as ‘give me your paw’ definitely ironic. I would laugh at this; I would say this to friends. ‘Allugna il piatto’ is ‘give me the plate’ I didn’t even notice how this is figurative, but it’s used so naturally in Italian to mean ‘pass me something.’ This is not entirely grammatical, because of literal meaning of allungare, but this is so colloquial it feels grammatically Italian to me. I like the google translate of both of these – stretch your paw feels very similar, and we could say ‘extend an offer’ in English, but it could relate to extending the plate. – in English it’s a bit more formal whereas ‘allunga il piatto’ can be quite colloquial.”

3. “Tra i piedi”

Participant 1: “This doesn’t make sense in English. I would translate it as ‘on my way, in my way,’ something like this.

Participant 2: “I think it works in English as well, the image I think about is a pet or a small child, someone that doesn’t understand you might be busy to do something with them, but the short kids or pets doesn’t understand they’re in your way/ it’s quite intuitive. If someone said this to me in English, with enough context I think I would understand the Italian meaning. I would translate this as ‘between the feet,’ it means that you’re bothering me. Usually said when doing something and someone else is distracting you preventing you from doing what you’d like to do so someone is bothering me, nasty rude.”

Participant 3: “This is the literal translation, it doesn’t grasp the feeling or meaning of the culture of the phrase. ‘essere tra i piedi’ means ‘you are annoying me’ you are literally between my feet; I cannot move, and you are an obstacle. Someone is blocking me from doing other things.”

Participant 4: “ This is an accurate translation, but it sounds a bit weird. ‘You’re always around me’ would probably be better. this is ‘something that mingles with my own life, my business,’ to me it means ‘se hai qualcuno tra i piedi’ it’s very annoying, you don’t want people intermingling with your business. ‘Intermingling with my business’ even though this isn’t a great translation but it’s not a great experience to have something ‘tra i piedi’ if you say this of someone, they might be stalking you. I don’t have precise translation.”

4. “Testa di cavolo” / “Testa di legno”

Participant 1: “The first one (google translate) doesn’t get the meaning, wood is something that doesn’t think maybe this makes sense. Hard like wood – duro come legno, you don’t change your mind. Wood makes a bit more sense, cabbage no. I would translate this ‘dickhead’ / ‘mindless.’”

Participant 2: “Literally yes, cabbage, I don’t know if a native speaker would understand, but I would. [I said yes] I have never heard this! If its literal and related to agriculture and maybe in the past associating with farmers and fields is someone that isn’t very bright or cultured- of course not now, but maybe when it was said by the bourgeoisie. It was more derogatory term back then because of class distance, bur now more term of endearment. This is the polite version of ‘testa di cazzo’ someone is a bit stupid. Term of endearment too, because it’s not the stronger version. Not really an insult, there aren’t any English expressions I can think of now. The aura might include someone that is a bit of jerk- less intellect, more behavior. More endearing than ‘testa di legno,’ simply foolish. Also means a bit stupid, ‘simpleton’ for ‘testa di legno.’ More like stupid person. Digging at the intellect of someone”

Participant 3: “You are a little bit, not stupid, but you do something wrong to me. Literally you are a ‘cabbagehead,’ but like to me this is not an appropriate translation because of ‘testa di cazzo,’ so this is a less strong version without the bad word. This is like saying someone is a bit of an asshole. You did something a little stupid, so your head is a cabbage, it’s something that is not important, a bit empty. Somewhat stupid because you should have thought better before doing that. Legno- “you are a wooden head,” this means that you’re stubborn, and there is a gesture where you knock on the wood. You cannot change your mind. The literal translation but it means that English probably uses these too. Let’s think about translating novel, if you decide to keep literal translation you need to write a note to explain it, this is what a good translator would do to express the same meaning.”

Participant 4: “Google translate is correct here. In English you can say ‘dickhead,’ so these feel accurate. Testa di cavolo has this attenuation. To me Testa di Cavolo is ‘You’re an asshole’ would be the original, but I don’t know - sort of like saying holy cow instead of holy shit, difficult because it is another euphemism, is very funny, something an old lady would say because you don’t use ‘cazzo’ here, but it’s not something that I would say... very boomer. ‘Che cavolo!’ I would say this as a child because my parents wouldn’t want me cursing, but if I say it, it is a second-degree joke to mimic a boomer trying to be polite. I don’t have a euphemistic equivalent to use in English-like Oh Shoot/Gosh instead of Shit. Testa di Legno, ‘you’re stupid’ if I were with Americans and wanted to say this, but it’s not in my Italian vocabulary to express, but obviously I would understand if someone else said it. I would just say he/she is dumb.”

5. “Non vali una cicca”

Participant 1: “Really? This is how it translated it, that doesn’t make sense I’ve never heard it. I would translate it as ‘you’re not worth it.’”

Participant 2: “Cicca in Italian is also a metonym because it means it’s a part of the whole, so it’s the part that remains of the cigarette when you smoke it, but it also can mean the whole cigarette. So, if you see a lot of cigarette butts on the ground you call them ‘cicche’ not cigarettes because they’re already smoked. I guess it is a good translation because it’s also a noble part of the body, but still a derogatory term related to a part of something or someone that is noble. When I first heard it I definitely did not associate it with the part of the body. I would understand this in English

because of the phrase structure, maybe I wouldn't be able to immediately understand what a butt is, but generally yes."

Participant 3: "Cicca is, two different ways to say it, the last piece of a cigarette the part you think away on the ground or it can also be a gum. 'You're not worth anything,' not even a piece of cigarette' this is an insult to say someone is like a loser. 'your worth is minimal, even a cigarette is worthier than you in terms of money or whatever. Cicca is cigarette, regional term, center-north in Giulio's opinion. It also has the meaning of gum, but it feels more like it is related to cigarettes because of the commonality of smoking in Italy and how cheap they are. Chewing gums came a bit later, not as widespread as cigarettes, fifty sixty years ago, cigarette's yes."

Participant 4: "Si questa va bene. Si, ci sta. Cicca in italiano, ha diversi significati – per me è la gomma, ma in altri parti è una sigaretta. I would translate this as, because it is directed to YOU, 'you're useless.' I can't find any euphemistic, because it still comes from 'non vali un cazzo,' which is such a strong phrase. This is national-wide for Italy, even though the proper substitute would be 'cavolo' - most people might replace 'cazzo' with 'cavolo,' even in this case – but still feels outdated, they wouldn't say any of these regional varieties they would just say the curse word."

Translation: "yes this one is ok. Yes it works. Cicca in Italian, has different meanings, for me it is chewing gum [gomma can also be translated as an eraser, interestingly], but in other parts [of Italy] it is a cigarette."

6. "Non trovi l'acqua nel mare"

Participant 1: "I would translate this as 'You're not able to find anything'

Participant 2: "You can't find water in the sea,' maybe it's something like 'you can't find anything' because if you can't even find water in the sea, but maybe could be applied to general terms, not literally finding something more-so someone that has done research so maybe they are not capable of finding information too. Something mother's say to children more often than not. Jacket looking child and the mother knows exactly where it is. Context that thinks of – motherly phrase."

Participant 3: "Of course it's obvious that someone should be able to do this. You are hopeless, you are not able to do something that is obvious. The thing about translating is finding something similar so I don't know, 'You don't find water in the sea' then she says 'prendere due piccioni con una fava' has a clear equivalent, but not this. It's something that is so simple, but probably something like to tie your shoes maybe you need some skill, but to find water in the sea that means you are totally oblivious. Maybe it's not the equivalent to 'not be able to tie your shoes,' because that has a little bit of skill."

Participant 4: "The literal translation, so 'can' is up to the reader to understand, I think it isn't too different even though it is very literal. I would understand this. I wouldn't say this one, I kind of understand it, this is a bit strange to me- I have never really heard this expression. "are you blind?" which is an expressional equivalent in Italian too, 'ma sei cieco,' 'are you blind,' which is what he would use regardless. 'Can't' is the more accurate version."

7. “Sei fuori come un balcone”

Participant 1: “These translations are not good. It means someone is crazy, ‘out of your mind.’”

Participant 3: “‘sei fuori come un balcone’ è un'espressione tipicamente milanese. Io non la uso molto, se non facendo il verso con l'accento di Milano. In generale, come ti ho detto durante la mia intervista, la traduzione letterale di Google Translate non rende assolutamente l'idea (che è metaforica, per l'appunto) della frase. Se guardi su Reverso (molto più utile per le sfumature di Google Translate) te lo traduce come ‘high as a kite.’ In generale, l'idea per me è quella di ‘essere un po' pazzi’, cioè ‘essere fuori di testa.’”

Translation: “you are outside like a balcony is an expression typically found in Milan. I do not use it often, unless I am imitating an accent from Milan. In general, as I said already in my interview, the literal translations of Google Translate absolutely do not rend the same idea of the phrase (which is metaphorical, to your point). If you look on Reverso (a translation engine which is much more useful for expanding on Google Translate) it translates it as ‘high as a kite.’ In general, the idea [of this phrase] to me, is that of ‘being a little crazy,’ or ‘being out of our mind.’

Participant 4: “io adoro quell'espressione e la uso spessissimo! Io la tradurrei in inglese: ‘You're totally out there’”

Translation: “I love this expression and I use it often! I would translate it into English as ‘You’re totally out there.’”

8. “Siamo al mercato del pesce”

Participant 1: long pause “I don’t know if it makes sense because I’ve never been to a fish market here, and it’s a chaotic situation but I don’t know if it will be that chaotic as it is in Italy, so if it isn’t then it doesn’t make sense. I would translate this as ‘we are in the middle of a chaotic situation’”

Participant 2: “Yeah. I don’t know if it translates in every culture, this is definitely a loud place but maybe there are cultures that don’t act like that so maybe they wouldn’t get that reference that in Italian we would because we are very loud and have many markets. Yes I understand. ‘You’re being very loud,’ attack-y loud, in a formal context: discrepancy between how you act and ow you should be behaving, so if someone is in confined space and you’re surrounded by people, you need to be behaving like you’re among yourself, but this is said when someone reminds you of others around you. ‘When you talk, you think you talk, but you’re actually yelling.’”

Participant 3: ‘We are in a fish market,’ ‘we are at the market’ in the sense of a chaotic place many people are speaking a wild place. I’m not sure if an English speaker reads this if they will understand the metaphorical value, it does not feel great because what does fish market mean for them.”

Participant 4: “I like this one. I would say ‘siamo al mercato,’ without the fish part, and I would say in English ‘it’s a mess.’”

9. “Mani come pasta frolla”

Participant 1: “No, the translation doesn’t make sense. I would translate it like ‘hands like butter.’”

Participant 2: “hmm, sounds a bit elaborate, there must be a better way to say that. In Italian it’s quite good, and maybe in the past it was used by home-bakers teaching kids and making a metaphor from teaching their kids who might be clumsy. The English is wonky. I would understand but it’s so weird I might look confused. ‘You’re really clumsy,’ everything you take in your hand, it falls. You’re not really careful with things, if I give you my phone you let it fall, everything you touch goes to the ground. Pasta frolla is this kind of dough for a pie or a pastry, very frail dough, so holding something with it means you can’t hold anything nor are you careful.”

Participant 3: “I would go more with butter, rather than the pastry translation directly if it is understandable. Americans don’t use a lot of pastry dough. I would translate this as ‘Your hands are like butter,’ you have weak hands, you cannot hold things manually.”

Participant 4: “This is the correct translation but too weird. I say this one a lot, in English I would use the same idea, but trying to is very difficult, ‘your hands are poor,’ I say this a lot about myself, ‘I have poor hands’. More-so about myself, but even others. Emphasizes breaking something in a fun way.”

10. “Sei più di là che di qua”

Participant 1: smiling pause, “Doesn’t make sense, I would translate it as ‘you’re passing out.’”

Participant 2: “Doesn’t really make sense, no, not satisfied with that. It’s the literal translation, but I don’t think it conjures up the image of being on a deathbed, maybe this is a more catholic saying because we are always thinking of the deathbeds, and Italy is very rooted in Catholicism and our grandparents are always thinking of the afterlife. So, in a religious country, not just personal faith, but culture in general, this is much more understandable than in a country where less religion is common. I think I understand it just because I’m Italian. It’s not supposed to be funny - you’re not looking very well. Someone is closer to the afterlife than actual life- can also mean someone looks very bad today, with fever and cold and bags under their eyes. Someone that doesn’t look too great.”

Participant 3: “This is too literal and would require explanation and footnote. Questa e un po, I need to think. You can say this expression in different situations: someone that is very sleepy, meaning someone is more asleep (other side of the waking world), or it can mean in a little bit offensive, and can mean someone’s logic and sensibility speaks to their intelligence – they are a little crazy, the ‘qua’ is the in-group but the ‘la’ is a little bit ‘out of mind’ someone that is not very realistic or themselves. This is much more ambiguous so it can have many translations. The second is a very Roman way, you are at a party and someone is very drunk, so you say this to mean you are not ‘with us,’ meaning someone that is in a better condition at the party. You went beyond your limits, you crossed the line, of what is considered normal. In a relationship, of someone, “sta piu di la che di qua” someone that isn’t in the relationship often this is something unaccepted, someone that has exited the norm.”

Participant 4: “It’s fun, literally it means someone is dead, not a very happy fun or nice thing to say. When I say it, it would be in a fun way, and very difficult to translate. ‘You’re almost dead,’ but doesn’t convey irony. Can also be used in a serious way, if someone is very old/sick – but it’s not a respectful thing to say then, so it’s used more ironically. The translation is correct, but I still don’t like it.”

How could Google Translate better translate metaphors/idioms, and what might that include in your opinion?

Participant 1: “It can’t translate word for word, must understand the sense of the sentence. We have pasta frolla but here they don’t use it as much, it has to be something that is used daily so that people can understand, but butter makes more sense because it is something not solid. Must understand the meaning of the sentence.”

Participant 2: “The problem of Google translate is the fact that even if it has (in the past you could suggest correct translation of phrases) so if we compare Google Translate to that of seven years ago, when I was like PHD student, I could see when students use GT but now it is harder because it is getting better and better. Sometimes it is too good, so if I know the weakness of students, then I can tell that a student used Google translate. In this case, it means that it needs to understand from the context of what you translate. Some expressions, like number 9, can have different meaning depending on the context- and then you also have a difference of the literal meaning as well. Reverso gives you similar expressions and shows you the meaning changing depending on the context and translation.”

Participant 3: “Very difficult, because if you translate literally you don’t get any of the cultural meaning as a native English speaker, and at the same time it’s very difficult to find equivalents because of tone and context.”

Participant 4 felt that they already answered this question within their other answers.

Would you consider a true metaphor/idiom translation, one that transforms the metaphor into one that already exists in English?

Participant 1: “Yes.”

Participant 2: “Yes, I think I would consider more of a translation if the translation manages to retain the metaphor. That’s a proper translation, even if we are going far away from the literal meaning. Its more proper because it’s not really a meaning in the context. Of course ,if you want to say one of these things literally, the google translate is better, but for metaphors you have to go away from literal meaning and that’s what makes it a better translation.”

Participant 3: “There are more cultural examples that cannot be translated or even used among other Italians from other regions. Sculato/sculare, sculato, comes from culo [*ass*], also means fortuna [*luck*]. I use this to mean that I was very lucky, ‘Ho proprio sculato oggi,’ etc., my husband is from Florence and to him it meant to be unlucky. So- from region to region these expressions change. To me, my dialect, even the hand gestures have to do with body parts. The letter ‘s’ in front of the verb, can be a negative, so for culo to have the ‘s’ in front can mean two

different meanings in different places. Maybe Florentine is correct meaning, but it's used in different ways.”

Participant 4: “This would be ideal, the challenge is finding ones that already exist IF they exist, and if not that would be less easy. Especially with the same tone.”

6. Can you think of any metaphors/idiom in Italian that can be translated into a different yet equivalent metaphor into English? Have you ever heard someone attempt to do this in spoken English or Italian?

Participant 1: “I have someone watching my back / watching over me / I got your back, over— this must be the same in Italian, ‘qualcuno che mi guarda le spalle’ to mean someone that cares about you, someone that is going to bring you good things. We try to talk with our metaphors, translate them – two birds with one shot becomes two pigeons with a fava bean, it's something the birds eat instead of killing them. Friend group situation, but among each other it makes sense with the process of creating the equivalents together. Also - in Italian I never heard ‘on the fence,’ but I hear it all the time in English, I don't think it exist in Italian.”

Participant 2: “If I use a metaphor, I might think of phrases from where I am from- Tuscany. There are some national metaphors, but also more regional ones. IF any, it would have been a regional one for me.”

Participant 3: “‘Prendere due piccioni con una fava’, ‘kill two birds with one stone’, ‘In bocca al lupo’ is ‘Break a leg,’ it's never a literal translation because this would be the equivalent. Or ‘I feel under the weather,’ ‘essere sotto il tempo’ non esiste, it means someone is not feeling well but has nothing to do with weather so in Italian it might use ‘non sono al top’ or ‘I'm feeling blue’ this doesn't work in Italian to use colors to explain how you feel- if you are blue are you a Smurf?”

Participant 4: “For example, ‘porca vacca’ is ‘holy cow.’ To me ‘imbocca al lupo’ means to ‘break a leg,’ and ‘testa di cazzo’ is ‘asshole.’

For this next example, I have a metaphor/idiom originally in English, which I translated using machine translation. If someone were to say this to you in Italian, would you understand the intended meaning? How would you possibly improve this translation? Do you think the connotations present in one or both of the languages have any stark/important similarities or differences?

1. “Rome was not built in a day”

Participant 1: “Yes understandable. There is another saying more like this in Italian, ‘l'erba del vicino è sempre più verde’ and the response can be ‘ed è migliore’ but there is the same one with different saying ‘l'erba è più verde dall'altra parte’ which is the direct English translation, and this makes sense still in Italian.”

Participant 2: “I would say non e ‘stata costruita in un giorno.’ Its finished being built. Nobody would say cresciuta. I would understand both ‘l'erba dell vicino è sempre più verde’ and the Google Translation too, but I always hear the one with the neighbor in Italian.”

Participant 3: “‘Non è stata’ would be better, but yes I understand. This is also a canzone di Morciba. The version of the grass saying without the neighbor would not mean anything to me, I would need to hear it in terms of the neighbor to register it as a metaphor.”

Participant 4: “Non è ‘stata,’ is what I would add. L’erba del vicino, ed è migliore is the response.”

3.4.2 English Interviews

In this section I provide the responses from American English-speaking interviewees regarding the questions I detailed earlier. Each participant is given a number so as to retain their anonymity.

1. “Non capisci un tubo”

Participant 1: laughs, “I understand your translation, not understanding a pipe doesn’t make sense unless someone is a plumber or something. DeepL seems better, the different options include a tube which is funny to me. GT is silly, made me laugh.

Not too difficult to understand. In English there isn’t a random noun to use in that scenario, this is less of a metaphor in English. Super straightforward. I’d be confused with the point they’re trying to make – the sentence might not have anything to do with anything else.”

Participant 2: “The second one is like ‘you don’t understand what you’re talking about,’ and a tube is something so simple that you can’t not understand it. So, I think Google Translate got confused and wrote pipe instead of a tube. I think I would still understand the meaning in a created English metaphor.”

2. “Allunga la zampa” / “Allunga il piatto”

Participant 1: Probably would have been confusing without the human translation. Elongating in English doesn’t fit as well. But I understand why Google Translate got confused, because I got confused. The plate one makes no sense, even with google translate. The paw makes more grammatical sense. ‘Extend an offer’ is a bit more intangible but could suffice. Or ‘extend an invitation’ because this doesn’t use the extend in a physical way. Animal words in English are more like, someone’s mug- like their face, sort of with dogs. Or maybe “tail between your legs” but animal metaphors in English don’t have verbs. I would give them my plate but be confused by their grammar, ‘to me your plate’ fine but if a human tells me to extend my paw then I would not be okay.”

Participant 2: “The only think I can think of is ‘extend your hand out,’ like offering help. Maybe stretch plate is to share and extend something to someone else. Not 100% sure about potato and plato though. These feelings were not connected to the human translated meaning, I don’t really see the metaphorical meaning of this phrase though. Because it’s not a metaphor in English, this feels literal. I would not understand this metaphor if someone said this to me, it still feels too literal.”

3. “Tra i piedi”

Participant 1: “It’s not literal, it means like in the way, I would figure that much out in Italian. It wouldn’t make as much sense as it does in Italian, might not understand it. I guess a good translation might be ‘tripping me up’ for whatever situation might make more sense for the English equivalent. Would only understand it if the metaphor is still somewhat a very literal way – a dog between someone’s feet so they can’t walk while leaving a party for example.”

Participant 2: “Oh g-d. Can I have a hint? I wouldn’t have gotten this phrase, but maybe I would grow into it with the right context.”

4. “Testa di cavolo” / “Testa di legno”

Participant 1: “I understand it. I haven’t heard these in English- hardhead is very related to the meaning, and what I’ve heard. This and Knucklehead are direct equivalents, and I would understand if someone said that someone has a head of wood, but cabbage maybe a little less.”

Participant 2: “This means someone is dumb I think, and I’ve heard knucklehead before, so I think I could understand. Loggerhead too, but the wood related ones make sense. Already an existing metaphor in English, totally normal.”

5. “Non vali una cicca”

Participant 1: “LOL the butt of a cigarette? Even if I didn’t speak Italian this makes sense- any small miniscule thing like something less relevant. Because of smoking culture in the USA, people might not understand the smoking related version- but if it were something small enough in English it could make sense. ‘It was not worth a penny’ for some shitty product. Stub reinforces that the machines are trying to say a butt of a cigarette.”

Participant 2: “You’re worth nothing, both the American one is “not worth a dime” but when it’s like fags is that a bundle of sticks? So, they’re smoking sticks? Either way, already exists in English.”

6. “Non trovi l’acqua nel mare”

Participant 1: “‘Are you dumb,’ in English or something like, ‘lost in the forest can’t see the trees’ but it’s someone that gets so caught up in the little things that they can’t see the bigger picture. Slightly different meaning but similar structure. Someone that’s nice but dumb. Maybe even ‘you wouldn’t understand this if the answer knocks on your front door.’”

Participant 2: “It’s like on the tip of my tongue, something that is so obvious but it’s right in front of you the whole time and you can’t find it. In the right context, I would definitely understand this phrase, and probably enjoy it too.”

7. “Sei fuori come un balcone”

Participant 1: “I know that being ‘fuori’ is about being crazy in Italian- if I didn’t know this, I wouldn’t know that this makes sense. Besides ‘You’re out of your mind,’ I don’t know where DeepL got the word “like” or adding other words not understanding the metaphor- sounds like an Italian trying to say this phrase without knowing the words for crazy. Would have to be said to someone who doesn’t know English 100% because you’re already negotiating meaning – maybe saying that someone is ‘crazy they’re out like a balcony’ then you teach them and they understand.”

Participant 2: “Out like a light, knocked out, tired, sleep. In English it means someone is asleep to be out like a light, and I’ve never heard it in relation to being crazy.”

8. “Siamo al mercato del pesce”

Participant 1: “I don’t understand. I don’t know what this is a metaphor for even in Italian. “Use your library voices” or “were you raised in barn?” if someone is very boisterous, no manners. Heard it said ironically, but it’s parroting people that actually said it. If I were being loud, I might actually understand it because it’s something about how I’m acting not necessarily understand the fish market itself, but it conveys the meaning given context.”

Participant 2: “Oh g-d. what? Is this literal, are we at the fish market? I’ve never been to a fish market before, but I will make an attempt. IS it the room stinky? In the right context, I might understand it and definitely now I would talking to an Italian here in America.”

9. “Mani come pasta frolla”

Participant 1: “This makes sense, the human translations make most sense and neither machine translation understood. What are doughy hands? Maybe they’re clammy. I would understand that someone has “soft hands” like how butter is soft. A person that doesn’t work- doesn’t know how to do things. Butterfingers are a nice equivalent here.”

Participant 2: “No, I don’t understand but I will make an attempt: either the person is fat, or someone with sweet hands, maybe they steal things? But now knowing that it’s more like “butterfingers” from the participant interviews that makes sense.”

10. “Sei più di lá che di qua”

Participant 1: “This makes sense to me, if someone said this to me English I would be concerned by the amount of words they’re using, but I would get it. If a question is asked and someone isn’t really paying attention. Google Translate’s is a better translation here than DeepL, which might be the first time that has happened. ‘Oh sorry, I’m not all here today,’ or like someone being a bit spaced out. Would feel unnatural but I understand.”

Participant 2: “You’re not who you think you are? Isn’t it like you’re ‘knocking on death’s doorsteps’- hearing your explanation of it reminds me of that, and I think I’d understand it in the right context.”

1. “Rome did not grow in a day” / “Rome was not built in a day”

Participant 1: “I understood and felt like I could understand the saying even without any Italian knowledge. Translates well into English – both machine translations were decent enough, grow and built makes a big difference, and built definitely feels more natural. Grow is sort of like an entity of nature, animate/natural things grow, and grow doesn’t work for inanimate things like a city, even though a city is built by people it’s different from talking about the concept and entity of the city of Rome. Built in a day makes a lot more sense.”

Participant 2: “It takes time for things to develop. Like Rome is such a place it didn’t come to fruition in a day and took time to reach what it was/is. I would never hear the grow instead of built, but I would definitely understand.”

4 Conclusions/Discussion

While science and technology have both come a long way since theories from the 1950's (Weaver, 1952) for the future of Machine Translation, this thesis gives the reader and future computational linguists a starting point for better machine translation of figurative language. I proposed the introduction of consistent and detailed user-input from humans that use machine translation in languages they are familiar with; *consistent and detailed*, because DeepL Translator offers simple “thumbs up” or “thumbs down” emojis under each output translation, and Google Translate only occasionally offers users the option to “give feedback” on translations. This would be one of two ways in which the machines could continue learning and creating a corpus of knowledge for better translations of future input phrases. The second includes inputting more recent corpuses of multilingual articles, journals, books, and essays which examine metaphors and figurative language between languages. This newer corpus, which may include excerpts from Eisiminger (1984) to better understand etymology of American sayings; from Писулин (2021) and Bekhzod (2022) for short corpuses with metaphorical equivalents and translations in English, Italian, and Russian (Писулин, 2021) or Uzbek (Bekhzod 2022); from Sisto (2010) for an analysis of animal-related-words in Italian literature; from Özbal et al. (2016) for English proverbs and metaphors in Italian equivalents; from Deignan & Potter (2004) for Italian metonyms in both English and Italian; and from Phillip (2003) for a corpus investigation of the use of colors in English and Italian, from the website with Italian metaphors explained in Italian as a teaching resource (Modi di dire con la A, 2020), to name a few. Beyond the amalgamation of these corpuses throughout this thesis, I hope that my analysis and interpretations could also be utilized to train a machine in figurative language equivalents.

After initial submission of my thesis, I was made aware of the new conversational Artificial Intelligence “ChatGPT,” which is the newest variant of a Generative Pre-training Transformer language model for conversations with the bot. The chatbot scrapes the entire internet to produce human-like responses to questions posed by users in colloquial wording – the pre-training model is trained with human-generated text (Ohr, 2022). According to the OpenAI website, the research organization which founded the chatbot, ChatGPT utilizes Reinforcement Learning from Human Feedback (RLHF) – which is similar to my proposed solutions for MT. RLHF uses a language model which is pre-trained with generated data for a reward model which teaches human preferences for scalar reward outputs, and then fine-tuned with reinforcement learning (Lambert, 2022). My proposed solutions include human input post-translation and pre-training utilizing human-written analyses of ambiguous language – ChatGPT is trained in three steps, the first which includes a human labeler to demonstrate the desired output to fine-tune GPT-3.5 with supervised learning, the second step wherein a list of outputs for a given input is ranked by a human labeler in order to train the reward model to know how to organize data in responses, and the third step which no longer requires human-input and instead calculates rewards for input using Proximal Policy Optimization (PPO) (OpenAI, 22). This new AI is in direct competition

with Google’s BERT, described earlier, due to its similarities in the language model (Ohr, 20220).

In order to test ChatGPT’s capabilities to scrape the internet of human-written articles and journals about ambiguous language, I decided to input all ten of the Italian phrases to ChatGPT (Appendix A) with the following sentence structure: “Can you tell me what the metaphor “X” means in English?” Utilizing this structure, all except for three metaphorical/idiomatic phrases had nearly perfect explanations; phrase numbers 7 (‘Sei fuori come un balcone’), 8 (‘Siamo al mercato del pesce’), and 10 (‘Mani come pasta frolla’). While the explanations were not entirely incorrect, they utilized some analyses which were uncommon and not heard of in any Italian participant interviews. However, simply asking ChatGPT to translate the phrases, did not offer any semantic analysis of either possible equivalents for the phrases nor explanations for their meanings as intended in Italian. In terms of feedback, ChatGPT offers users something similar to Google Translate, wherein thumbs up and thumbs down icons can respectively let the machine know whether the output was satisfactory or not; additionally, the bot offers users to “refresh” the out-put answer and offer a new response. These chatbot responses can be seen in Appendix A (Figures 3 – 13).

While inputting more data to a Machine Translation system may not be an end-all solution, utilizing these corpuses alongside pre-training programs such as BERT combined with NLP, could result in a Machine Translation system which can more easily recognize and represent this ambiguous language. Furthering the possibilities of MT capabilities might even include an eventual system, wherein full paragraphs of context for a translation could be inputted to a Machine Translation system, and the target sentence for translation could be highlighted for the machine to recognize and translate. This could aid in the difficulties of Machine Translation not understanding when phrases are meant to be translated literally or figuratively, with possible equivalents in target languages that the pre-training would offer. Ultimately, the semantic distance (Reilly et al., 2022) between related words and related concepts, would have to span across languages so that the machine can create predictions for metaphorical equivalents or paraphrased translations – which might be done through either a pre-training model with the cross-language corpuses previously listed, *or* with a post-translation application that would compare the semantic weight of related words to provide possible related translations and paraphrases. Utilizing BiBERT, the multilingual pre-training program previously described in section 2.2.1, alongside Reilly et al.’s (2022) claims, might prepare the machine for semantic distances of concepts and terms, thought of as foreign concepts for a MT user, between languages. Other pre-training models, such as *PreQuEL*, emphasize focus on the source texts to analyze the output performance of the Machine Translation, without human aid (Don-Yehuda et al., 2022).

Through interviews with both American English-speaking participants and native Italian participants, suggestions for Machine Translation included more user-friendly input interfaces during translations and paraphrased translations for metaphorical language. Italian interview participants emphasized that due to the direct translation nature of these ambiguous phrases, it is very noticeable and clear that a person using these phrases utilized Machine Translation to create them in a target language- in this case Italian. Paraphrased translations for ambiguous phrases with figurative language, such as idiomatic and metaphorical phrases, would offer the user a better grasp of the intended meaning of a phrase, as compared to the direct translation. This would be fairly difficult to code for a Machine Translation algorithm but considering the multiple outputs that DeepL Translator offers for a single phrase's translation, this might be achievable in a foreseeable future wherein multiple outputs for one phrase could together create a sort of paraphrased explanation for a metaphor or idiom. The American English-speaking participant with no prior Italian knowledge, participant 2, exemplified the need for possible related phrases when a translation of an ambiguous phrase is inputted to Machine Translation; when this participant was unsure of the intended meaning of phrases, they would make an educated guess based off of their own language and cultural knowledge. This not only shows the inherent cultural knowledge necessary to understand phrases and use them correctly, but goes to show that without context, neither machine nor human can easily and accurately decipher intended meaning of ambiguous language from a different part of the world, especially without any prior knowledge of the people or language.

For future work in this direction, I would aim to interview more people, both in English and in Italian. Italian participants who learned English in England, America, New Zealand, or Australia would most likely have differing opinions of the metaphors and translations offered by machines. It would be especially interesting to ask Italians who learned English in other English-speaking countries to use their internet search engine to search for images of terms in both English and Italian in order to see what cultural differences the images can convey. I would also aim to find participants of all ages- the Italian interview participants in this thesis were about ten years older than I am, while the American English-speaking interview participants were around my age. This difference in age for the two interview groups certainly affected the content for my analysis of American English-speakers versus Italian speakers' sentiments of the metaphors and idioms provided. Similar to Weaver (1952), another major limitation to my writing of this thesis includes my limited knowledge of computational linguistics and computer science- both of which would have possibly offered more sophisticated analyses of the Machine Translation and the mechanics involved.

Appendix A

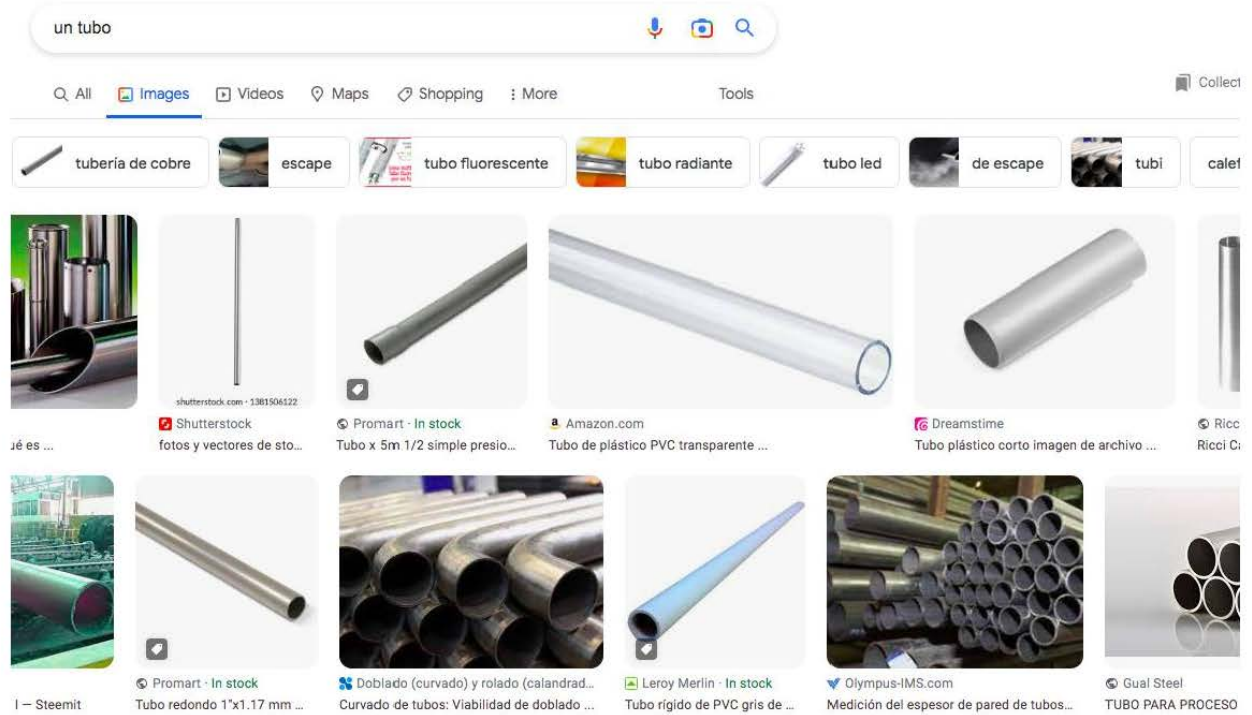


Figure 1 shows the Google Search image results when I searched for “un tubo” (a tube) in Italian, (accessed December 8th, 2022).

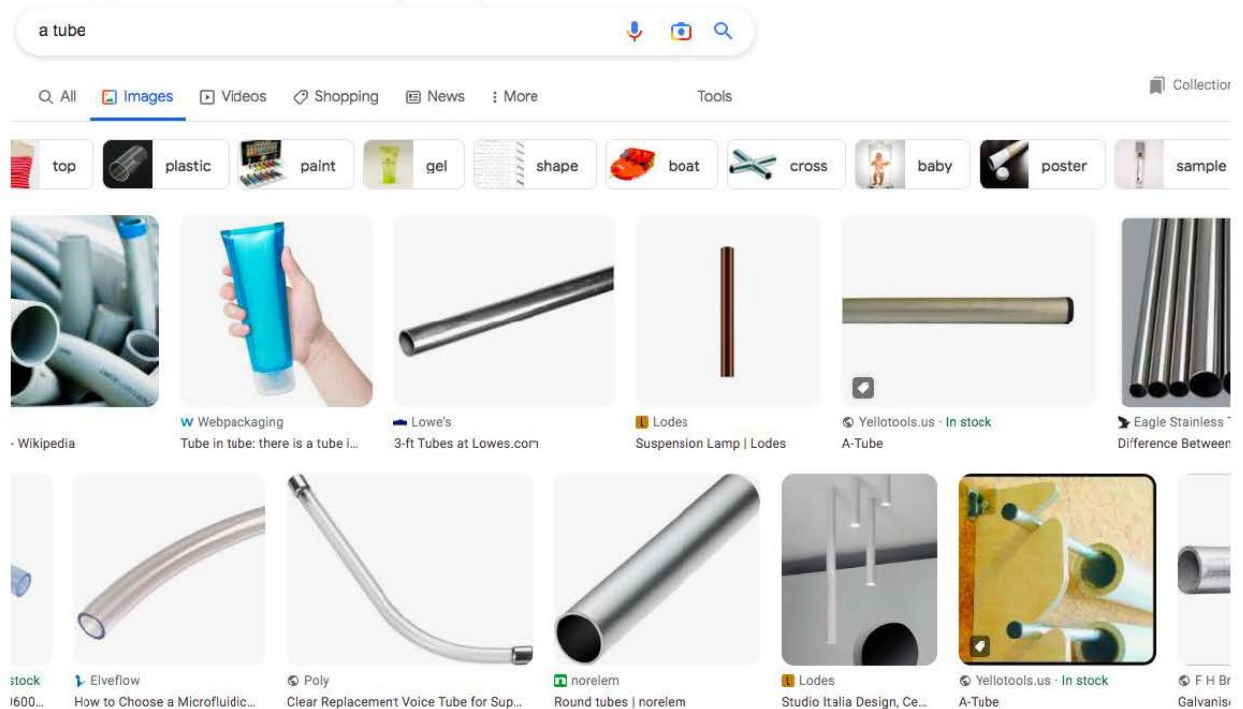


Figure 2 shows the Google Search image results when searching “a tube” in English, (accessed on December 8th, 2022).



Figure 3 shows my initial try at using ChatGPT, with no explanation for the metaphor originally in Italian, (accessed on December 10th, 2022).

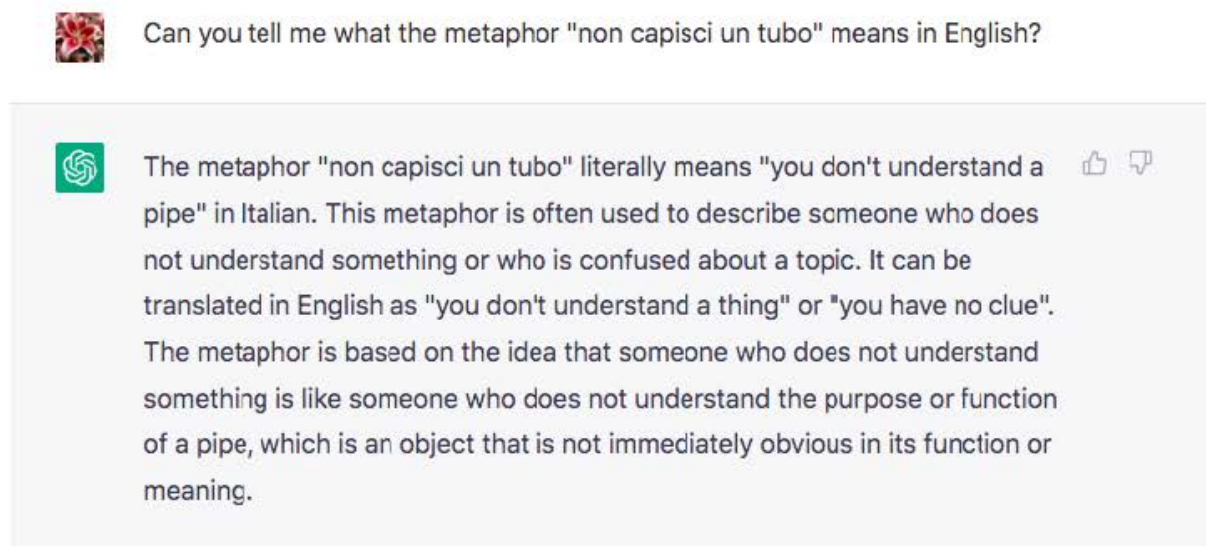


Figure 4 shows Phrase 1 translated and accurately explained by ChatGPT, (accessed on December 10th, 2022).



Can you tell me what the metaphor "allunga la zampa" means in English?



The metaphor "allunga la zampa" literally means "extend the paw" in Italian. This metaphor is often used to describe someone who is asking for a favor or seeking help. It is based on the idea that a paw is an appendage that animals use to reach out or extend themselves, so "allunga la zampa" is essentially a way of saying "reach out" or "extend a hand". In English, this metaphor could be translated as "put out a hand" or "ask for a favor". It is often used in a playful or lighthearted manner, and may be accompanied by a gesture or physical movement to simulate reaching out with a paw.



Figure 5 shows Phrase 2 translated and accurately explained by ChatGPT, (accessed December 10th, 2022).



Can you tell me what the metaphor "tra i piedi" means in English?



The metaphor "tra i piedi" literally means "between the feet" in Italian. This metaphor is often used to describe a situation in which something is causing problems or getting in the way. It can be used to suggest that something is hindering progress or causing difficulties, much like an obstacle that one must navigate around or step over. In English, this metaphor could be translated as "in the way" or "underfoot".



Figure 6 shows Phrase 3 translated and accurately explained by ChatGPT, (accessed December 10th, 2022).



Can you tell me what the metaphor "testa di cavolo" means in English?



The metaphor "testa di cavolo" literally means "head of cabbage" in Italian. This metaphor is used to describe someone who is dense or slow to understand something. It is based on the idea that a head of cabbage is dense or thick, so "testa di cavolo" is essentially a way of saying that someone is thickheaded or slow to grasp an idea. In English, this metaphor could be translated as "thickheaded" or "dense". It is often used in a playful or lighthearted manner, and is not meant to be taken literally or to be taken as an insult.



Figure 7 shows Phrase 4 translated and accurately explained by ChatGPT, (accessed December 10th, 2022).



Can you tell me what the metaphor "non vali un cicca" means in English



The metaphor "non vali un cicca" literally means "you're not worth a butt" in Italian. This metaphor is used to describe someone who is not worth much or who has little value. It is based on the idea that a "cicca" is a cigarette butt, which is something that has little value or worth. In English, this metaphor could be translated as "you're not worth much" or "you have little value". It is often used in a derogatory or dismissive manner and is not meant to be taken literally or to be taken as an insult.



Figure 8 shows Phrase 5 Translated and accurately explained by ChatGPT, (accessed December 10th, 2022).



Can you tell me what the metaphor "non trovi l'acqua nel mare" means in English?



The metaphor "non trovi l'acqua nel mare" literally means "you can't find water in the sea" in Italian. This metaphor is used to describe a situation in which something is extremely easy to find or obtain. It is based on the idea that water is abundant in the sea and is therefore easy to find. In English, this metaphor could be translated as "it's a piece of cake" or "it's as easy as pie". It is often used in a playful or lighthearted manner to suggest that something is simple or straightforward.



Figure 9 shows Phrase 6 translated and accurately explained by ChatGPT, (accessed December 10th, 2022).



Can you tell me what the metaphor "sei fuori come un balcone" means in English?



The metaphor "sei fuori come un balcone" literally means "you're out like a balcony" in Italian. This metaphor is used to describe someone who is not fully aware of a situation or who is not fully present. It is based on the idea that a balcony is a structure that extends outward from a building and is therefore somewhat removed from the interior of the building. In English, this metaphor could be translated as "you're out of it" or "you're not fully present". It is often used in a playful or lighthearted manner to suggest that someone is distracted or not paying attention.



Figure 10 shows Phrase 7 translated and somewhat accurately explained by ChatGPT, (accessed December 10th, 2022).



Can you tell me what the metaphor "mani come pasta frolla" means in English?



The metaphor "mani come pasta frolla" literally means "hands like shortcrust pastry" in Italian. This metaphor is used to describe someone who has delicate or sensitive hands. It is based on the idea that shortcrust pastry is a type of dough that is tender and delicate, and therefore requires a gentle touch. In English, this metaphor could be translated as "hands like butter" or "hands like velvet". It is often used in a complimentary manner to praise someone's gentle touch or delicate handiwork.

Figure 11 shows Phrase 8 translated and inaccurately explained by ChatGPT, (accessed December 10th, 2022).



Can you tell me what the metaphor "sei più di là che di qua" means in English?



The metaphor "sei più di là che di qua" literally means "you're more over there than over here" in Italian. This metaphor is used to describe someone who is not fully present or engaged in a situation. It is based on the idea that someone who is more "over there" is somewhat removed or detached from the situation at hand, as if they are mentally or physically absent. In English, this metaphor could be translated as "you're not fully here" or "you're not fully present". It is often used in a playful or lighthearted manner to suggest that someone is distracted or not paying attention.

Figure 12 shows Phrase 9 translated and accurately explained by ChatGPT, (accessed December 10th, 2022).



Can you tell me what the metaphor "siamo al mercato del pesce" means in English ?



The metaphor "siamo al mercato del pesce" literally means "we are at the fish market" in Italian. This metaphor is often used to describe a situation in which there are many options or choices available. It can be used to suggest that there are many potential outcomes or paths to choose from, or that there is a wealth of information or resources available. Essentially, the metaphor suggests that there are many options or possibilities in a given situation, much like there are many different types of fish available at a fish market.



Figure 13 shows Phrase 10 translated and inaccurately explained by ChatGPT, (accessed December 10th, 2022).

References

- Писулин, С. С. (2021). English idioms with components denoting parts of the body.
- Agrawal, R., Kumar, V.C., Muralidaran, V., & Sharma, D.M. (2018). No more beating about the bush : A Step towards Idiom Handling for Indian Language NLP. *LREC*. Retrieved October 3, 2022, from <https://www.semanticscholar.org/paper/No-more-beating-about-the-bush-%3A-A-Step-towards-for-Agrawal-Kumar/c25fb96009b5f72450d0307570376012af2f7f3a>
- Bahdanau, D., Cho, K., & Bengio, Y. (2016). *Neural Machine Translation by Jointly Learning to Align and Translate* (arXiv:1409.0473). arXiv. <https://doi.org/10.48550/arXiv.1409.0473>
- Basile, V., Polignano, M., de Gemmis, M., Semeraro, G., (2019). *ALBERTo: Italian BERT language understanding model for NLP challenging tasks based on tweets*. <https://iris.unito.it/handle/2318/1759767>
- Batini, G. (2007). Cavolo: Ha moltissimi parenti e tutti profumano come lui. *Cavolo*, 1000–1004. <https://doi.org/10.1400/82489>
- Bekhzod Khudaykulov. (2022). *Linguacultural Features of Phraseological Units in Italian Language*. <https://doi.org/10.5281/ZENODO.5849976>
- BERT (language model). (2022). In *Wikipedia*. [https://en.wikipedia.org/w/index.php?title=BERT_\(language_model\)&oldid=1123077289](https://en.wikipedia.org/w/index.php?title=BERT_(language_model)&oldid=1123077289)
- Brdar, M., & Brdar-Szabó, R. (2017). Moving-Time and Moving-Ego Metaphors from a Translational and a Contrastive-Linguistic Perspective. *Research in Language*, 15(2), 191–212. <https://doi.org/10.1515/rela-2017-0012>
- Cabbagehead. (2022). In *Wiktionary*. <https://en.wiktionary.org/w/index.php?title=cabbagehead&oldid=65201921>

- ChatGPT. (2022, December 10). <https://chat.openai.com>
- Chowdhury, G. G. (2003). *Natural Language Processing*, 39.
- Clark, K., Khandelwal, U., Levy, O., & Manning, C. D. (2019). What Does BERT Look at? An Analysis of BERT's Attention. *Proceedings of the 2019 ACL Workshop BlackboxNLP: Analyzing and Interpreting Neural Networks for NLP*, 276–286. <https://doi.org/10.18653/v1/W19-4828>
- Clinchant, S., Jung, K. W., & Nikoulina, V. (2019). *On the use of BERT for Neural Machine Translation* (arXiv:1909.12744). arXiv. <https://doi.org/10.48550/arXiv.1909.12744>
- Colson, Jean-Pierre. Cross-linguistic phraseological studies: An overview.. In: Granger, S. & F. Meunier (eds.), *Phraseology. An interdisciplinary perspective.*, John Benjamins : Amsterdam / Philadelphia 2008, p. 191-206 <http://hdl.handle.net/2078.1/112760>
- Croom, A. M. (2015). The semantics of slurs: A refutation of coreferentialism. *Ampersand*, 2, 30–38. <https://doi.org/10.1016/j.amper.2015.01.001>
- Czarnecka, M. (2005). *The Role of Literary Translation in Establishing Cross-cultural Dialogue. Untranslatability and the Desire to Transplant Foreign Concepts*. 4.
- Davies, M. (1982). Idiom and Metaphor. *Proceedings of the Aristotelian Society*, 83, 67–85. <http://www.jstor.org/stable/4544992>
- De Cock, B., & Suner Munoz, F. (2018). *The influence of conceptual differences on processing taboo metaphors in the foreign language*. <https://dial.uclouvain.be/pr/boreal/object/boreal:198945>
- Deignan, A., & Potter, L. (2004). A corpus study of metaphors and metonyms in English and Italian. *Journal of Pragmatics*, 36(7), 1231–1252. <https://doi.org/10.1016/j.pragma.2003.10.010>
- Determining the Composition Functions of Persian Non-standard Sentences in Terminology using a Deep Learning Fuzzy Neural Network Model*. (n.d.). Retrieved October 3, 2022, from https://www.ije.ir/article_120143.html
- Devlin, J., & Chang, M.-W. (2018). *Open Sourcing BERT: State-of-the-Art Pre-training for Natural Language Processing*. <https://ai.googleblog.com/2018/11/open-sourcing-bert-state-of-art-pre.html>
- Dobrovolskij (1999). *On the Cross-Linguistic Equivalence of Idioms*. (n.d.). Retrieved October 3, 2022, from https://www.researchgate.net/publication/344665983_On_the_Cross-Linguistic_Equivalence_of_Idiomsc
- Don-Yehiya, S., Choshen, L., & Abend, O. (2022). *PreQuEL: Quality Estimation of Machine Translation Outputs in Advance* (arXiv:2205.09178). arXiv. <http://arxiv.org/abs/2205.09178>
- Editoriale, R. (2014, March 16). SE VAI A MARE NUN TRUOVE L'ACQUA. *Ass. Cala Felci*. <https://www.ponzacalafelci.com/2014/03/16/se-vai-a-mare-nun-truove-lacqua/>
- Eckert, P. (1997). *Gender and Sociolinguistic Variation*. 7.
- Eisiminger, S. (1984). Etymology Unknown: The Crème de la Crème de la Crème. *American Speech*, 59(1), 90–92. <https://doi.org/10.2307/455000>
- Esenova, O. (2008). Plant metaphors for the expression of emotions in the English language. *Beyond Philology*, 5, 7-21.

- Frezza, G. (2012). Lo specchio della trasparenza: La metafora come strumento concettuale tra scienza e cultura e il caso dei neuroni specchio. *Lo Specchio Della Trasparenza : La Metafora Come Strumento Concettuale Tra Scienza e Cultura e Il Caso Dei Neuroni Specchio*, 127–138. <https://doi.org/10.3280/RSF2012-001008>
- Gibbs Jr., R. W., & Nayak, N. P. (1991/0701). Why idioms mean what they do. *Journal of Experimental Psychology: General*, 120(1), 93. <https://doi.org/10.1037/0096-3445.120.1.93>
- Gorbatenko, O., Kruse, I., & Kalashnikova, E. (2019). Stylistic devices in English legal concepts and their interpretation into Russian: Metaphor in the focus. *XLinguae*, 12(4), 77–91. <https://doi.org/10.18355/XL.2019.12.04.07>
- Grillo: 'Cosentino un mito, siamo al mercato del pesce'—Politica—ANSA.it. (2022). Retrieved October 21, 2022, from <https://www.ansa.it/web/notizie/rubriche/politica/2013/01/21/Grillo-Cosentino-mito-siamo-mercato-pesce- 8113779.html>
- Han, J. (2021). Issue #155- Continuous Learning in NMT using Bilingual Dictionaries. <https://www.rws.com/language-weaver/blog/Issue-155-Continuous-Learning-in-NMT/>
- How does DeepL work? (2021). <https://www.deepl.com/en/blog/how-does-deepl-work>
- Imanalieva, K. (2006). A proposito dei prestiti di origine turca nella lingua russa (sull'esempio di balda e balbes). *A Proposito Dei Prestiti Di Origine Turca Nella Lingua Russa (Sull'esempio Di Balda e Balbes)*, 127–130. <https://doi.org/10.1400/201478>
- Italian verb: Conjugation rules, reflexive and pronominal verbs, verb agreement | Conjugator Reverso. (n.d.). Retrieved November 14, 2022, from <https://conjugator.reverso.net/rules-conjugation-verb-italian.html>
- Italiano per stranieri—Le Monnier—Catalogo Mondadori Education. (n.d.). *Mondadori Education*. Retrieved December 9, 2022, from <https://www.mondadorieducation.it/italiano-per-stranieri/>
- Khanmohammad, H., & Osanloo, M. (2009). *Moving Toward Objective Scoring: A Rubric for Translation Assessment*. <https://www.sid.ir/paper/328006/en>
- Koehn, P. (2017). *Neural Machine Translation* (arXiv:1709.07809). arXiv. <http://arxiv.org/abs/1709.07809>
- Krishnakumaran, S., & Zhu, X. (2007). Hunting Elusive Metaphors Using Lexical Resources. *Proceedings of the Workshop on Computational Approaches to Figurative Language*, 13–20. <https://aclanthology.org/W07-0103>
- Lakoff, G., Espenson, J., & Schwartz, A. (1991). *Master Metaphor List Second Draft Copy—First Edition Compiled By George Lakoff, Jane Espenson, and Adele Goldberg August, 1989 Second Edition Compiled By George Lakoff, Jane Espenson, and Alan Schwartz*. 215.
- Lakoff, G., & Johnson, M. (1980). *Metaphors We Live By* (Vol. 40, Issue 2, pp. 208–210). University of Chicago Press.
- Lambert, N., Casticato, L., von Werra, L., & Havrilla, A. (2022, December 9). *Illustrating Reinforcement Learning from Human Feedback (RLHF)*. <https://huggingface.co/blog/rlhf>
- Le, Q. V., & Schuster, M. (n.d.). *A Neural Network for Machine Translation, at Production Scale*. Retrieved November 13, 2022, from <https://ai.googleblog.com/2016/09/a-neural-network-for-machine.html>

- Lombardi, C., Cicco, G., & Zagà, V. (2009). Review. Le cicche di sigaretta: Un rifiuto tossico dimenticato/The cigarette butts: a forgotten toxic waste. *Tabaccologia/Tobaccology*, 4, 27–36.
- Massey (2021). *RE-FRAMING CONCEPTUAL METAPHOR TRANSLATION RESEARCH IN THE AGE OF NEURAL MACHINE TRANSLATION: INVESTIGATING TRANSLATORS' ADDED VALUE WITH PRODUCTS AND PROCESSES* – тема научной статьи по языкознанию и литературоведению читайте бесплатно текст научно-исследовательской работы в электронной библиотеке КиберЛенинка. (n.d.). Retrieved October 3, 2022, from <https://cyberleninka.ru/article/n/re-framing-conceptual-metaphor-translation-research-in-the-age-of-neural-machine-translation-investigating-translators-added-value>
- Melby, A. K., Housley, J., Fields, P. J., & Tuioti, E. (2012, October 28). Reliably Assessing the Quality of Post-edited Translation Based on Formalized Structured Translation Specifications. *Workshop on Post-Editing Technology and Practice*. AMTA 2012, San Diego, California, USA. <https://aclanthology.org/2012.amta-wptp.4>
- Modi di dire con la A. (2020, September 11). *Affresco della Lingua Italiana*. <https://affrescodellalinguaitaliana.com/modi-di-dire-con-la-a/>
- Nadkarni, P. M., Ohno-Machado, L., & Chapman, W. W. (2011). Natural language processing: An introduction. *Journal of the American Medical Informatics Association*, 18(5), 544–551. <https://doi.org/10.1136/amiajnl-2011-000464>
- NON TROVEREBBE NEANCHE L'ACQUA NEL MARE* - traduzione in inglese—Dizionario italiano-inglese di bab.la. (n.d.). Retrieved November 1, 2022, from <https://it.bab.la/dizionario/italiano-inglese/non-troverebbe-neanche-l-acqua-nel-mare>
- Ohr, T. (2022, December 22). *We just interviewed ChatGPT. The answers to our straightforward questions might surprise you!* EU-Startups. <https://www.eu-startups.com/2022/12/we-just-interviewed-chatgpt-the-answers-to-our-straightforward-questions-might-surprise-you/>
- OpenAI. (2022, November 30). *ChatGPT: Optimizing Language Models for Dialogue*. OpenAI. <https://openai.com/blog/chatgpt/>
- Özbal, G., Strapparava, C., & Tekiroğlu, S. S. (2016). PROMETHEUS: A Corpus of Proverbs Annotated with Metaphors. *Proceedings of the Tenth International Conference on Language Resources and Evaluation (LREC'16)*, 3787–3793. <https://aclanthology.org/L16-1600>
- Philip, G. S. (2003, November). *Collocation and Connotation: A corpus-based investigation of colour words in English and Italian* [Preprint]. <http://amsacta.unibo.it/2266/>
- Piccolino, M. (2010). *La battipotta, ovvero Boccaccio al mercato del pesce*. 9.
- Pinocchio. (2022). In *Wikipedia*. <https://en.wikipedia.org/w/index.php?title=Pinocchio&oldid=1117282893>
- Ponti, P. (2018). “Un zinzino di cuore”. *Ancora sul corpo di Pinocchio*. <https://publicatt.unicatt.it/handle/10807/146494>
- Reilly, J., Zuckerman, B., Finley, A. Ma., & Litovsky, C. (2022). (PDF) *What is Semantic Distance? A Review and Proposed Method for Modeling Conceptual Transitions in Natural Language*. https://www.researchgate.net/publication/358937735_What_is_Semantic_Distance_A_Review_and_Proposed_Method_for_Modeling_Conceptual_Transitions_in_Natural_Language

- Robertson, M. (1995). Foreign concepts: indexing and indexes on the Continent. *Indexer*, 19, 160-160.
- Salton, G., Ross, R., & Kelleher, J. (2014). An Empirical Study of the Impact of Idioms on Phrase Based Statistical Machine Translation of English to Brazilian-Portuguese. *Proceedings of the 3rd Workshop on Hybrid Approaches to Machine Translation (HyTra)*, 36–41.
<https://doi.org/10.3115/v1/W14-1007>
- Schoos, M., & Suñer, F. (2020). Understanding humorous metaphors in the foreign language: a state-of-the-art-review. *Zeitschrift für Interkulturellen Fremdsprachenunterricht*, 25, 1431-1446.
- Sidiropoulou, M. (2005). *Identity and Difference: Translation Shaping Culture*. Peter Lang.
- Sisto, P. (2010). Storie e immagini di animali nella letteratura italiana. *Storie e immagini di animali nella letteratura italiana*, 1–144.
- Somers, H. (2012). *Machine Translation: History, Development, and Limitations*.
<https://doi.org/10.1093/oxfordhb/9780199239306.013.0029>
- Synonymy in the terminology of computational linguistics. (2021). *RESEARCH RESULT Theoretical and Applied Linguistics*, 7(4). <https://doi.org/10.18413/2313-8912-2021-7-4-0-2>
- Stancato, E. (2010, November). *L'insulto. Un'analisi pragmatica e psico-sociale. - Preview— Tesionline*. <https://www.tesionline.it/tesi/preview/40255/3/1-insulto-un-analisi-pragmatica-e-psico-sociale>
- Tate, T. P., & Pearlman, R. A. (2016). Military Metaphors in Health Care: Who Are We Actually Trying to Help? *The American Journal of Bioethics*, 16(10), 15–17.
<https://doi.org/10.1080/15265161.2016.1214320>
- Team, T. B. L. (2020, September 10). *Everything You Need to Know about Neural Machine Translation*. BIG Language Website. <https://biglanguage.com/blog/everything-to-know-about-neural-machine-translation/>
- The automatic translation of idioms. Machine translation vs. Translation memory systems—Zurich Open Repository and Archive*. (n.d.). Retrieved October 3, 2022, from
<https://www.zora.uzh.ch/id/eprint/19070/>
- Топалова, Т. В. (2017). СЕМАНТИЧНА КЛАСИФІКАЦІЯ ІТАЛІЙСЬКИХ ФРАЗЕОЛОГІЗМІВ. *Мови та літератури у полікультурному суспільстві: Матеріали*, 67. *tubo in inglese—Google Search*. (n.d.). Retrieved October 31, 2022, from
<https://www.google.com/search?q=tubo+in+inglese&oq=tubo+in+inglese&aqs=chrome..69i57j0i22i30l2j0i15i22i30j0i22i30l6.2532j1j7&sourceid=chrome&ie=UTF-8>
- Turner, B. S. (2003). Social Fluids: Metaphors and Meanings of Society. *Body & Society*, 9(1), 1–10.
<https://doi.org/10.1177/1357034X030091001>
- Treccani, G. (2003). *cicca in Vocabolario—Treccani*. <https://www.treccani.it/vocabolario/cicca/>
- Urban Dictionary: Out like a light*. (2019). Retrieved December 8, 2022, from
<https://www.urbandictionary.com/define.php?term=out%20like%20a%20light>
- Weaver, W. (1952). Translation. *Proceedings of the Conference on Mechanical Translation*. EarlyMT 1952, Massachusetts Institute of Technology. <https://aclanthology.org/1952.earlymt-1.1>

- Wu, Y., Schuster, M., Chen, Z., Le, Q. V., Norouzi, M., Macherey, W., Krikun, M., Cao, Y., Gao, Q., Macherey, K., Klingner, J., Shah, A., Johnson, M., Liu, X., Kaiser, L., Gouws, S., Kato, Y., Kudo, T., Kazawa, H., ... Dean, J. (2016). *Google's Neural Machine Translation System: Bridging the Gap between Human and Machine Translation* (arXiv:1609.08144). arXiv. <http://arxiv.org/abs/1609.08144>
- Xu, H., Van Durme, B., & Murray, K. (2021). *BERT, mBERT, or BiBERT? A Study on Contextualized Embeddings for Neural Machine Translation* (arXiv:2109.04588). arXiv. <https://doi.org/10.48550/arXiv.2109.04588>
- Yang, S., Jia, J. (2022). *Analysis of AI MT Based on Fuzzy Algorithm*. (n.d.). Retrieved October 3, 2022, from https://www.researchgate.net/publication/362391691_Analysis_of_AI_MT_Based_on_Fuzzy_AI_algorithm