TURUN
YLIOPISTO
UNIVERSITY
OF TURKU

Université de Sfax
TUNISIE

EGO/SPEAKER DEIXIS

Ego-Centered Motion Metaphors of Time between Arabic and English – A Comparative Corpus-based Study

Asma Dhifallah

TURUN YLIOPISTON JULKAISUJA – ANNALES UNIVERSITATIS TURKUENSIS
SARJA – SER. B OSA – TOM. 671 | HUMANIORA | TURKU 2024

TURUN
YLIOPISTO
UNIVERSITY
OF TURKU

Université de Sfax
TUNISIE

EGO/SPEAKER DEIXIS

Ego-Centered Motion Metaphors of Time between Arabic and English – A Comparative Corpus-based Study

Asma Dhifallah

TURUN YLIOPISTON JULKAISUJA – ANNALES UNIVERSITATIS TURKUENSIS
SARJA – SER. B OSA – TOM. 671 | HUMANIORA | TURKU 2024

University of Turku

Faculty of Humanities
School of Languages and Translation Studies
Applied Language Studies
Doctoral Programme in Languages and Translation Studies (Utuling)

University of Sfax

Faculty of Arts and Humanities
Doctoral School in Arts, Letters, and Humanities
Department of English Linguistics
Doctoral programme LR Approaches to Discourse

Supervised by

Professor Tuomas Huumo
University of Turku

Professor Mounir Triki
University of Sfax

Reviewed by

Professor Jaakko Leino
University of Helsinki

Professor Sondes Hamdi
University of Carthage

Opponents

Professor Jaakko Leino
University of Helsinki

Professor Sondes Hamdi
University of Carthage

The originality of this publication has been checked in accordance with the University of Turku quality assurance system using the Turnitin Originality Check service.

ISSN 0082-6987 (Print)
ISSN 2343-3191 (Online)
ISBN 978-951-29-9768-8 (PRINT)
ISBN 978-951-29-9769-5 (PDF)
Painosalama, Turku, Finland 2024

UNIVERSITY OF TURKU
Faculty of Humanities
School of Languages and Translation Studies
Applied Language Studies
ASMA DHIFALLAH: EGO/Speaker deixis: Ego-Centered Motion Metaphors of Time between Arabic and English – A Comparative Corpus-based Study
Doctoral Dissertation, 296 pp.
Doctoral Programme in Languages and Translation Studies (Utuling)
June 2024

ABSTRACT

Using a corpus cognitive-linguistic approach, the present study examines the deictic composition of Ego-centered motion metaphors of time (EMTs) in Arabic and English. EMTs are metaphors that describe the passage of time based on the conception of spatial motion, using a deictic perspective, e.g. *Summer is coming,* or *We are approaching summer*. The study paradigm addresses the deictic composition of EMTs from a comparative perspective and takes the finite verb expression as a unit of analysis, considering it to be at the intersection of a variety of veridical and metaphorical elements. To this aim, the study analyzes 2200 EMT lines by searching 44 different COME and GO verb expressions in Arabic and English. The current inquiry identifies several key findings: First, the analysis systematically distinguishes between Ego, the experiencer of the Motion Scenario, and the Speaker, the narrator of the Motion Scenario. This distinction is central to expressing a diverse range of metaphors and explains our conceptual ability to 'go back in time'. Next, the study presents deictic subsystems based on the interaction of tense with viewpoint, lexical, and nominal aspects. The analysis indicates a major distinction between the two languages: English, using a tense system, is found to refer to both Ego's 'now' and the Speaker's present systematically in most cases; while Arabic, which is based on the dichotomy of the perfective and the imperfective, indicates Ego's 'now' categorically but does not systematically relate the Motion Scenario to the time of speech. Finally, for each language, the usage distinctions among similar expressions are tested using a Random Forest statistical model. The resulting predictions indicate that verb expressions with similar conceptual meanings exhibit distinctive patterns of usage.

KEYWORDS: metaphors of time, deixis, Arabic vs. English, temporal grounding, statistical modelling, conceptualizations of time, epistemic modality

TURUN YLIOPISTO
Humanistinen tiedekunta
Kieli- ja käännöstieteiden laitos
Soveltava kielitiede
ASMA DHIFALLAH: Ego-/puhujadeiksis: Egokeskiset ajan liikemetaforat arabiassa ja englannissa – vertaileva korpuspohjainen tutkimus
Väitöskirja, 296 s.
Kieli- ja käännöstieteiden tohtoriohjelma (Utuling)
Kesäkuu 2024

TIIVISTELMÄ

Tutkimuksessa tarkastellaan kognitiivisen kielitieteen ja korpuslingvistiikan menetelmiä hyödyntäen arabian ja englannin kielen egokeskisten ajan liikemetaforien (EAL) deiktistä koostumusta. Tällaiset metaforat kuvaavat ajan kulumisen spatiaalisen liikkeen kaltaisena ilmiönä hyödyntäen deiktistä näkökulmaa, esim. *Kesä tulee* tai *Lähestymme kesää*. Analyysin perusyksiköksi on valittu finiittiverbi-ilmaus, jonka voi katsoa olevan useiden merkitykseltään kirjaimellisten ja kuvaannollisten ajanilmaisukeinojen leikkauspisteessä. Aineistona analysoidaan 2200 löydetystä EAL-rivistä poimimalla 44:ää erilaista TULLA- tai MENNÄ-merkityksistä verbirakennetta sekä arabian- että englanninkielisistä korpusaineistoista. Tutkimus uudistaa alan tutkimusperinnettä ja nostaa esille uusia näkökulmia. Ensinnäkin analyysissa erotetaan systemaattisesti toisistaan ego, liikeskenaarion kokija, ja puhuja, liikeskenaarion kertoja. Eronteko on olennainen, kun tarkastellaan erilaisten metaforisten merkitysten ilmaisemista ja selitetään ihmisen kykyä kielellisen käsitteistyksen avulla ”palata ajassa taaksepäin”. Tutkimuksessa tarkastellaan myös deiktisiä osajärjestelmiä, jotka ilmentävät ajasta tehdyn käsitteistyksen vuorovaikutusta yhtäältä tilanteeseen valitun näkökulman, toisaalta ilmauksen leksikaalisen ja nominaalisen aspektin kanssa. Analyysi osoittaa selviä eroja kahden tutkitun kielen välillä. Englanti, joka käyttää kieliopillista tempusjärjestelmää, ilmaisee järjestelmällisesti sekä egon ’nyt’-hetken että puhehetken mukanaoloa ja asemaa tilanteessa. Arabiassa ajan ilmaisemisen kielioppi taas perustuu perfektiivisen ja imperfektiivisen aspektin vastakohtaisuuteen. Se osoittaa egon ’nyt’-hetken aseman mutta ei liitä liikeskenaariota systemaattisesti puhehetkeen. Lisäksi kummastakin kielestä selvitetään metaforisten ajanilmausten käyttöeroja satunnaismetsänä tunnetun tilastomallin avulla. Tehdyt havainnot osoittavat, että verbi-ilmauksilla, joilla on samanlainen käsitteellinen merkitys, on toisistaan selvästi erottuvia käyttömalleja.

ASIASANAT: ajan metafora, deiksis, arabia, englanti, ajallinen ankkurointi, tilastollinen mallinnus, ajan käsitteistys, episteeminen modaalisuus

Transcription Guide

ARABIC LETTER/SYMBOL	LATIN TRANSCRIPTION ADOPTED IN THIS MONOGRAPH
◌َ	a
ـَا	aa
ـَي	ai
ـَو	aw
ب	b
د	d
ض	D
ج	j
ذ	ḏ
ظ	ẓ
ف	f
ه	h
ح	H
◌ِ	i
ـِي	ee
ي	y
ك	k
ل	l
م	m
ن	n

ق	q
ر	r
س	s
ص	S
ش	sh
ت	t
ط	T
ث	th
ُ	u
ـُو	uu
و	w
خ	kh
غ	gh
ز	z
ء	‘
ع	?

Glossal abbreviations[1]

1	1st person
2	2nd person
3	3rd person
ABL	ablative
ACC	accusative
ADJ	adjective
ADV	adverb
ALL	allative
AP	active participle
AUX	auxiliary
CL	clitic
CONJ	conjunction
DEM	demonstrative
DM	discourse marker
DUAL	dual
F	feminine
FUT	future
GEN	genitive
IMPF	imperfective
INST	instrumental
INTENS	intensifier
LOC	locative
M	masculine
MOD	modal
NEG	negation
NOM	nominative
PASS	passive
PERF	perfective
PL	plural
POSS	possessive
SG	singular

[1] This list is adapted from Abdulrahim (2013)

Metaphor abbreviations

CT	Conceptualizer Time
EMT	Ego-centered Motion metaphor of Time
EXP	Experiencer
LM	Landmark
ME	(Ego-centered) Moving Ego metaphor
MT	(Ego-centered) Moving Time metaphor
MP	Metaphorical Path
MS	Motion Scenario
PT	Processing Time
RP	Reference Point
SA	Standard Arabic
TE	Temporal Entity
TR	Trajector
VT	Veridical Time

Deictic subsystems

Ego-MP-TE: The (spatial-like) reference of the TE vis-à-vis Ego's 'here' on the Metaphorical Path axis.

Ego-VT-TE: The (temporal) reference of the VT-TE (i.e., the veridical-time temporal entity) vis-à-vis Ego's 'now' on the axis of Veridical Time.

Speaker-MS: The relation of the Motion Scenario vis-à-vis the speaker.

Speaker-TE: The (temporal) reference of the veridical TE vis-à-vis the speaker's present.

Conceptualizer-MS: The relation of the Motion Scenario vis-à-vis the Conceptualizer. (This subsystem is reserved for certain Arabic verb expressions).

Preface

This monograph is above all a labour of love. It started with the discovery of a curious book that explored *The Spatial Language of Time*. From that point on, my doctoral journey was pre-eminently a journey of fascination. Exploring the literature on metaphors, the theory of space, conceptual networks and multiple conceptualizations of time, I developed a strong passion for the topic and a deep sense of gratitude toward the scholars who contributed to this body of knowledge.

In the past few years, I treated metaphors of time as a mystery that I so eagerly wanted to explore, and in exploring it, I found more mysteries: How do two completely different languages structure their lexical and temporal systems in diverging ways and at the same time express similar metaphor scenarios? How does lexical selection and selection of tense and aspect work? What is tense from a cross-linguistic perspective? What is tense in Arabic? How many temporal axes are involved in our conception of metaphorical temporal motion? How does a multi-levelled conceptualization of time work—both conceptually and linguistically? How is deictic reference communicated beyond the limits of an 'impoverished' clause-level construction? What is situational about deixis, what is lexical, and what is structured in grammar?

Probably, as is the case with anyone who writes about metaphors, in this monograph I wanted, more than anything, to communicate my fascination with thinking patterns, with the extent of our conceptual potential, and with the pervasiveness of the human and the universal. This monograph is written at a time when the human imagination is at risk with the rise of Large Language Models, in particular, and Artificial Intelligence, in general. In studying metaphors, I see not just the extent of creativity of the human conceptual system, but also the limits of statistical models. In essence, metaphor constructions provide substantial evidence that there is much more than statistical modelling to language production. Metaphors merge embodied experience with perceptual schemas to result in a universe of meaning configurations, of images, of *creations.*

Acknowledgements

I consider myself to be extremely fortunate to have a unique doctoral experience, and the lines to follow will explain how. Unfortunately, the language of 'acknowledgements' is repetitive to a point where has become a cliché; nonetheless, every single word that follows is felt and meant.

First and foremost, I extend my deepest gratitude to my two supervisors, Mounir Triki and Tuomas Huumo, for their unwavering confidence in my capabilities and their dedication to guiding my research. I am particularly grateful to Professor Mounir Triki for his invaluable assistance during numerous challenges, and to Professor Tuomas Huumo for his thorough and meticulous guidance and for always pointing out directions I do not see.

I am also indebted to Professor Ilmari Ivaska for providing timely support with the quantitative modelling of my work. Professor Ivaska not only assisted me in developing the statistical model employed in this study but also instilled a great sense of confidence in me in the face of error lines. (Indeed, when it comes to computational data analysis, the best way to learn is by doing.)

I owe many thanks to Professor Kevin E. Moore for his valuable questions and comments during the 16th International Cognitive Linguistic Conference (ICLC 16). Professor Moore's passion for time metaphors is truly humbling, so I hope this piece of work does justice to his insights. Not just his model, but his feedback has steered this work in a different (more contrastive) direction.

I am also grateful to Professor Akila Baklouti, who serves as an exemplary role model in the field of linguistics in Tunisia, for her invaluable support at the University of Sfax. Her assistance and encouragement have played a pivotal role in shaping my path.

Another crucial aspect of my mentorship came from Dr. Krista Teeri, who not only attended most of the seminar presentations I gave but also made a significant impact on my work with her thought-provoking questions and comments. Thank you!

Many thanks go to the faculty members and staff of the University of Turku, Finland, for their warm welcome and for fostering an intellectually stimulating and friendly environment for international students. I especially want to highlight Dr.

Meri Heinonen, who, for the past six years, has patiently and diligently responded to my requests and questions, providing invaluable support and guidance.

I am also indebted to the experts, my fellow researchers, and colleagues who have provided valuable insights and a supportive network throughout the course of my research. I particularly appreciate the feedback I received during seminar presentations with KIST, Langnet summer school, Researcher Day, the International Systemic Functional Congress (ISFC48), and the Finnish Cognitive Linguistics Association workshop during the Finnish Conference of Linguistics. I extend my gratitude to the faculty and peers who offered feedback at crucial stages in my research journey.

Lastly, but certainly not least, I would like to extend my heartfelt gratitude to my family and friends. My research has taken over my schedule and my priorities in the past few years, so I really appreciate their unconditional love and patience.

I hope these acknowledgements to remain a record of the support I received from different people, and without whom, I sincerely could not have completed my doctoral project.

Thank you from the bottom of my heart.

June 07, 2024
Asma Dhifallah

ASMA DHIFALLAH

ASMA IS A MULTILINGUAL RESEARCHER SPECIALIZING IN COGNITIVE LINGUISTICS, WITH SEVERAL YEARS OF EXPERIENCE IN LANGUAGE AND WRITING INSTRUCTION, IN ADDITION TO ACADEMIC RESEARCH. ASMA'S WORK RELATES TO THE CONNECTIONS BETWEEN LANGUAGE AND THE MIND, AND THE DEVELOPMENT AND ANALYSIS OF LANGUAGE CORPORA.

Table of Contents

Tables

Figures

1 Introduction

> After reading this monograph, you will change your perceptions of time, self, and language… I had to change mine to be able to write it.

1.1 Introducing the phenomenon under study

Time and space are basic concepts of human cognition. They are also a subject of great complexity. Imagine this situation: You are on a train when you hear the following announcement: *We are approaching the next station.* The image that may cross your imagination as you hear this is the place to which you are headed. You are physically moving and thus approaching a given location. However, what is backgrounded in this statement is also the progression towards a later time at which you will reach that station. This later time is processed at a more implicit level of conceptualization as the spatial goal is overtly (explicitly) expressed, while the temporal one remains implicit.

This space-time conceptual relationship has been the subject of inquiry for several decades with a focus on the embodied experience of the passage of time in terms of space (cf. Boroditsky, 2000; Casasanto & Boroditsky, 2008; Clark, 1973; Duffy, Feist, & McCarthy, 2014; Gentner, Imai, & Boroditsky, 2002). These studies, following Lakoff and Johnson's Conceptual Metaphor Theory (Lakoff & Johnson, 1980), have proven a connection between the domains of SPACE and TIME.

Consider the following examples:

(1) *The football season is approaching*.

(2) *We are approaching the football season*.

The statements above are perfectly sensible and comprehended without any effort. They are nonetheless the outcome of intricate cross-domain mappings as both examples are classified as motion metaphors of time.

Generally, a metaphor is a "unidirectional mapping projecting conceptual material from one structured domain …, called the source domain, to another domain, called the target domain" (Dancygier & Sweetser, 2014, p.14). Metaphors

are argued to be universal structures present across all languages and language families (Dancygier & Sweetser, 2014; Lakoff & Johnson 1980). In the examples above, there is a specific metaphor structure that helps us conceive of time in terms of space and motion: Example (1) is an Ego-centered Moving Time metaphor which "views events as moving forward (pastward) past a stationary ego" (Clark, 1973, p. 52). Example (2) is a Moving Ego metaphor which "views the speaker[2] as moving forward (futureward) past stationary events." (Clark, 1973, p. 52). Moving Ego (ME, henceforth) and Moving Time (MT henceforth) are categorized as Ego-centered Motion Metaphors of Time (EMTs henceforth) in a way that combines the two structures together without specifying the Mover (cf. Moore, 2014).

1.2 Introducing the problem

Two observations are verified here:

First, EMTs have been found to be used by both speakers of English and Arabic. This is evidenced in the leading comparative analysis by Hamdi (2008), which employs corpus-based methods to identify metaphors related to time expression in these two languages. More specifically, Hamdi (2008) identifies several space-related metaphors shared by both languages, including: TIME AS SPACE, TIME AS A MOVING ENTITY, TIME AS A BOUNDED SPACE, TIME AS A LOCATION, TIME AS AN EXTENSION, TIME AS A STARTING POINT/DESTINATION, TIME AND OBSERVER AS MOVING IN THE SAME DIRECTION, TIME AS A BOUNDED SPACE AND A MOVING ENTITY, TIME AS AN OBJECT COLLOCATING WITH US. These metaphors relate to the expression of EMTs as they show that both languages combine time with space and motion.

However, **although metaphors are a universal property of language, that two languages convey the same metaphor structure is not always guaranteed**. Subsequently, every time a specific metaphor is found to be used in two languages, especially if the latter are unrelated[3] and if they have different lexical and grammatical systems, a question naturally arises: How do two completely different languages structure their lexico-grammatical systems in diverging ways and at the same time express similar metaphor scenarios? This question marks the first point of interest in the present analysis, and by posing it, we underscore not just the different aspects of the two languages but also new aspects of the underlying metaphor structure. To delve deeper into this question, consider the underlying assumptions

[2] I am using this quote because it is one of the first sources to identify Moving Ego and Moving Time metaphors. However, as this study will show, Ego and the speaker are not the same 'person'.

[3] Referring to language families

associated with it: First, I presume that expressing temporal imminence or occurrence is a universal feature of all (or most) languages; although, due to the lack of typological evidence, this remains a speculation. Second, I assume that a more limited number of languages, compared to the ones that express temporal imminence and occurrence, use EMTs for this purpose. Lastly, I assume that there is a connection between conventionalized metaphors and the concrete linguistic elements in use. Consequently, the examination of EMTs in the two languages is expected to result in typological insights, taking into account the properties of the metaphor together with the properties of Arabic and English.

Second, the present inquiry comes after over half a century of EMT scholarship which has explored the phenomenon for a variety of purposes, especially with reference to its metaphorical composition. However, despite the attention EMTs have received in the last few decades, two gaps are contested: First, from a cross-linguistic perspective, Arabic EMTs are to a large extent under-studied. Second, with reference to the cognitive linguistic phenomenon itself, EMTs have mostly been analyzed for their metaphorical and semantic components, while their deictic composition is largely overlooked. This gap was primarily pointed out in the following statement:

> The claim that Moving Ego and Ego-centered Moving Time are canonically deictic means that there are good deictic examples of expressions that employ these metaphors, and also a range of examples on a continuum from deictic to non-deictic. Treating the deictic uses as basic allows us to make sense of the range of data.
>
> Moore (2016, p. 8)

This quotation validates two points: First, EMTs are amply defined in the literature as deictic Ego-centered metaphors. Second, their specific deictic sub-systems are unknown. To comprehend the extent of the deictic variability of EMTs more explicitly, consider the following examples:

a) *Summer has come*. (The Ground[4] is the moment of utterance.)

b) *When summer comes, you'll know it.* (Ground = a future Time with a specified experiencer. This Time is specific in the sense that it is roughly determinable relative to a calendar.)

[4] The Ground is not the participant in the motion scenario that is contrasted with the Figure (Talmy's terminology (Talmy (2000a)). Rather, in this context, it refers to the temporal ground of the moment of utterance (Moore, 2014, p.22).

c) *The end of the world is bound to come eventually*. (Ground = a future Time with an unspecified experiencer. This Time does not have any specific relation to an ordinary, e.g., Gregorian, calendar.)

d) *A future time is one that hasn't come yet*. (Ground = any imagined present with any imagined experiencer, on the condition that sentence (d) is understood as a definition of a future time.)

(Moore, 2016, p.198, *example number follows the original source system*)

The expressions above illustrate what Moore (2016) terms as the "deictic continuum", a spectrum of experiences where Ego's experience of temporal motion goes from "deictic to non-deictic" depending on how well it is "imagined in detail" (p.198). Example a is a prototypical EMT expression that illustrates a 'specified' Ego experience. Example a is what one would usually give as an illustration of the phenomenon EMTs (cf. Examples 1 and 2 above). Example d, however, is at the other end of the 'continuum' as it expresses a vague or imagined experience of temporal motion. The parenthetical comments, next to each expression, highlight the factors that define the deictic nature of an EMT. These factors can be encapsulated in the form of three main questions:

- **What** type of temporal entity is talked about each time? Is it specified? Does it relate to the calendar?
- **Who** is the identified experiencer in the EMT? Is it specified (Examples a and b) or indexical—referring to any imagined experiencer (Examples c and d)? Is it stated explicitly in the expression or is it implicit?
- **When** is the motion event taking place (tense and aspect)? Is the time specified (Examples a and c) or generic (Examples b and d)?

The present analysis is mainly concerned with EMTs as a deictic problem. What makes EMTs a particularly intricate deictic case is the fact that they are at the same time a linguistic and a cognitive phenomenon with a unique grammatical structure that involves "multiple conceptualizations of time" (Huumo, 2017). In fact, EMTs have been described as a unique case of the dual representation of time as both a "medium" and an "object of conceptualization" (Langacker, 2008, p.79) referring to two types of time: the time involved in the metaphorical motion scenario, also called the Temporal Entity (TE) i.e. *the football season* in the examples above, and the time of the motion event itself which, in both examples, is marked by the present progressive. Addressing the deictic composition of EMTs cannot be done without taking into account this temporal duality.

Another significant aspect of EMTs is their use of a combination of grammatical and metaphorical elements. Huumo (2017, p.8) makes a distinction between metaphorical and non-metaphorical elements of EMTs in the following statement:

> In a concrete metaphorical expression where the passage of time is expressed as motion, there are both elements that contribute to the expression of the metaphorical mapping and elements that represent non-metaphorical temporal relations, which can be called veridical.

Metaphorical elements depict the core framework elements and the mapping relationships of the conceptual structure. Non-metaphorical or veridical elements refer to the non-metaphorical components such as tense and aspect. This intricate combination of metaphorical and grammatical elements also adds to the deictic properties of EMTs.

1.3 Introducing the primary research questions

Before defining the specific research questions, I will first consider the definition of deixis as an independent phenomenon and then relate it to the study of EMTs. As a system, deixis presents different reference types. They are as follows:

> One speaks of person deixis (references to the speaker and the addressee), place deixis (references to the locations of the speaker and the addressee), time deixis (references to the time of the speech act), as well as references to portions of the utterance itself (discourse deixis), and references to the relative social statuses of the speech act participants (honorific systems, etc.).
>
> Fillmore (1972, p. 18)

Among the types of deixis identified by Fillmore (1972), in general, the three most recurring types are person, time, and space; this is in line with the principle that deictic anchorage "involves the act to locating an entity in terms of person, space and time with respect to a given Deictic center" (Triki, 1996, p. 93). A deictic center is linguistically signaled by the presence of "deictic categories" with lexemes like *here, now, this, that*, etc. Deictic categories function as cues that indicate and "presuppose the existence of a center of spatio-temporal anchorage" (Triki, 1996, p. 93). This deictic center can, in turn, be deduced from "locational clues in the text with a view to ascertaining the identity of this center" (Triki, 1996, p. 93).

In the case of EMTs, three types of deixis are relevant: **Person, Time,** and **Space**; frequently referred to in the literature as the ***I, now,*** and ***here*** of the speech event. These three types will govern the conversation on the deictic reference of EMTs.

Following this distinction, three primary questions are considered:

- What are the different deictic subsystems involved in an EMT?
- How do the metaphorical and the grammatical components of the expressions interact? How do they result in different deictic arrangements?

Ultimately, the most fundamental question is: How do two completely different languages structure their lexical and temporal systems in diverging ways and at the same time express similar metaphor scenarios?

To answer the questions above, this study acknowledges the need for a comprehensive data-driven account of EMTs which takes into consideration usage data, and which also investigates the phenomenon based on two types of properties: the metaphorical and the grammatical in both languages. As such, the present analysis is empirical, quantitative, and comparative.

1.4 Introducing the primary study goal and hypotheses

This study is conceived on the assumption that a Corpus Linguistics methodology can show a Cognitive phenomenon in its "linguistic habitat", and thus provide a way to explore new aspects of the former. In this case, English and Arabic EMTs where motion is expressed by a COME or GO verb[5] are The Cognitive Linguistic phenomenon studied. My overall objective is to closely examine EMTs using grammatical and metaphorical components based on corpus data. More specifically, I will examine the deictic subsystems of EMTs based on the outcome of the interaction of the grammatical categories of tense and aspect with the motion verb in the expression of the metaphorical scenario. In so doing, I will focus on three variables: 1. the semantic and "deictic" composition of the conjugated verb expressions in the two languages, 2. the veridical tense/ aspect system, and 3. the usage properties of the EMT corpus lines.

As stated above, the goal of this study is to provide a systematic description of the deictic properties of EMTs. At this level, it is known that:

First, concerning the cognitive linguistic phenomenon under study, EMTs use multiple conceptualizations of time and a combination of metaphorical and veridical elements. These characteristics contribute to the complexity of EMTs, particularly in their deictic properties.

[5] These notations capture fundamental human activities and encompass various lexical verbs. In the present analysis, COME verbs include *to come*, *to approach*, and *to arrive*, while GO verbs encompass *to go* and *to pass*.

Second, with regard to the two language systems under examination, Arabic and English are different in many lexico-grammatical aspects. In terms of lexical properties, Arabic is known for its lexicalization patterns of verbs of motion, namely that it encompasses a larger set of COME and GO motion verbs in comparison to English (cf. Abdulrahim 2013, 2019a, 2019b) for a corpus-based analysis of the constructional properties of COME and GO verbs in Arabic). Arabic is also typologically classified as a verb-framed language[6], but it nonetheless indicates distinctive verb pattern of both path and manner verbs (cf. Alhamdan et al. (2018) for a detailed analysis of the lexicalization patterns of motion verbs in Modern Standard Arabic). English, on the other hand, employs a relatively more restricted set of COME and GO motion verbs which express different motion event construals based on the addition of an adjunct preposition (Talmy, 2000b) within an S-framed typology. It is important to note that the lexical properties of the verb are not the primary focus of this study; they are rather examined as one of the components of the EMT construals which indicate motion properties which, in turn, are mapped onto both the metaphorical and veridical systems of EMTs.

In terms of temporal systems, Arabic and English are also different. English uses grammatical categories of tense and aspect (perfective/ imperfective, simple/ progressive), which means that a conjugated English verb is tensed and aspectualized. In contrast, Standard Arabic is based on an aspectual dichotomy of perfective / imperfective which typically indicates whether the event indicated by the verb is (construed as) complete or incomplete. As such, the conjugated verb in Arabic is aspect-based.

With these observations in mind, this study is conceived on two primary hypotheses:

- First, I presume that EMTs use a complex deictic system which is rooted in multiple conceptualizations of time. This, in turn, should result in distinct spatial-like and temporal deictic anchors assigned by the different lexical and grammatical systems.

[6] Talmy (2000b) proposes a typology for classifying languages based on how they express motion events. There are two main paradigms within this system: 1) Satellite-Framed Languages, where the core motion event is presented by the verb itself, e.g., *come*, *go*. Within this paradigm, additional elements called "satellites" such as prepositions or particles, e.g. *to*, *up* are used to represent the path or manner of motion (Talmy, 2000b). For instance, in the English phrase *come to*, *come* represents the motion event, while *to* specifies the path. 2) Verb-Framed Languages where the verb integrates both the motion event and the path within a single unit. For instance, the verb *dakhala* in Arabic translates to *go in*, to indicate a path that is embedded within the verb itself.

- Second, since English and Arabic express the same metaphor, it is presumed that 1) despite their distinctions, the two language systems exhibit a degree of similarity that facilitates the expression of EMTs, and 2) this similarity is to be examined based on the properties of EMTs. In essence, the lexical and temporal systems, although different, are expected to operate similarly within EMTs. However, it is not possible to unpack this comparison without clearly comprehending the subsystems involved in EMT construals and the role of each subsystem.

1.5 Introducing the structure of the monograph

This dissertation is divided into five chapters. They are as follows:

The first chapter (Introduction) presents EMTs as the cognitive linguistic phenomenon under study, then a brief introduction is provided as regards the research gap, the tentative contribution of the study, as well as the study questions and hypotheses. Finally, the structure of the dissertation is clarified.

The second chapter (Literature Review) outlines the literature related to the aspects of EMTs and also presents several scholarly models of the metaphor. The chapter particularly focuses on the models of Moore (2016) and Huumo (2017) as they provide the basis for the theoretical paradigm of this study. Lastly, the chapter presents an elaborate discussion on the epistemological and methodological gaps in focus.

The third chapter (Research Questions, Language Background, and Corpus Procedures) identifies the corpus-based methodology employed in this study. This presentation is centered around several types of selections: 1) the selection of the language corpora, 2) the selection of the COME and GO verbs, 3) the selection of the derivation patterns that target specific metaphor structures and which are used as search queries, and 4) the selection of the annotation variables used to tag each corpus line. The chapter ends with a presentation of the 44 verb expressions used first in the corpus search and later as representatives of the EMT motion construals.

Chapter 4 (Findings and Discussion) is divided into three parts:

The first describes new aspects of EMTs based on the results of the annotation of the corpus data. These mainly highlight the type of Mover, the type of TE, and the type of Ego experiencer used in EMTs.

The second examines the properties of the verb expressions and shows how the interaction between metaphorical and grammatical properties result in different motion construals that vary primarily in their deictic metaphorical motion properties. More specifically, by combining the conceptual frames of reference of motion scenarios presented in Moore (2016) and Huumo's (2017) model of the multiple conceptualizations of time, this section presents a cognitive linguistic representation

of EMT construals. This presentation employs a hierarchy of clusters: First, it presents a new division of EMT scenarios based on four main types of motion construals: Prospective, Retrospective, Concurrent, and Transitionary. Then, within each cluster, each verb expression is represented using a cognitive linguistic model that takes into account metaphorical and grammatical properties of tense and aspect. Here, the distinctions of the temporal systems of each language emerge, resulting in two types of model representations. The Arabic models are based on aspectualized verb expressions while the English models are based on tensed (and aspectualized) verb expressions. To complement the cognitive linguistic models, this section provides empirical usage-based insights from the corpus data for each tested verb expression.

The third sub-section provides practical applications of the models used in the study, focusing on three main aspects: analyzing the examples provided by Moore (2016), demonstrating bilingual applications of cognitive linguistic illustrations, and describing the essential elements of an EMT to address how unrelated languages like Arabic and English express similar metaphor frames despite differences in their lexico-grammatical systems.

The last chapter (Conclusion) includes an overall assessment of the study and a description of its implications and limitations, and indications for future research.

2 Literature Review

This chapter has two purposes: First, it outlines the fundamental literature on Ego-centered Motion metaphors of Time (EMTs), explicating the different aspects of this complex metaphor. Second, it highlights the epistemological and methodological gaps that inform the objectives of this study. In terms of content, the structure of this chapter will align with the thematic breakup of the scholarship on EMTs organizing the latter into two distinct sub-sections:

1) **Literature related to aspects of EMTs**, including the presentation of Conceptual Metaphor Theory, space and time as conceptual domains, spatial Frames of Reference (s-FoRs), and frameworks associated with motion criteria.

2) **Literature on EMTs as an independent metaphor**, particularly focused on Moving Ego and Moving Time metaphors. This section will first provide a comparison of the available models spanning from the earliest to the most recent ones, then it will give a detailed description of the models applied in the present analysis. The literature review will conclude with an examination of the existing gap and, subsequently, with an exploration of the potential contributions of this study.

2.1 Aspects of EMTs

2.1.1 Conceptual Metaphor Theory

This study is situated under the umbrella of Conceptual Metaphor Theory which entails a cognitive-linguistic perspective to studying metaphors and identifies the latter as a conceptual unit rather than a figure of speech. Conceptual Metaphor Theory was established in the 1980s with the publication of *Metaphors We Live By* by George Lakoff and Mark Johnson who propose a precise organization of our conceptual system on the basis of metaphorical structures (Lakoff & Johnson, 1980). The paradigm of Conceptual Metaphor Theory is built on the following principles: First, human beings organize the world in mental concepts, including for instance

the concepts of TIME, SPACE, MOTION. Second, we organize these concepts in a systematic way, which implies connections between concepts and organizational principles for these connections. Third, a considerable portion of these systems are metaphors. Subsequently, our "conceptual system is largely metaphorical" (Lakoff & Johnson, 1980, p. 124).

In their work, Lakoff & Johnson (1980) also highlight the role of language in exploring metaphors and the underlying conceptual system. This is particularly important since "our conceptual system is not something we are normally aware of", yet it is accessible through language (Lakoff & Johnson, 1980, p. 124). As such, by looking at the expression of a metaphor in language, both the mental conceptual system and the language system(s) are called into question. This framework, in turn, informs the paradigm of this study. That is, by looking at motion metaphors of time, I am investigating a part of the conceptual systems of Arabic and English speakers, and at the same time exploring the organizational structures of the two languages.

2.1.2 Definition of a metaphor

Identifying the existence of metaphors and their importance in studying language and cognition is only a first step. The more important challenge is to define the latter as an ontological entity, and then determine its empirical and experiential foundations as well as its typology. In what follows, I start with a generic introduction of metaphors, then follow a cumulative outline that spans from basic metaphors to metaphors of time and (ego-centered) motion metaphors of time.

> A metaphor is a mapping from a source domain to a target domain. In other words, whenever a person takes a concept that has been formed in one domain and tries to implement it in another, a metaphor has occurred. The domain in which most human knowledge is formed is that of a human body in physical space, which usually serves as the source domain for metaphor.
>
> Janda (2015, p. 16)

The excerpt above establishes metaphors as a mapping relationship between two or more domains. It also indicates that metaphors are a universal part of the development of human cognition and language. Developmentally, the concept of metaphor begins to take shape in the early stages of human development, initially rooted in one's body, which highlights the phenomenological grounds of metaphors. Over time, metaphorical organizations are extended onto more abstract domains. Janda (2015) illustrates the developmental stage, taking the example of IN/ OUT relations, as follows:

> …babies become acquainted with their bodies as containers by practicing putting things in their mouths. After this routine has been established, they move on to placing objects in other containers, and many baby toys are designed just for this task. On a crude level, even this is a metaphor, for the concept IN/OUT has thus been mapped from the body to external objects. Later, babies will learn to extend IN/OUT to many other domains; in English these include time (getting things done in time and running out of time), emotions (falling in and out of love), and states of being (getting into and out of trouble). The ways in which metaphorical extensions are realized and conventionalized are highly language-specific, but the metaphorical process itself is a pervasive universal.
>
> Janda (2015, p. 16)

The last sentence in the citation highlights the universality of metaphor usage and the variability of metaphor constructions across languages and cultures. On the one hand, it underscores the significance of Metaphors[7] in human cognition, language, and culture, as well as the role they play in shaping how we think and communicate. On the other hand, it signifies that the presence of a metaphor in one language does not guarantee its presence in other languages or cultures. The present study, for instance, is only feasible because Ego-centered motion metaphors of time—the type of metaphor under study—have been identified in both languages: English and Arabic.

Generally, the study of metaphors relies on the examination of two components: 1) the nature of the mapping relation(s) between the mapped entities and 2) the ontological nature of these entities. Now that metaphors have been defined, the following subsections will look into the internal makeup of the former based on the highlighted components. The description will start with the types of mapping relations and the resulting metaphor types, structures, and configurations (Section 2.1.3), and then move to the ontology of the mapped elements in a metaphor and specifically in metaphors of time (Section 2.1.4). The descriptions are partly generic, identifying characteristics of metaphors in general, and partly specific with a focus on EMTs, in particular.

[7] I capitalize ‘Metaphor’ here to refer to the conceptual ability to construct metaphors as a way to express and communicate complex, and abstract concepts while ‘metaphor’ refers to the structures used to map two concepts…

2.1.3 Metaphor as a mapping relation

Murphy (1996) identifies three basic components of a metaphor: a **topic**, also called a source mapping, and a **vehicle**, alternatively referred to as the target of the mapping. In a metaphorical structure, these two (or more) basic concepts are linked by a "**ground**"[8] which acts as the "implicit connection between the two" and is especially "require[d] for [the metaphor's] interpretation" (p. 175). In exploring the nature of the ground and how it shapes metaphor typology, there are two important questions: What are the motivations that underlie metaphorical mappings? What types of metaphors emerge from the different organizational structures?

2.1.3.1 Correlation vs. resemblance metaphors

The first way to describe a metaphor mapping relation is by comparing the mapped concepts involved in that mapping relation. In line with this, Grady (1999) proposes two main metaphor classifications: resemblance metaphors and correlation metaphors.

First of all, a **resemblance metaphor** describes a mapping between two similar concepts. This type indicates a metaphorical correspondence based on some shared qualities between the mapped concepts (Grady, 1999, p.229). A prototypical example used in the same source to illustrate this type of mapping is *Achilles is a lion,* which could be considered an instantiation of the metaphor BRAVE PEOPLE ARE LIONS. In this expression, the source concept and the target concept share the quality of 'being brave'. That is to say, the mapping of Achilles to a lion is the result of (at least) two premises:

Achilles is brave.
and
Lions are brave.
therefore
Achilles is a lion.[9]

The same metaphor can be even more generalized to other brave wo/men and, as such Achilles could be replaced by any 'brave person'. Many poetic metaphors, used

[8] The notion of ground, as defined here, is specific to Murphy (1996) and is different from the notion of Ground which was identified by Talmy (2000a) and which has become frequently used in the literature on frames of reference. Talmy's notion of Ground will be defined in Section 2 of the literature review.

[9] This representation is not coherent with the principles of deductive logic. It is simply a personal adaptation that shows the (il)logical structure of the metaphor by noting the shared feature of 'being brave' between Achilles and lions.

as figures of speech, fall within this category and are explained in light of the shared features or qualities between mapped entities.

A correlation metaphor, on the other hand, "involves a correlation between distinct dimensions of experience" (Grady, 2007, p. 322). This is related to "elements of universal human experience – basic sensori-motor, emotional and cognitive experiences which do not depend on the particulars of culture" (Grady, 2007, p. 321). That is to say, within this type of metaphor, we look at two seemingly unrelated concepts that have been mapped by means of a third experientially-grounded schema. Spatial metaphors of time such as *Summer is here* have been classified under the latter category in that "[t]he correlation in experience provides an experiential basis for the metaphor by motivating conceptual mappings from one kind of concept to the other (e.g. spatial to temporal)" (Moore, 2014, p. 6). That is to say, expressions that map elements from SPACE onto TIME result from an extension of the human experience of space onto temporal conceptions.

While the human inventory of experiential concepts is limited (Lakoff and Johnson, 1980), correlation-based metaphors allow an extension of this relatively-small inventory into more abstract domains (cf. Boroditsky, 2000 for a psychological model of metaphorical representation). In fact, if metaphors were only restricted to conceptual resemblance, many of the most basic metaphors organizing our experience of TIME, EMOTION, ARGUMENT, POWER and so on would not exist. Being rooted in experiential grounds, correlation metaphors indicate that the degree of analogy is less ingrained in the concepts themselves and more influenced by individual perceptions and embodied experience. As such, resemblance and correlation metaphor structures emphasize Lakoff & Johnson's observation that a "metaphor … unites reason and imagination. Reason, at the very least, involves categorization, entailment, and inference. Imagination, in one of its many aspects, involves seeing one kind of thing in terms of another kind of thing—what we have called metaphorical thought." (Lakoff & Johnson, 2003, p.193.) In other words, metaphor mappings are motivated by two basic cognitive functions:

1. **categorization** by means of which we develop concepts with specified features and organize them into networks, and
2. **analogy** which is the foundation of any metaphor: If analogy is the outcome of some similarity between the mapped concepts which, in turn, can be thought of in terms of 'shared' features or qualities, then the metaphor could be classified under resemblance metaphors. If the analogy results from experiential schema, then the metaphor is correlation-based, not inherent to similarities between the concepts themselves.

2.1.3.2 Primary metaphors

The typology resemblance-based vs. correlation-based metaphors applies to basic metaphorical structure. However, conceptual metaphors present in language vary with regard to their levels of complexity. This idea is consolidated in Grady (2007, p.318) "Many … metaphors cited in the literature … are much harder to account for in terms of such simple correlations". In other words, not all metaphors can be represented with a simple mapping connection between two concepts, which in turn points out a hierarchy of metaphor structures.

To account for the conceptual structure of complex metaphors and construct a comparative metaphor classification, Grady suggests the use of more simple metaphor units which he called *primary metaphors*. Primary metaphors are "basic conceptual associations, which are excellent predictors of how and whether linguistic data may be interpreted. They are also the metaphors which are most clearly grounded in aspects of our experience**"** Grady (2007, p.318).

Based on the definition above, I would like to highlight two important primary metaphor features which are particularly relevant to this study and will be used in the model presentations of EMTs: First, primary metaphors have an immediate association with the experiential grounding of correlation-based metaphors. Second, primary metaphors are more elementary or basic and so they can be used in the analysis of the component structure of more complex metaphors. In fact, in view of this hierarchy, recent accounts of EMTs classify the latter as complex correlation-based metaphors which are structured based on a combination of primary metaphors mainly grounded in our spatial experience (Moore, 2014).

The specific primary metaphors included in EMTs will be described in Section 2.2.2 as part of the models by Moore (2014, 2016). For now, it suffices to acknowledge the complex structure of EMTs, namely that they include more than one primary metaphor and that the metaphor mappings are embedded in experiences which classify them as correlation-based metaphors.

As mentioned in the introduction chapter, EMTs are broadly identified as mapping structures between TIME and SPACE. At this point, we cannot proceed with more specific descriptions of the structure of EMT without defining the mapped concepts, so in what follows, I will present an overview of SPACE and TIME as separate conceptual categories.

The following sections are guided by a particular curiosity about the SPACE – TIME relation, informed by two questions:

1. What are the properties of SPACE and TIME, and how do they compare?
2. How can SPACE and TIME as two distinct domains be mapped within a metaphor?

2.1.4 The conceptualizations of SPACE and TIME

Spatial metaphors of time are among the earliest to be explored and documented in the literature, even prior to Lakoff and Johnson's publication (Lakoff & Johnson, 1980). In fact, the exploration of spatial metaphors of time can be traced back at least half a century, to the pioneering work by Clark (1973). Within an account of the developmental processes of first language acquisition, Clark's work lays the groundwork for a comprehensive theory of SPACE, leading the way to the exploration of the intrinsic connection and the metaphorical mappings between SPACE and TIME.

Clark (1973) defines space as the entity used to organize and structure the physical world. He distinguishes between two types of space: P-Space and L-space. P-space is "based as completely as possible on physical and biological criteria" (p. 30). This relates to the immediate experience of space which, in turn, is rooted in the asymmetrical organization of the human body. This "physical and biological environment itself places a large number of constraints—a priori constraints—on how …[humans] can describe the location of objects" (Clark, 1973, p. 30). L-Space, on the other hand, relates to the linguistic expression of spatial relations and is informed by the constraints of P-space. P-space thus refers to our basic conception of space, independent of how it is expressed across languages and is conceptually mapped onto time. In talking about its properties, I will simply use the notation SPACE.

In order to characterize the SPACE-TIME relation, it is important to closely examine the individual properties of each domain. As such, the following comparison is based on Galton (2011) whose comparison is based on four attributes: *extension, linearity, directedness,* and *transience* (Table 1).

Table 1. Summary of Galton's (2011, pp. 696–698) properties of time and space.

Property Domain	Extension	Linearity	Directedness	Transience
Space	Space is extended. Spatial extension can come in three forms: "length, area, and volume". Extension is in fact an inherent property of space because it relates to its dimensions. It could be said that our awareness of extension as a property is ingrained in our experience with the physical world.	Space is not linear, but rather three-dimensional. More importantly, the spatial location of any observer is indicated by three-dimensional reference system.	Space is found to have "no intrinsic direction".	Transience refers to 'momentariness' and so, this property is inherently temporal. Space is by default static.
Time	Time is extended. In other words, time is made up of "separate parts" or "distinct moments" and has duration.	Time is linear. This property is proven mathematically by the "betweenness" of any moment in time. That is to say, given any moment in time X, X is between two points Y and Z. Unlike space, temporal "positions" do not necessitate three dimensions. In temporal terms, it is sufficient to specify a deictic reference point to pinpoint any moment in time.	Time is directed; that is, moving in one direction (past to future) and at any moment, there are preceding and subsequent times.	Time is transient; meaning, that "a given moment only occurs once" at the very moment we are experiencing[10] it".

Below are some important notes on the different properties and how they relate to their respective domains:

- **On (temporal) extension:**

Extension is a feature of both space and time, but with different meanings: extension of space is related to positions, volume, length, etc. depending on the physical object being qualified, while in time extension is related to duration. This property is fundamental to the mapping of space to time and vice versa in metaphors that describe the passage of time using spatial distance and vice versa thus mapping duration to distance and vice versa (Waliński, 2018, pp. 29–33). An example of the

[10] I will go back to this property of time later on, in reference to Langacker's notion of Processing Time (PT); that is time at the moment of conceptualization, which he distinguishes from the time as object of conceptualization or Conceived Time (CT).

former is *Sara's house is two hours away from the capital city* where the distance between *the capital city* and *Sara's house* is expressed in terms of temporal duration: *two hours* instead of a measurement of spatial length.

- **Spatial directedness:**

The fact that space is not inherently directed does not mean that directedness cannot be observed in space. For instance, Galton (2011) observes "a marked asymmetry between the directions we call up and down, and we cannot reverse this just by turning ourselves upside-down since these directions are determined by the lines of force of the earth's gravitational field. This is an asymmetry imposed on these directions by the earth." (p.699) It could be said, however, that directedness is spatial, rather than space is (inherently) directed, and that the directedness of space is subject to a deictic viewpoint, hence the absence of an absolute direction to space.

- **Temporal directedness:**

An indicator of temporal directedness is "asymmetry in the relation of temporal separation: meaning that if t1 and t2 are distinct times, then the relation between t1 and t2 is not the same as that between t2 and t1." Another indicator is the irreversibility of time, which is true at least in folk theory about time and evident in expressions like *we cannot bring back time*. Temporal direction is also consolidated mentally by a radial conception of time which divides the latter into present, past, and future (cf. Bender and Beller, 2014, pp. 372–373 for the mental conceptions of time) and psychologically by the fact that "[w]e remember the past, but anticipate, fear, dread, or hope for the future" (Galton, 2011, p. 697). This radial division of time and the related conceptions of the past, present, and future is not possible without the directedness of time.

Interestingly, although time is inherently directed, i.e. time is felt to pass irreversibly from earlier to later, both directions of temporal motion from earlier to later and from later to earlier are 'linguistically permissible'—at least in English and MSA. Consider for instance a statement like *Summer is coming* in which *summer* is described as if moving from a later time to an earlier moment. This is not a contradiction nor a counterexample to the direction of time, but simply a different viewpoint scenario of metaphorical temporal motion.

- **Transience**:

The property of transience is exclusive to time. This means that not only is time inherently transient, but also that transience, as an ontological property, is inherently temporal. Galton (2011, p. 699) makes one exception in which space can be "regarded as transient", and that is in case of what Leonard Talmy (2000) calls a

frame-relative motion scenario[11] where as Galton (2011, p.699) puts it "by means of a direct correlation with time...through motion…[like in] the landscape rushing past as viewed from a moving train" space can be viewed as transient. This comparison is accurate from a perceptual perspective. In fact, when we move through space, we see that the objects closer to the mover's position "disappear" faster than the objects or locations further away. Thus, the perceived speed of the fictive motion of a spatial landmark correlates negatively with its distance to the moving observer, that is to say, our felt experience that nearer times are closer in space and vice versa. Interestingly, using this framework, space is also dependent on time in that spatial transience is also dependent on temporal passage.

To summarize, Galton's analysis of SPACE and TIME reveals that they share three fundamental properties: extension, linearity, and directedness, while they diverge with regard to the property of transience.

On the one hand, the shared properties are used in expressions of metaphorical locations of time as in *Summer is here* (NOW IS HERE) or in expressions that use duration for distance e.g. *The campus is a ten-minute walk away*. This way, the shared conceptual properties between SPACE and TIME provide a basis for both space-to-time and time-to-space metaphor mappings (see Waliński, 2018, pp.29–33).

On the other hand, however, the property of transience poses a challenge with regard to the metaphorical expression of temporal passage. In other words, how can a **transient** lapse of time be metaphorically characterized using **static** space? The answer is simple: Since spatial transience can be experienced within a frame of motion, for the passage of time to be expressed using space, we need to add an additional element to the metaphor, namely the element of motion. **Motion of space** facilitates the metaphorical conception of **temporal passage**. As a result, space, time, and motion are the three necessary domains that result in motion metaphors of time.

With the addition of the element of motion, the metaphorical structure of motion metaphors of time needs more elaboration. That is to say, it is now time to explore how three elements – space, time, and motion – are mapped together into one metaphor structure.

Concepts, domains, or frames?

Early theories of motion metaphors of time proposed a mapping between space and time as two separate cognitive **domains** (Clark, 1973, Borodistky, 2000, Galton, 2011). However, a closer look at the properties of metaphors, in general, and EMTs

[11] using Talmy's (2000a) terminology

in particular, shows that this definition is far from perfect. Three observations are demonstrated here:

First, although earlier definitions of a metaphor define the latter as a mapping relation between concepts, these definitions do not necessarily entail that we use all elements of a given concept on each side of a metaphor.

Second, some metaphors merge elements from two or more concepts to provide source mappings, just as is the case with the metaphors of temporal motion which incorporate aspects from both the conceptual domains of SPACE and MOTION to depict the passage of TIME.

Third, as discussed earlier, a metaphor "unites reason and imagination" (Lakoff & Johnson, 2003, p. 197), meaning that it is an outcome of two features of human conception: categorization on the one hand and creativity on the other. Therefore, the elements of metaphor mappings need to be **structured** enough to reflect the property of categorization, and **flexible** enough to enable us to create a variety of metaphor mappings.

Early definitions of metaphors use either domains or concepts to identify the mapped elements in a given metaphor. However, neither of the two elements can serve to define a dynamic complex structure of metaphors, as characterized by the properties mentioned above. To start with, the notion of a domain is not easy to use in metaphorical representations mainly because it is difficult to define "without ambiguity" (Dancygier & Sweetser, 2014, p. 17). Concepts, too, are not easy to determine in the absence of a clear representation of the "human category structure" and the—presumed—inventory of humans' "conceptual categories" (Dancygier & Sweetser, 2014, p. 11). It is even more challenging to analyze motion metaphors of time using concepts since the mapping concerns three elements instead of two, namely space, time, and motion.

For these reasons, a new identification of the component structure of metaphors, in general, and EMTs in particular, is evidently needed. An alternative to concepts and domains, namely the notion of frames, emerges as an organizational unit for metaphor mappings. Dancygier & Sweetser (2014) identify the term **frame**[12] as follows**:**

> The term frame represent[s] a "prefab" chunk of knowledge structure; a lexical frame is a frame paired with a lexical item or lexical items that represent it. Crucially, the definition of a frame also involves gestalt structure: that is, an expression referring to some aspect of a frame structure gives conceptual access

[12] The metaphor literature traces the term frame back to (Fillmore, 1982a, 1985), however, I personally could not access any of the sources. Hence, I am using a more recent source that defines frames and relates it to the theory of metaphors.

> to the entire structure, so that evoking one aspect of a frame provides access to the entire frame, and individual frame components are understood in the context of the entire frame.
>
> (Dancygier & Sweetser, 2014 , p. 17)

Compared to concepts and domains, frames are a more suitable element for describing metaphorical mappings, thanks to their inherent flexibility. For example, one comprehends the lexeme *Tuesday* in the frame of WEEK, that of *doctor* in the frame of HOSPITAL etc., but the frames WEEK and HOSPITAL contain many more elements and are subject to personal connotations. The idea of frames captures both properties of metaphors: they are **categorical** in that they are based on a "chunk of knowledge structure" (Dancygier & Sweetser, 2014 , p. 17), but this structure is **dynamic** in that it can be adapted to align with different cultural, linguistic, individual, or metaphorical instantiations of the so-called domains.

A redefinition of correlation metaphors (cf. Section 2.1.3.1) as a mapping between frames is as follows:

> Correlation-based metaphor is a mapping from entities or relations in a frame (the source frame) to entities or relations in another frame (the target frame), such that conceptual structure from the source frame is added to the understanding of the target-frame concept.
>
> Moore (2014, p.100)

Following this, motion metaphors of time can be identified as a mapping between a space-motion frame and a time frame. The source frame represents a conceptual blend, a notion proposed by Fauconnier and Turner's (1998) Conceptual Integration Theory, whereby space and motion create one blend: space-motion. Space-motion is then mapped onto a time frame to create a motion metaphor expression. Subsequently, the correspondence relations in an EMT take place between space/time *frames* and not between abstract SPACE/ TIME *domains* (Moore, 2014, 2016).

Briefly, EMTs can thus be defined as a complex mapping structure between a space-motion frame and a temporal frame. The next section will move us one step closer to EMT models by presenting the spatial frames of reference (s-FoRs) which serve as a necessary foundation for the subsequent discussion on temporal frames of reference (t-FoRs). S-FoR to t-FoR mapping is particularly important for defining motion directions, relations between Ego and the TE, etc. Just as the metaphor itself draws on our conception of space, the model representation of the metaphor draws on models of space.

2.1.5 Spatial Frames of Reference (s-FoRs)

Most of our activities that involve motion and direction employ an intricate conceptual system of reference frames. For instance, the simple acts of parking a car, giving directions, or even reading a map depend upon a complex coordinate system called “frames of reference”. Using the three-dimensionality of the physical body and of space, reference frames help us not only to position ourselves in space, but also to infer the directions of other people and objects and translate their perspective to ours and vice versa (cf. Clark 1973). As stated earlier, s-FoRs are not the primary focus of this study; rather, they serve as an intermediary and foundational framework for elucidating temporal frames of reference or t-FoRs. In this section, I will examine spatial frames of reference or s-FoRs, drawing from two frameworks: Levinson (2003), and Talmy (2000a).

2.1.5.1 Definition

A FoR is broadly defined as a coordinate system required to establish the position of an entity in reference to another (Levinson, 2003, p. 24). To illustrate the importance of FoRs in the conception of daily activities, let us take the simple act of shaking hands.

It is evident that to shake hands, one expects the person facing them to use their right hand. Although this process seems straightforward and effortless, each person participating in the handshake must make two different types of computations using two different: First, they must determine their own right side. Second, they must deduce the other person’s right side by adopting a different perspective that aligns the other person’s viewpoint with their own, thereby realizing that the other person's right corresponds to their left, not their right. This underscores the significance of spatial frames of reference.

2.1.5.2 Levinson’s (2003) framework

Prior to identifying Levinson’s (2003) s-FoRs, I will present important elements essential for understanding the latter. The first two framework elements are related to the visual perception of space, namely relative vs. absolute conceptions of space and egocentric vs. allocentric viewpoints. They are as follows:

- relative vs. absolute conceptions of space. When space is conceived of as “relations between objects” with a point of view and related directions, the conception is called relative. When space is seen as an “abstract void” with no reference to an observer and with fixed directions, the conception type is called absolute (Levinson, 2003, p. 26).

- egocentric vs. allocentric viewpoints: If a frame is given in relation to an Ego viewpoint, it is called egocentric, and if it is not related to any Ego viewpoint, it is called allocentric. (Levinson, 2003, p. 26)

Evidently, the two frames of conception and conception types are related to one another. For instance, an allocentric frame typically depends for directions on an absolute conception of space. Similarly, a relative conception can take an ego-based viewpoint and be relative and egocentric. More connections are explored in the different s-FoRs and will be even more explicit in the discussion of the t-FoR models.

- Levinson presents a cardinal system on the basis of which spatial relationships among objects are described (Levinson, 2003). A frame of reference is composed of three main parts:
- **a reference point X**, or origo of the coordinate system, usually referred to as X
- **a Figure F**, also called *referent* (Levinson, 2003, p. 37), or "the entity being located" (Evans, 2013, p.412).
- **a Ground G**, also called *relatum* (Levinson, 2003, p. 37), or the entity used to locate F
- An additional **viewpoint V** is also relevant to Levinson's s-FoRs. V corresponds to the vantage point of an observer or, in Levinson's terms, a perceiver whose standpoint is significant in a "viewer-centered frame of reference" (Levinson, 2003, p. 43). Naturally, this element is essential in the context of EMTs, given their inherent connection to an observer or experiencer of metaphorical temporal motion.

Levinson proposes three coordinate systems: Absolute, Intrinsic and Relative (see Figure 1) depending on a reference point X also called the origin or origo of the reference frame whereby:

In the Absolute FoR: X= superordinate field

In the Intrinsic FoR: X= G

In the Relative FoR: X1=V, X2=G. Here X1 is a primary reference point while X2 is a secondary reference point.

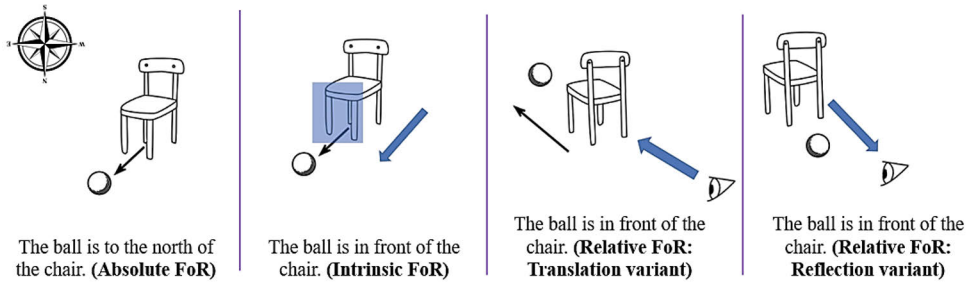

Figure 1. An illustration of Levinson's model.

Levinson (2003) proposes three main frames of reference. They are as follows:

Absolute frame of reference "refers to the fixed direction provided by gravity (or the visual horizon under canonical orientation)" (Levinson, 2003, p. 47). More specifically, this is a frame that is linguistically marked by "cardinal directions", i.e. North, South, West, etc. These directions are not relative to a viewpoint or an object, but instead convey "fixed bearings" irrespective of perspective (Levinson, 2003, p. 48). Consequently, the absolute frame is allocentric in nature as it does not involve any specific viewer. An example statement of this type is *The ball is to the* ***north*** *of the chair* where *the ball's* position is indicated using a standardized cardinal direction expressed by the word *north*.

Intrinsic frame of reference: identified as "an object-centered coordinate system, where the coordinates are determined by the 'inherent features', sidedness or facets of the object to be used as the ground or relatum" (Levinson 2003, p. 41). In this example, the object F is the *ball*, and this frame is relevant in statements like *the ball is* ***in front of*** *the chair* where the Ground object *chair* is conceptualized as intrinsically asymmetric with an intrinsic 'front'. In this case, the front of the chair is assigned to the side we can sit on (Figure 1).

Judging what side makes up the front of an object is, again, subject to a conventional system - although in this example, the FRONT assignment could also have experiential grounds that agree with the human FRONT when sitting on the chair. Nonetheless, hypothetically, it is conceivable to imagine a scenario where the FRONT side of the chair is designated through consensus as the side on which it is leaning.

Relative frame of reference: a viewer-centered FoR in which the viewer is the primary origo X1. The relative frame "presupposes a 'viewpoint' V … and a Figure and Ground distinct from V. It thus offers a triangulation of three points, and utilizes coordinates fixed on V to assign directions to Figure and Ground" (Levinson, 2003, p. 43). A secondary origo X2 is in the Ground element G, or the chair in this case. Using one of two variants, the system's origo is determined by the viewer. Unlike the first two FoRs, this FoR is viewer-centered, or dependent upon the Viewpoint of

the Observer. Subsequently, beside X, F, and G, the viewpoint V results in 'ternary relations' between F, G, and V, which account for two possible variants:

The translation variant where the primary coordinate system is transferred to G by translation (Levinson, 2003, p. 44). *The ball is* ***in front of*** *the chair* may be interpreted as follows: the chair is in the middle between the observer and the ball. Again, the FRONT is assigned to G, the chair, but **translated away** from the observer viewpoint V, not towards the observer's direction.

The reflection variant where the primary coordinate system originating in V is transferred to G by reflection (Levinson, 2003, p. 44). Using the previous example, the sentence *the ball is* ***in front of*** *the chair* may have the following interpretation. The ball is between the observer and the chair. The FRONT here is assigned to G, the chair, then reflected back to the observer's FRONT. Note that Figure F is not necessarily facing the front side of the chair (Figure 1).

Levinson's theory was translated into the temporal domain which, in turn, resulted in the adoption of temporal alternatives to the three frames (Bender & Beller, 2014). Spatial objects, for instance, are replaced by temporal entities and events, and FRONT/BACK by EARLIER/LATER relations which are then metaphorically represented as FRONT/BACK relations. This translation from spatial to temporal frames of reference (s-FoRs to t-FoRs) is based on the outcomes of empirical data concerning the psychological reality between the conceptions of space and time (see Bennardo, Beller, & Bender, 2010 for an empirical study of spatial and temporal referencing systems). That is to say, the development of t-FoRs in these respects builds on the comparison of space and time as general domains presuming that systems of referencing of space can be adapted to the temporal domain. Compare, for instance, locating *a ball in front of the tree* to identifying *a bright future ahead of you*. Both situations can be abstracted to a simple reference system where *the ball/ a bright future* is the Figure, *the tree/ you* is the Ground entity, and the relation between F and G is that of 'frontness' as expressed by the expressions *in front of* and *ahead of.*

2.1.5.3 Talmy's framework

Although Levinson's model seems ideal for expressions of temporal location, expressions of temporal motion require a more dynamic system of reference. For this, the literature on EMTs in particular employs a frame of reference which takes into account motion frames, namely Talmy's (2000a) frames of reference. Talmy (2000a, pp.99–176) proposes a framework that focuses extensively on motion scenarios where motion is defined as "a particular kind of framing event" or "a pattern" of four main components: FIGURE, MOTION, PATH, and GROUND. Using Talmy's framework of motion is essential for the description of the different types of motion, namely Moving Ego and Moving Time in the context of motion

metaphors of time. It also offers an account of the roles of the different participants in the motion scenarios.

2.1.5.3.1 Which motion?

While it is evident that this thesis primarily focuses on conceptual organizations within a framework of metaphor analysis, it is important to provide the following reminder for clarity and context. Talmy's examination of motion events is part of a broader analysis of "event structures" (Talmy, 2000a, p. 8). The type of motion relevant to Talmy's account is with reference to conceptual reality rather than physical reality. In other words, the type of motion considered here, and within Talmy's framework, is not restricted to the physical movement of objects but rather extends to the cognitive representations of motion. For instance, Talmy's account looks into cases where language is used to depict "stationary circumstances with forms and constructions whose basic reference is to motion" (Talmy, 2000a, p. 104). Talmy's work is specifically focused on relating motion scenarios that are "perceived visually" and "expressed linguistically" (Talmy, 2000a, p. 99), thus combining the perceptual (or vision-related), the conceptual (or the cognitive), and the linguistic (what is permitted in language) through specified constructions.

2.1.5.3.2 Motion of time

In the case of temporal motion, the motion scenario is metaphorical because it cannot really be perceived visually since time is abstract. However, a temporal entity is attributed to a motion scenario, which is derived from the experience of motion along a path, assuming the roles of either a Mover or a Goal in the motion vis-à-vis the experiencer Ego. This combination results in an image schema of a metaphorical motion scenario. In this case, the image schema does not originate from visual perception but rather from a mental image. A mental image, in this context, is the product of imagery rather than concrete perception and can be described as the "internal representation[] that generate[s] the perception experience in the absence of the appropriate sensory input" (Zanned, 2011, p. 190).

The subsequent section will thoroughly explore the motion criteria relevant to the description of EMTs with a focus on the motion components.

2.1.5.3.3 Motion components

Talmy's account of motion events includes six motion components, with some being essential and others supplementary. Four of these components are particularly important for describing EMTs: Figure, Ground, Motion, and Path.

- Figure: the Figure is primarily defined as the entity that "attracts focal attention and is the entity whose characteristics and fate are of concern" (Talmy, 2000a, pp. 12–13). In a motion scenario, this Figure typically refers to the Mover.
- Ground: the Ground is defined, with reference to the Figure entity as one is the reverse of the other, as the entity that "is in the periphery of attention and functions as a reference entity used to characterize the Figural properties of concern" (Talmy, 2000a, p. 13).

In the context of motion metaphors of time, the Ground typically represents the Goal of the motion or the entity the Mover is moving towards or away from. Figure and Ground are **roles** that are assigned based on the specific situation, and they are not inherently tied to any particular entity. Reversing the roles of Figure and Ground can lead to different interpretations or construals of the motion, resulting in different motion types. Language often provides the flexibility—albeit constrained—for us to determine which entity assumes the Figure role and which adopts the Ground role.

The description of EMT expressions that use a COME/ GO verb of motion particularly rely on the division of Figure and Ground. I am making the distinction based on EMTs that use a motion verb, in which the Figure/Ground description is based on the metaphorical and grammatical structures whereby the Figure is mapped onto the subject of the verb of motion, and the Ground onto the object of the verb. As such, EMTs using a COME or GO verb of motion are categorized as Moving Ego and Moving Time metaphors depending on whether the entity in the Figure position corresponds to the temporal entity or to the experiencer (Ego) (cf. Moore, 2014, pp. 53–56 for a discussion of Moving Ego and Moving Time as Figure-Ground reversals). If the temporal entity, or the time referred to e.g., *summer, death*, *etc*., is in the Figure position, the metaphor is classified as a Moving Time metaphor. On the other hand, if the experiencer (Ego), represented in the examples as 'we' is in the Figure position, the expression corresponds to a Moving Ego metaphor.

Table 2. Figure and Ground examples in Moving Ego and Moving Time metaphors.

EMT expression	TYPE OF EMT	FIGURE/GROUND
We are approaching summer.	Moving Ego	Figure: We Ground: summer
Summer is approaching.	Moving Time	Figure: summer Ground: (implicit) us
Death is approaching us.	Moving Time	Figure: death Ground: (explicit) us

- Motion: depicts the movement of the Figure vis-à-vis the Ground (Talmy, 2000b, p. 25)
- Path: Refers to the trajectory along which the motion takes place. The selection of motion verbs and prepositions often signifies various path configurations. This study focuses on EMTs employing come/ go verbs of translational motion, which means that the verb describes motion along a linear path. A COME verb typically depicts a Figure moving toward the Ground, while a GO verb refers to Figure moving away from the Ground. As will be shown in the derivation outcomes and in the subsequent analysis sections, various combinations of Figure/Ground and tense/aspect with the verbs lead to different path configurations.
- Manner: denotes the way the Figure moves. For example, consider the contrast between 'to walk' and 'to jump' or 'to skip,' which represent different manners of motion. In general, manner is not essential to motion event descriptions. In the case of this study, the verbs of motion used are, for the most, manner-neutral; while they indicate a directed path of motion, they do not indicate a specific manner.
- Cause: the cause refers to the situation or event that resulted in the motion scenario.

As stated above, the most relevant components to the study of EMTs are the first four: **Figure, Ground, Motion,** and **Path**. In what follows, these components will be used together with the frames of reference (**Absolute, Intrinsic,** and **Relative**) identified by Levinson (2003) as the basis for various accounts of motion metaphors of time.

2.2 Models of EMTs

2.2.1 Temporal Frames of Reference (t-FoRs) (2006-2013)

Temporal passage can be referred to in language using a variety of metaphors that combine time, motion, and space. This variability is accompanied by a challenge: How is it possible to create a unified model that can encompass the diverse metaphorical expressions related to temporal motion, while identifying their similarities and distinctions? To address this question, several models have been proposed.

The notion of a t-FoR is the temporal counterpart of an s-FoR. This notion was put forward by Beller et al. (2005, p.220) acknowledging that "the frame of reference (FoR) preferred for spatial descriptions also helps to organize temporal

descriptions". Quite soon after, Kranjec (2006) also argued for the "possibility of extending a tripartite spatial frame of reference model to time" (Kranjec, 2006, p. 448) and then other t-FoR models followed. The present section offers an overview of the most pertinent accounts. This synthesis is mainly based on the models presented in Bender & Beller (2014). Additionally, it will present more recent models including Huumo (2017) which is adopted in the present analysis in conjunction with Moore's accounts, namely Moore (2014, 2016). Although the accounts presented in (Bender & Beller, 2014) are not applied in this study, it is still important to present them to ensure their acknowledgement. In addition, these accounts are still relevant to the analysis paradigm, albeit in a peripheral manner. Overall, seven accounts will be presented. They are:

1. the Reference-Point (RP) metaphors account by Núñez and Sweetser (2006)
2. the Temporal Framework Models by Kranjec (2006)
3. the Temporal Frames of Reference by Zinken (2010)
4. the Reference Frames of Space and Time account by Tenbrink (2011),
5. the Temporal Frames of Reference by Evans (2013)
6. the Temporal Frames of Reference by Bender, Bennardo, and Beller (2005; see also Bender et al., 2010).
7. the Ego-based vs. field-based FoRs by Moore (2004, 2006, 2011, 2014, 2016)

The accounts above share some basic fundamental principles which are attested in more detail in Bender & Beller (2014, pp. 355–360) and which are essential for the description of the former. They are as follows:

First, motion metaphors can either be classified as **A-series**, or ego-based frames of reference, also defined as "the time of our subjective experience, for which future events have a different meaning than past events" (Zinken, 2010, p. 5). Alternatively that can be classified as **B-series** or ego-free frames where time is identified as "the network of events as they objectively occur, quite independently of our interest or lack of interest in them" (Zinken, 2010, p. 5). The **A/B series distinction** was first made by McTaggart (1908) in his essay *The Unreality of Time* and is widely used in modern taxonomies. As will be attested in the detailed analysis of the models, this notion is relevant to most accounts and makes the difference between the subjective ego-based notion of temporal motion and the objective time-time relation.

Another relevant principle relates to the direction of motion, also known as the **FRONT assignment** (Bender & Beller, 2014, p. 355). This refers to whether the motion takes place from earlier to later or later to earlier.

A third aspect to consider in the analysis is **the reference point of the t-FoR**. As explained in Section 2.1.5.2, Levinson's model designates various frame types based on the center or origo /origin of the coordinate system. Similarly, this concept is applied in the frames of reference concerning time. For instance, a non-deictic expression like *Time flies* would be classified as an Absolute t-FoR wherein the origo X is the superordinate field of time—a simulation of the coordinate system of space—and where the direction of motion is assigned by the 'futureward' motion of time. On the other hand, in a deictic example like *We are approaching summer*, the Figure entity is *we* referring to an Ego experiencer while the Ground entity is *summer* and refers to a future temporal entity. The t-FoR here is essentially deictic and ego-centric. Further elaborations of this type of classification will be presented in the forthcoming sections.

A fourth point concerns the **number of relations within the frame**. In the frame, we can have two types of relations: either binary relations between the Figure entity F and the Ground entity G, or ternary relations between the Figure entity F, the Ground entity G, and the observer V. In line with Levinson's (2003) account, binary relations correspond to either Absolute or Intrinsic t-FoRs while tertiary relations are mapped onto one of the relative variants, depending on the FRONT assignments.

The final point relates to the distinction between **static** and **dynamic** relations. Although this study focuses mainly on metaphorical motion of time, the proposed t-FoR models make the difference between the two since 1) Spatial metaphors of time can express temporal location in addition to temporal motion. Note *We are in the middle of summer* vs. *We are approaching summer.* 2) As we shall see in this section, several accounts take a dynamic vs. static relation as a classification criterion.

The following examples will be used to illustrate the different categories proposed by each account. I will refrain from detailing the composition of each example, and instead use the latter as cross-reference points to see how each illustration is classified and described by each of the models. This, in turn, reveals both the similarities and differences between the various accounts.

(3) *We are approaching summer*.

(4) *Summer is approaching*.

(5) *Autumn follows summer*.

(6) *Time flows on forever*. (Kranjec, 2006, p. 450)

2.2.1.1 Núñez and Sweetser's (2006) Model

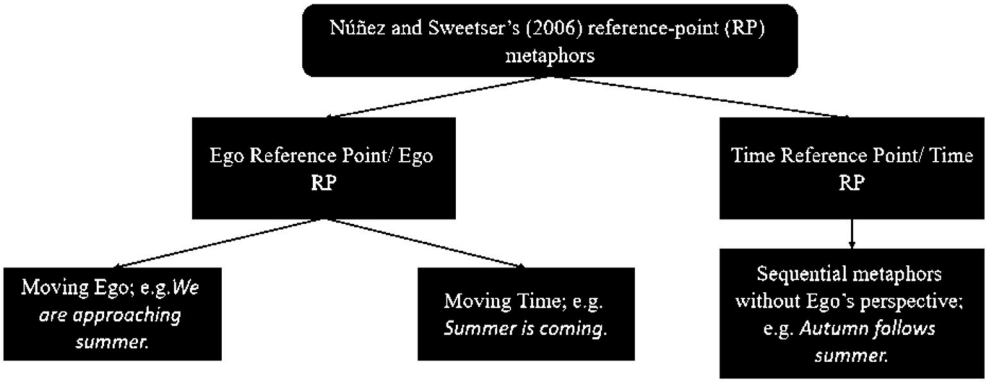

Figure 2. Núñez and Sweetser's (2006) model.

The model of Núñez and Sweetser (2006) known as "Reference-Point (RP) metaphors" is based on the difference between deictic and non-deictic frames, or A/B series. This model proposes two main classifications: **Ego RP** refers to ME and MT that involve ego's perspective and **Time RP** refers to sequential metaphors without ego's perspective (Figure 2). That is to say, following this model, examples 3 and 4 are classified under Ego RP while examples (5) and (6) are classified under Time RP. As the name suggests the notion of **Reference Point** is central to this model. The Reference Point account for the deictic metaphor properties including the direction of motion and the temporal relations; i.e. whether the Temporal Entity is in the future or the past, etc. In an Ego RP, Ego is the Reference Point that assigns the deictic anchorage of the expression. In Time RP metaphors, the moving temporal entity is the RP.

2.2.1.2 Kranjec's (2006) model

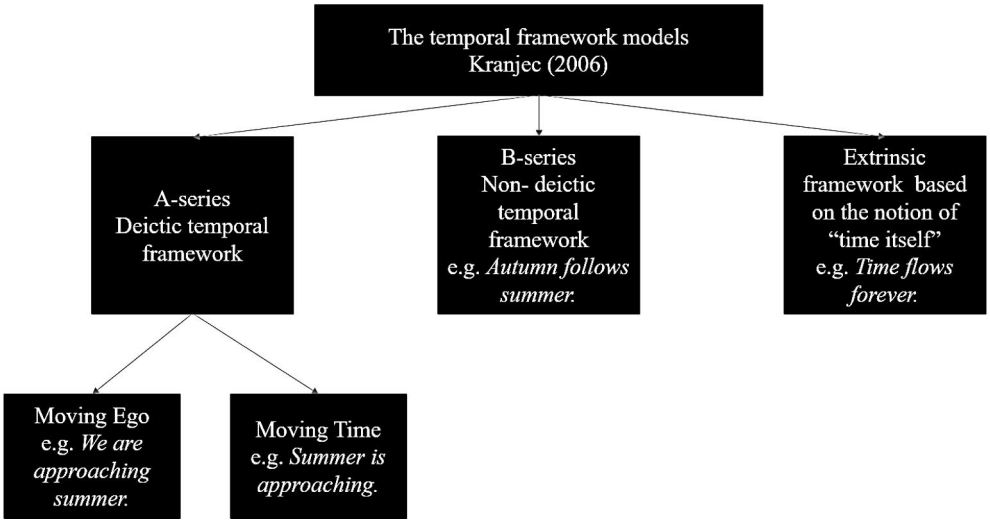

Figure 3. Kranjec's (2006) model.

Kranjec (2006) offers a parallel temporal representation to Levison's spatial account (Levinson, 2003). Three main frames are described:

1. **Deictic temporal frame**: Deictic temporal frames include Moving Ego metaphors (Example 3) and Ego-centered Moving Time metaphors (Example 4). This category is comparable to Nunez and Sweetser's Ego RP.
2. **Intrinsic/ linked temporal frame**, comparable to Levinson's intrinsic FoR (Bender & Beller, 2014, p. 356). It includes the non-deictic temporal sequences that indicate motion by two temporal entities, for instance *autumn* and *summer* in Example (5). This type of metaphor is intrinsic because it "do[es] not require a deictic center to establish a point of reference but rather derive[s] sequential relations from intrinsic features." (Kranjec, 2006, p.449) More specifically, the entity that indicates the direction of motion in *Autumn follows summer* is the "asymmetrical, unidirectional nature of causal relations [which] makes representing discrete events in terms of a beginning (a front) and an end (a back) quite ordinary" (Kranjec, 2006, p. 449). As a result, "[e]vents in front of other events are earlier times and events in back of other events are later times" (Kranjec, 2006, p. 449).

3. **Extrinsic/path temporal frame:** this is analogous to Levinson's absolute FoR (Bender & Beller, 2014, p. 356) and is based on "the notion of time itself" or a "matrix of time" (Evans, 2013) where time acts as a "a backdrop, or something understood to move forward, independent of particular events embedded within it" (Kranjec, 2006, p. 450) (Example 6). Time, in this frame, is as a superordinate field and the forward direction refers to a motion of time in its inherent direction from the past to the future which in contrast to spatial absolute FoRs is not subject to convention.

2.2.1.3 Zinken's (2010) model

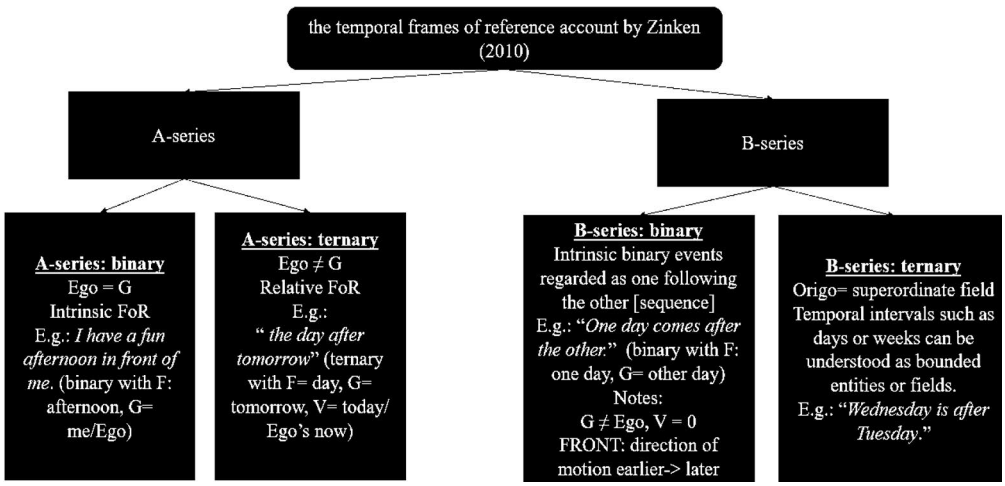

Figure 4. Zinken's (2010) model.

Zinken's (2010, 2011) model adds a new criterion to the previous models: binary vs. ternary relations. Zinken's model is also divided based on the A/B-series distinction.

To start with, the A-series frames are subdivided in terms of the number of relevant relations with the following:

Intrinsic Ego-centered frames where Ego is the Ground as in *I have a fun afternoon ahead of me*. This t-FoR depicts a metaphorical temporal 'location' from Ego's perspective. The temporal entity *a fun afternoon* is the Figure and the preposition *ahead of* indicates a later time.

Relative frames which depend upon three variables and therefore include ternary relations between the Figure (F), the Ground (G), and the observer (V). In the example *the day after tomorrow,* the Figure entity (F) is *the day*, the Ground (G) is *tomorrow*, and the observer (V) is Ego. The reason why this t-FoR is deictic (A-

series) is because of the Ground entity 'tomorrow'. Although the Ego entity is not explicitly stated with a pronoun, the temporal entity *tomorrow* depends for its reference on Ego's current moment, hence the deictic classification. This point is even clearer once compared with the B-series or non-deictic counterpart as in *the day after Tuesday*, where *Tuesday* is not dependent on Ego's temporal location[13].

B-series or ego-free frames are also subdivided into binary and ternary frames. Relative Ego-centered frames refer to instances where Ego is the observer V; e.g. *the day after tomorrow* (Zinken 2010, p.21).

The B-series **intrinsic** frames include binary relations in a sequence of events, e.g. *One day comes* [14]*after the other* (ibid). This frame does not specify any calendric system, and instead focuses on the expression of temporal structures.

B-series **absolute** frames include ternary relations where the point of reference is assigned by a superordinate field outside the context of the utterance. For example, *Wednesday is after Tuesday* (ibid) is understood using the conventional calendric system of weekdays, and the direction of the sequence where *Wednesday following Tuesday* means *Wednesday comes later than Tuesday*. The temporal sequence is established by the conventional time system itself where: F= *Wednesday*, G= *Tuesday*, and V= conventional superordinate system of weekdays.

It is important to note that Zinken's (2010) model is solely focused on static temporal relations. That is to say, it does not explicitly include a description of either Moving Ego or Moving Time metaphors. Instead, the model is mostly concerned with FRONT/BACK relations evoked by the use of prepositions like *in front of, behind, after,* and *before* and 'relative' temporal entities like *tomorrow*, *in a moment* etc.

[13] Although *Tuesday* is part of a conventional calendric system and part of Absolute Time (Huumo, 2017), the exact reference of the statement *the day after Tuesday* does depend on a discourse context, on a specific speech situation that specifies which Tuesday and which day comes after it. In this sense, it can be argued that the temporal reference is rooted in the deictic reference, albeit with varying degrees.

[14] This example provided by Zinken (2010, p.21) is classified as a sequence FoR. This is debatable as alternative interpretations suggest that the verb 'come' implies the viewpoint of Ego. (see Huumo, 2017, Dewell 2007 among others)

2.2.1.4 Tenbrink's (2011) model

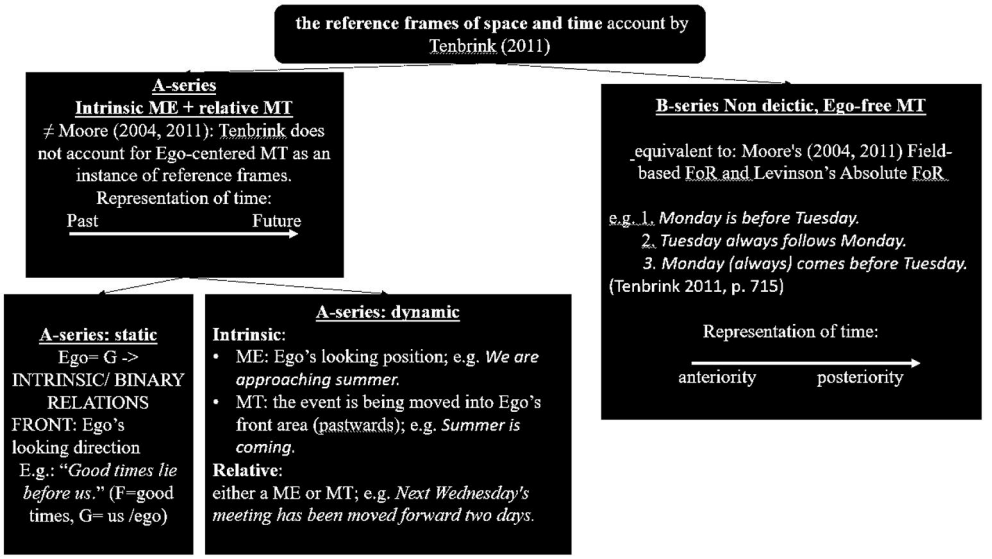

Figure 5. Tenbrink's (2011) model.

Tenbrink (2011) refers to the same distinction of A/B series and further divides the A-series into static and dynamic frames using the Levinsonian FoRs. This account is divided into four sub-classifications:

A static ego centered frame, as in *Good times lie before me* (Tenbrink 2011, p.716), refers to an **intrinsic** frame with binary relations between Ego= Ground and the temporal entity= Figure, and a dynamic ego-centered frame can include both Moving Ego or Moving Time metaphors (Figure 5).

In case the expression of temporal motion results in more than one interpretation of the Figure and Ground entities and the resulting motion direction, Tenbrink (2011) assigns the **relative frame**. The relative frame is relevant, for example, for the test sentence which has been used extensively to explore the variety of the construals of temporal motion: *Next Wednesday's meeting has been moved forward two days*. In this expression, the direction of motion is subject to the specification of the Figure entity: If it is Ego, then the metaphorical motion is towards a later time, if it is the temporal entity Wednesday, then the motion is from later to earlier and the new meeting time is Monday. In this example, the motion direction is not intrinsic, hence its 'relative' nature.

Tenbrink's B-series frames describe Ego-free temporal sequences (Example 5). All B-series frames are identified as **absolute** frames.

2.2.1.5 Evans (2013) model

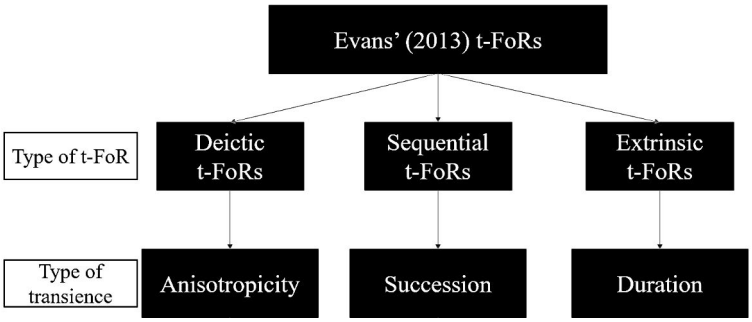

Figure 6. Evans' (2013) model.

As illustrated in Figure 6, Evans (2013) proposes three frames: deictic, sequential, and extrinsic t-FoRs based on three types of transience. Before identifying the t-FoRs, I will first define Evans' (2013) taxonomy of transience. More specifically, Evans (2013) identifies three distinct types of transience or "subjectively felt experience of (temporal) passage" (Evans, 2013, p.408): **duration** or "the felt experience of the passage of time constituting an elapse" (Evans, 2013, p. 408), **sequence** relating to the sequential nature of events, and **anisotropicity** referring to the felt experience of future and past (Evans, 2013, p. 408). Following these transience types, the first t-FoR encompasses all instances of Egocentric scenarios while the last two are allocentric, or not involving the viewpoint of Ego. More specifically, the **deictic t-FoRs** is based on anisotropic experience of temporal transience type and, in turn refers to an Ego experiencer and a radial conception of time which divides the timeline into past, present and future (Example (3) *We are approaching summer* and Example (4) *Summer is approaching*). As such, in this model, the TE is necessarily related to a deictic anchor, e.g. *Easter is moving towards **us***. (Evans, 2013, p. 425). The sequential t-FoR identifies a relationship between two TEs irrespective of an Ego deictic anchor (Example (5), *Autumn follows summer*.). This t-FoR is similar to Núñez and Sweetser's (2006) sequential metaphors and goes in line with sequential experience of temporal transience. A canonical example of this type is *Christmas comes before New Year's Eve*. (Evans, 2013, p. 424). Lastly, the extrinsic t-FoR that is anchored is an extrinsic reference point like the calendar or the clock which in turn allows us to identify a specific 'location' of events using an absolute and conventional reference point, independent of Ego's deictic timeline (Example (6), *Time flows on forever*.). Another example of this t-FoR is *Christmas has come round again* (Evans, 2013, p. 429).

2.2.1.6 Bender et. al's (2010) model

The temporal frames of reference (t-FoR) account by Bender, Bennardo, and Beller (2005; see also Bender et al.,2010) is the only account, in this review, that is not based on an A-/B-series distinction. Instead, Ego is replaced with the observer's present (moment). As such, the personal deictic reference is replaced with a temporal deictic reference. Because this account attempts to override the deictic reference in EMTs, it will allow us to transition to the discussion on the deictic nature of EMTs. The evaluation of this account is important for defining the extent to which EMTs are deictic or non-deictic, and as a result it deserves an elaborate discussion.

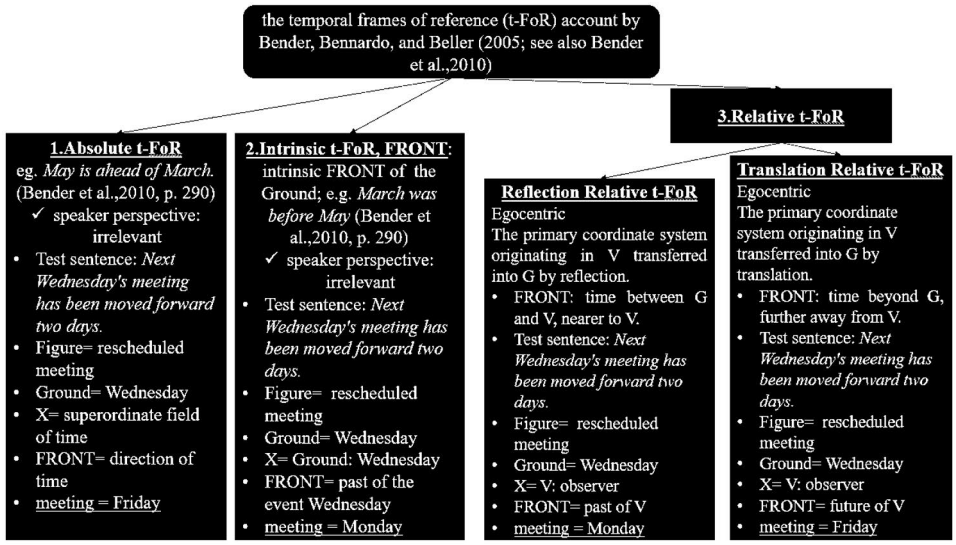

Figure 7. Bender et. al's (2010) model.

Overall, the model is composed of **purely temporal points** taking the roles of X, F, G, and V and is based mainly on Levinson's model with its three main frames. For each frame, Bender and Beller (2010) use the test sentence *Next Wednesday's meeting has been moved forward two days* to provide the outcome configurations of metaphorical temporal motions. I will include the interpretations of the test sentence together with the description of the frame for further clarification.

1. The Absolute FoR assigns the origin of the frame (X) to the 'superordinate field of time' and the direction of motion is towards the future (arrow of time). Within this frame, the test sentence results in a unique interpretation assigned by the motion direction of time. If *Next Wednesday's meeting has been moved forward two days*, then within an absolute frame that depicts the motion of time from earlier to later, *forward* indicates a later date. Hence, the new meeting day would be *Friday*.

2. The Intrinsic FoR indicates that the motion direction is assigned by the Ground entity. This frame creates an asymmetrical temporal division within the Ground event wherein "the beginning … occurs earlier than …[its] ending.." (Bender & Beller, 2014, p. 354). Subsequently, the FRONT is assigned to the earlier phase of the event, analogous to choosing a FRONT of a chair in Levinson's (2003) model (Figure 7). The beginning and end of the event, in turn, maps onto temporal direction wherein the beginning corresponds to earlier times and the ending to later. Following this, *Next Wednesday's meeting has been moved forward two days* results in a pastward motion without the reference of Ego. In this example, the rescheduled meeting is the Figure entity while Wednesday is the Ground entity. The direction of motion is assigned by the Ground Wednesday in a way that the beginning of Wednesday is mapped onto its FRONT and a forward motion onto an earlier direction. As a result, the new meeting day is assigned to Monday.

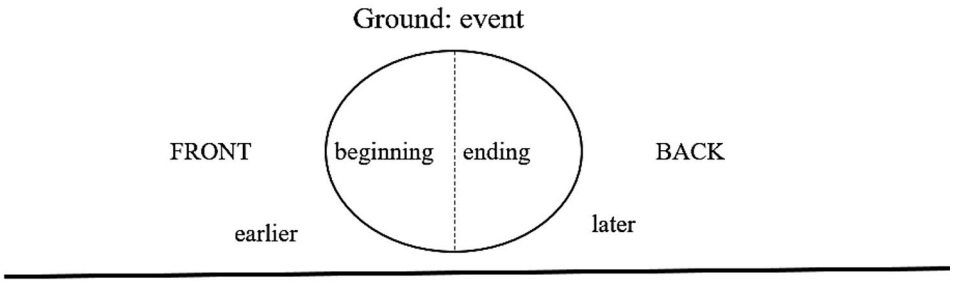

Figure 8. Intrinsic frame by Bender and Beller (2005, 2010) The Ground entity assigns the direction of motion.

Although the intrinsic variant works as a temporal replica of the Levinsonian intrinsic perspective-free frame, there are questions concerning the extent of both its psychological reality and its experiential grounding. That is to say, in the case of s-FoRs, an ego-free reference system is not just theoretically possible by means of attributing a reference frame, but also more psychologically real because physical objects such as chairs, houses, cars, etc. are usually assigned a FRONT side, even a face and a head sometimes. However, the same conclusions cannot be easily made to temporal frames. That is to say, the absolute and relative classifications are more cognitively salient than the intrinsic version of this model. This is because motion direction is typically—using the other models as references here—assigned by an element exterior to the Ground entity be it Ego, another temporal entity, or a 'superordinate field' of reference. Subsequently, the idea of choosing the direction of temporal motion 'intrinsically' based on the division of the event acting as a Ground entity into the beginning and ending needs psychological verification. This

(latter case) is another instance where space to time mapping is constrained by their different mental representations.

3. The Relative FoR uses ternary relations between two temporal entities and the observer's present. Relative FoRs are divided into two variants: 1) the reflection variant with the primary coordinate system moving towards or 'nearer' to V. When applied to the test sentence, the rescheduled meeting which is the Figure moves nearer to the observer's present and is assigned to an earlier date: *Monday*. 2) The translation variant with the primary coordinate system moving away or 'further' from V. Following this, the rescheduled meeting moves further away from the observer's present and is assigned to a later day: *Friday*.

2.2.1.7 Interim summary

The distinctions between the different t-FoR models can be summarized using the following points:

1. Does the motion scenario involve Ego? (A/B series, person deixis)
2. What are the values of the point of reference X, the Figure F, and the Ground G?
3. What is the parallel s-FoR for each scenario, if any? How many relations are involved: binary vs. ternary?
4. Is the scenario static or dynamic (metaphorical location vs. metaphorical motion)?
5. What is the direction of motion, also referred to as the FRONT assignment?

The combination of answers to these questions gave rise to the different models. For instance, a statement like *Spring is coming* is as an instance of the Moving Time Reference Point by Núñez and Sweetser (2006) and as the Moving Time Ego deictic temporal frame by Kranjec (2006); it is also described by Zinken (2010) as an intrinsic FoR with the Figure entity *spring* moving metaphorically towards the FRONT of the implicit Ground entity Ego *Spring is coming (towards me/us)*. In Tenbrink's (2011) account, the same example is an intrinsic FoR in a dynamic situation where Ego is the Ground, the temporal entity is the Figure entity, and the event is being moved into the Ego's front in a pastwards direction. In addition, in Evans' (2013) model it refers to a deictic FoR. Finally, in their temporal frames of reference (t-FoR) account, following the Levinsonian model, Bender, Bennardo, and Beller (2005, 2010) classify this statement as a reflection relative t-FoR with ternary relations between the figure F (spring), the ground G (Ego) and the observer's present.

2.2.1.8 EMTs as a deictic problem

In the summary of their review, Bender & Beller (2014) strongly challenged the adoption of an ego-based distinction and, instead, advocated for an ego-free representation of all t-FoRs, including relative frames. To explain their position, Bender and Beller argue that adopting deixis is of little use as it "reveals only little about the adopted FoR" (p.367). They also claim that the focus on deixis can diminish the explanatory capacity of the accounts as it "may obscure the more complex relations between the A-/B-series classification and a FoR-based classification and may incite hasty mappings" (p.367). As an alternative, the model by Bender et al. (2010) stands out for being ego-free in that it substitutes Ego in all frames including the relative variant for which Ego is replaced with the **observer's present**. However, the question that arises here is **does replacing Ego with the observer's present render this latter model allocentric, ego-free, or non-deictic? In other words, to what extent is this representation non-deictic?**

To address this question and delve into higher order questions on the deictic nature of EMTs, we will need to explore the meaning of deixis and the types of deictic references, then evaluate the relevance of each type for EMTs. It is important to note the primary objective at this stage is to pose questions and critically examine the existing literature. The present section is intended to identify specific questions that define the deictic composition of EMTs. They are as follows:

1. What type(s) of deixis is/are involved in EMTs?
2. Who is Ego in Moving Ego and Ego-centered Moving Time?
3. Are EMTs Ego-centered or 'now'-centered?
4. What is the value of adding Ego as a separate persona?, and
5. To what extent are COME and GO verbs deictic?

These questions are epistemologically driven, that is to say, they are primarily informed by the gap in the literature, and they specify the research problem identified in the introduction chapter. Another version of these questions will be provided in Section 3.1, informed by the study methodology. In the next two sections, I will present the EMT models to be applied in this study which will help disentangle the deictic composition of EMTs. As such, the following sections in this literature review will bring us closer to the study paradigm.

2.2.2 Moore's (2014, 2016) model

Moore's accounts of temporal metaphors extend over more than two decades. The present analysis is mainly focused on the more recent accounts, namely (Moore,

2014, 2016). These accounts are selected for several reasons: First, they provide an in-depth analysis of EMTs by first describing ME and MT metaphors separately and then presenting a detailed comparison of the latter. They also underscore the nature of EMTs as correlation-based metaphors by illustrating the experiential bases of the most salient types of EMTs in the form of grounding scenarios. Moreover, Moore (2016) features a generic representation that outlines the primary metaphor structures of ME and MT metaphors and blends the two into a unified scheme. The same accounts also lay a theoretical foundation for the deictic classification of EMTs, which is the focus of this study.

The purpose behind exploring the model by Moore goes beyond reviewing EMT scholarship. The aim here is to also establish the foundational methodological framework of the present thesis by introducing an important part of the theoretical study paradigm. For this reason, this section will focus on specific aspects of Moore's model, namely those which will be applied to the annotation and analysis of the corpus data later on. They are as follows:

1. **Experiential bases and grounding scenarios** (Section 2.2.2.1)
2. **Schematic motion events** (Section 2.2.2.2)
3. **(Source and Target) frame mappings** (Section 2.2.2.3)
4. **Primary metaphor composition of EMTs** (Section 2.2.2.4)
5. **Generic structure of ME and MT** (Section 2.2.2.5)

The elements above will be presented with reference to ME and MT metaphors. The two metaphors are explained in detail following an overview of Moore's (2014) classification of temporal metaphors (Table 3).

Table 3. Types of time metaphors (Moore 2014).

Metaphor	Example
Other-centered Moving Time (in the Scenario-based frame)	*Summer found Vincent in Paris.* (Based on a context-bound scenario) (Moore, 2014, p.304)
Moving Ego	*We are approaching summer.*
NOW IS A MOVER	*The hour is approaching dawn. (It's approaching dawn)* (Moore, 2014, p.43)
Ego-centered Moving Time	*Summer is approaching (us).*
SEQUENCE IS RELATIVE POSITION ON A PATH	*Summer follows spring.*
SEQUENCE IS RELATIVE POSITION IN A STACK	*Her transmission trouble followed right on top of her engine trouble.* (Moore, 2014, p.88)
TIME IS A MOVER	*Time marches on.* (Moore, 2014, p.60)
A SITUATION IS A MOVER	*The candle burned from dusk to dawn.* (Moore, 2014, p.60)

Moore (2014, pp.302–305) divides temporal frames of reference that involve metaphorical motion or location into scenario-based frames and path-configured frames. To start with, scenario-based frames are an inclusive classification used to account for cases where the frame of reference is determined by the specific scenario. In Moore's words, this classification covers metaphors where "there is no principle that orients all the entities in a field. Rather, the frame of reference is based on the scenario that defines the frame semantics" (Moore, 2014, p. 261). An instantiation of the scenario-based frames is *Summer found Vincent in Paris* (Moore, 2014, p.41). According to Moore (ibid.), this example does not depict a prototypical Moving Time scenario. Rather, it shows a temporal entity: *summer* in motion vis-à-vis another time where *Vincent is/ was in Paris*. The frame of reference is therefore Other-centered in that it does not refer to a canonically deictic scenario where a temporal entity moves towards Ego's 'now' as in *Summer has arrived* for instance (Moore, 2014, pp. 235–238). Scenario-based frames are not within the scope of this study. My focus is rather on path-configured frames of reference. Path-configured frames concern the depiction of temporal motion on a path and can be described based on typically unified principles. Moore (2014, p.302) maintains that Path-configured frames are among the "most pervasive" frames of temporal motion. He divides them into three main categories:

Field-based frames include SEQUENCE IS RELATIVE POSITION ON A PATH and SEQUENCE IS RELATIVE POSITION IN A STACK. This frame is free from ego's perspective and depends on the principle of the sequence of two temporal entities with one entity being the primary Figure and the second being the primary Ground. Both entities are tracked on another secondary ground[15] and the earlier entity is in-front of the later one (Moore, 2016).

Mover-based frames of reference do not involve Ego (neither as a Figure nor a Ground) as in metaphors TIME IS A MOVER and A SITUATION IS A MOVER. The Mover-based frame concerns metaphors where "the region towards which the Mover is moving maps onto a later time relative to the region occupied by the Mover and the region from which the Mover is moving". This includes for instance *Time marches on* (Moore, 2014, p.60), an example of TIME IS A MOVER where the Mover *Time* is moving towards a later time and the 'laterness' is judged based on the initial position of *Time*, the Mover. This example uses two conceptions of time: time as a

[15] The secondary Ground follows Talmy's (2000) distinction between a primary Reference Object or "one that has the same syntactic position and largely the same semantic role as the single Ground objects" and a secondary Reference Object, "which in many cases is not explicitly named but merely implied by a particular spatial term." P.203 In the example *The blue car follows the red car (on the road)*, *the red car* is the primary Reference Object while *the road* on which both cars are situated (and moving) is the secondary Reference Object or secondary Ground.

matrix through which there is progression and *time* as a Mover. The other metaphor type under this frame is A SITUATION IS A MOVER. A prototypical illustration of this metaphor is *The candle burned from dusk to dawn* (Moore, 2014, p. 60). In this example, the Mover is a situation: the burning of the candle which progresses from dusk to dawn. This progression is depicted in terms of motion (Table 3).

Ego-perspective frames including Ego's 'now' either as a Figure or as a Ground. The Ego-perspective frame is part of the A-series classification of temporal metaphors. It is defined as follows:

> In an ego-perspective frame of reference, ego plays the role of Figure or Ground or is associated with one of those roles (as in Moving Ego, Ego-centered Moving Time, NOW IS A MOVER), or the orientation of the Ground depends on ego's perspective in some way, as in the Ego-opposed and Ego-aligned temporal metaphors which presuppose a temporal analog of a relative frame of reference.
>
> Moore (2014, p.302)

Ego-perspective frames of reference include three metaphors: Moving Ego, Ego-centered Moving Time, and NOW IS A MOVER. They are identified and illustrated as follows: Moving Ego typically depicts an Ego as a Mover, e.g. *We are approaching summer* where *we* refers to the Ego experiencer. Ego-centered Moving Time as in *Summer is approaching (us)* where Ego is grammatically implicit but inferred. In this Moving Time expression, Ego takes the role of the Ground or Goal of the motion. NOW IS A MOVER is a primary metaphor, hence the notation is small caps. As the name suggests, this metaphor refers to an Ego's 'now', which is a temporal deictic point assigned by Ego's position in time, in motion in examples like *It is approaching midnight* where the dummy or semantically void subject, *it,* indicates Ego's 'now' *The hour is approaching midnight* is another illustration of NOW IS A MOVER. Here, *the hour* is also referring to Ego's 'now' and is understood with reference to the speech event (Table 3).

At this point, the classification of motion metaphors of time situates the focus of the present analysis. The following part will concentrate on Ego-perspective frames of reference, mainly on Moving Ego and Moving Time metaphors. The acronym EMTs will be used to refer to Ego-centered motion metaphors of time, which in the present analysis are limited to Moving Ego and Moving Time metaphors, excluding NOW IS A MOVER.

2.2.2.1 Experiential bases of Moving Ego and Moving Time

To start the description of Moore's account of EMTs, I will first explore the experiential roots of Moving Ego and Moving Time metaphors. The former provide

an answer to the following question: **How did we humans—at least speakers of English and Arabic—come to speak of the passage of time using COME and GO motion?**

Experiential motivations are "certain types of everyday experience that motivate people to form metaphoric conceptual mappings" (Moore, 2016, p. 14). A grounding scenario is a schematic narrative sketch of the experiential basis of a given metaphor that underlies the intuitive nature of correlation-based metaphors and, in turn, accounts for our ability to create and comprehend them. For instance, in the case of ME and MT, experiences of motion result in motion schemes that are used to describe the lapse of time. Without this primary experience of path-configured motion, ME and MT are simply inconceivable.

Moore (2016) offers a narrative sketch or a "grounding scenario" for each metaphor:

> The grounding scenario for Moving Ego.
>
> Ego (Mover) is moving along a Path. The remembered Locations she has passed are behind her. Memories of being at these Locations correlate in her experience with memories of Past Times. Her Location, which is constantly changing, correlates with her experience of the Present moment. The farther she goes the later it gets. The Locations ahead of her correlate in her experience with her expectations of Future arrival at those Locations. Her arrival at a Location that was ahead of her correlates with the occurrence of an expected Time. She keeps going and then the Location is behind her.
>
> Moore (2016, p. 15)

> The grounding scenario for Ego-centered Moving Time.
>
> Ego is located somewhere. She perceives an approaching distal entity (Mover). The distal entity correlates in her experience with her expectation of its Future arrival at her Location. The closer the entity gets the sooner she expects it to arrive. Decreasing time-until-arrival correlates with decreasing distance between the entity and Ego. The arrival of the entity correlates with the occurrence of an expected Time. The entity keeps moving and then it is gone.
>
> Moore (2016, pp. 15–16)

These grounding scenarios solidify different aspects of the scholarship on EMTs; namely the properties of time and space, the correlation-based nature of ME and MTs, and the mental conceptions of time. Both scenarios use motion through space as a way to create a transient scenario, thus bringing an inherent feature of time (cf.

Galton, 2011, Section 2.1.4) to space. This is particularly important for the expression of the passage of time as opposed to metaphors of temporal location where transience is profiled. A description such as "Decreasing time-until-arrival correlates with decreasing distance between the entity and Ego" Moore (2016, p.16) instantiates the mapping of **temporal transience** to **metaphorical space-motion**.

In addition, in both grounding scenarios, the experience of physical motion and its related metaphorical temporal motion are not simply dependent on the conception of motion; the primary experience also includes other central domains such as perception and memory. Perception of a Goal is particularly correlated with future times while memories are mapped onto past times which are part of Ego's Conceived Reality (cf. Langacker, 2008, p.301). This latter division, in turn, correlates with a "radial (or ego-centric) concept of time" (Bender & Beller, 2014, p.373) which "stresses asymmetry between proximal and distal events … thus emphasizing—and in fact presupposing—a deictic center". In other words, by using the "radial conception of time", Ego, who is the Mover in the first scenario and the Goal of motion in the second, divides the time axes into two "half-axes [that] radiate out from the deictic center" (Bender & Beller, 2014, p.373) to represent a past and a future relative to Ego's position. Alternatively, if Ego's position is removed from the metaphorical time axis, the latter will simply flow from past to future without any relevance of a present moment (Figures 9 & 10).

Figure 9. Linear (Ego-free) representation of time: the timeline flows from past to future.

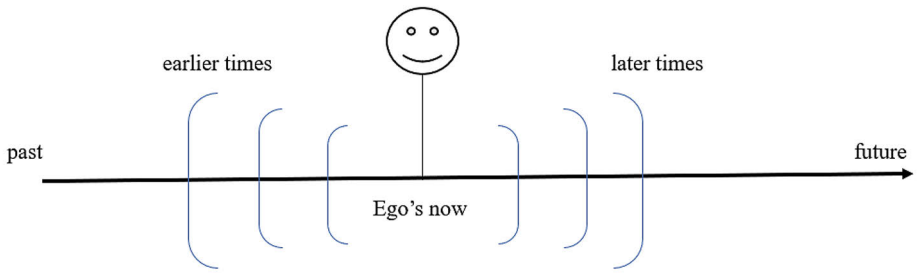

Figure 10. Radial (Ego-centric) representation of time: the timeline is divided into two half-axes at Ego's present location.

In summary, Moore's (2016) grounding scenarios are the basis for the description of the subsequent elements of his account; namely the schematic motion events, the source and target frames, the primary metaphor composition of ME and MT as well as their generic (blended) structure.

2.2.2.2 Schematic motion events

Moore (2016, p.29) further divides the grounding scenarios into four stages to present what he refers to as the "schematic motion event". The model is schematic in two ways: first because it combines the ME and MT scenarios into one model, and second because it replaces Ego and Time with Mover and Location entities. The division proposed by Moore (2016) is as follows:

> Stage 1: The Mover is distal from the Location and moving towards it.
>
> Stage 2: The Mover is approaching the Location. (That is, The Mover is becoming proximal to the Location.)
>
> Stage 3: The Mover arrives at and is passing the Location. (That is, The Mover becomes transiently co-located with the Location and begins to move away; i.e., begins to not be co-located.)
>
> Stage 4: The Mover is distal from the Location and moving away from it.
>
> (Moore, 2016, p. 31)

Whether each stage can be illustrated in language is a question for investigation. Nonetheless, it can be noted that at least some stages can be easily mapped onto linguistic illustrations. For instance, *We are approaching summer* is an ME expression that illustrates Stage 2 while *Summer has arrived* is an MT expression that illustrates Stage 3. As will be seen in the present analysis, some tense–aspect combinations are part of the defining elements that result in the profiling of the motion stage(s). Identifying these schematic motion events is a first step towards forming a generic structure of ME and MT metaphors that maps the source frame onto a target frame.

More schematically, these motion stages are rephrased as follows:

> Generic aspectual structure
>
> Stage 1: Initial state.
>
> Stage 2: Continuing process.
>
> Stage 3: Culminating event (which continues).
>
> Stage 4: Post state.
>
> (Moore, 2016, p.37)

Here the focus is on the different stages presented which will be used throughout subsequent sections of the analysis. The notion of generic aspectual structure and generic structures in general will be defined in Section 2.2.2.5.

2.2.2.3 Source and Target frame mappings

ME and MT map components of a spatial-motion frame onto a temporal frame. The source frame in Moore's account is not SPACE which has been initially defined as the source domain for motion metaphors of time in particular and temporal metaphors in general. As detailed in Section 2.1.4.1, the notion of domain has altogether been replaced with the notion of frames to allow for a more dynamic representation of metaphorical mappings. In the case of EMTs, particularly ME and MT metaphors, the source frame is MOTION. Subsequently, the core semantic roles mapped from source to target will be instantiated from the characteristics of motion scenarios, rather than inherent features of space (Moore, 2014, p.11). For a detailed elucidation of ME and MT metaphors, Moore (2016) combines the schematic motion stages with a mapping between a source MOTION frame and a target EGO-CENTERED TIME frame, as follows:

Table 4. Moving Ego as a mapping between a source frame and a target frame, table adapted from Moore (2016, p.29).

SOURCE FRAME: MOTION	**TARGET FRAME: EGO-CENTERED TIME**
Ego's changing Location ["Here"] DEICTIC CENTER	["Now"] deictic center
A Location that Ego/ Mover is headed toward.	A Future Time.
Location being approached.	A Future Time becoming more imminent.
Arrival of Ego/Mover at Location.	The occurrence of a Time.
Location that Ego/Mover has passed.	A past Time.

Table 5. Moving Time as a mapping between a source frame and a target frame, table adapted from Moore (2016, p.30).

SOURCE FRAME: MOTION	**TARGET FRAME: EGO-CENTERED TIME**
Ego's Location ["Here"] DEICTIC CENTER	["Now"] deictic center
Distal Mover headed toward Ego's Location	A Future Time.
Approaching Mover.	A Future Time becoming more imminent.
Arrival of a Mover at Ego's Location.	The occurrence of a Time.
Mover moving away from Ego's Location.	A past Time.

In this mapping, ME and MT metaphors are divided into four stages to describe the schematic motion event detailed in the grounding scenarios. The roles of Mover and Goal of motion, or Figure and Ground, are reversed between ME and MT which results in different description in the source frame, but not in the target frame which is composed of the same stages for both metaphors. In other words, this account of ME and MT essentially depicts how the two (reversed) MOTION frames map onto the same EGO-CENTERED TIME frame.

Another important note here concerns the mapping of the deictic centers: Ego's 'here' onto Ego's 'now'. In fact, three types of deictic references are relevant to this mapping: Ego, the persona experiencing time, Ego's 'here' depicting to an imagined spatial location of Ego, and Ego's 'now' which relates to Ego's temporal deictic center. In this sense, ME and MT metaphors are at the center of a deictic reference by combining all three types into a unique representation of temporal motion.

2.2.2.4 Primary metaphor composition of ME and MT

> Metaphor names are traditionally given in small capitals and use the verb *to be*; for example NOW IS HERE. It will be noted that Moving Ego and Ego-centered Moving Time do not have such formulaic names. This is because each of these metaphors consists of other more simple metaphors.
>
> Moore (2014, p.9)

Moore (2014, 2016) identifies four primary metaphors that are relevant to ME and MT metaphors. They are as follows:

1. NOW IS HERE
2. (CHANGE IN) IMMEDIACY IS (CHANGE IN) PROXIMITY
3. THE OCCURRENCE OF A TIME IS THE ARRIVAL OF AN ENTITY AT A LOCATION
4. TIMES ARE LOCATIONS

These primary metaphors are motivated by experiential correlations, i.e. they are based on the primary experience of the speaker (Moore 2014, p.31). Although not sufficient to make a full account of the Ego-centered motion metaphors of time, primary metaphors, nonetheless, allow a detailed scrutiny and comparison of the former. For instance, Moving Ego and Ego-centered Moving Time share the primary metaphor of (CHANGE IN) IMMEDIACY IS (CHANGE IN) PROXIMITY and THE OCCURRENCE OF A TIME IS THE ARRIVAL OF AN ENTITY AT A LOCATION. (Moore, 2014, Chapter

22). This approach is useful in classifying metaphors and determining close relations between metaphors, metonymy, and conceptual integration.

2.2.2.5 Generic aspectual structure: Assembling the puzzle pieces

So far, we have seen different aspects of ME and MT: grounding scenarios, schematic motion events, source and target frame mappings, and primary metaphor composition. In this last section, we will finally look into a unified representation of ME and MT in the form of a generic structure (cf. Moore, 2016).

Moore (2016, p.36) proposes two types of generic structures: "perspectival" and "aspectual":

The **perspectival structure** is defined with relation to "the presence of Ego in all four frames" (Moore, 2016, p. 36), that is to say, both ME and MT are described with reference to an Ego perspective, which in turn unites the descriptions of the two metaphors using frames which are organized with reference to one deictic center. The **generic aspectual structure**, on the other hand, is centered around the schematic motion event. This representation combines both types of motion events in a unifying generic structure (Moore, 2016, p. 39). The resulting model (Table 6) uses the aspectual structure of the motion event (top part of the figure) which is divided into four stages: 1) an initial state, 2) a continuing process, 3) a culminating process, and 4) a post-state. Then the Moving Ego and Moving Time scenarios are described by assigning Ego in Mover position in the Moving Ego scenario and Time in Mover position in the Moving Time scenario. This is described in the sections with the headings "Moving Ego source" and "Moving Time source", respectively. The descriptions of Moving Ego and Moving Time using the elements of the frame of MOTION and then are mapped onto the Target (EGO-CENTERED TIME) frame where Ego's metaphorical-spatial deictic position: Ego's 'here' is mapped onto Ego's temporal deictic position: Ego's 'now' at each stage of the motion scheme.

Table 6. Generic structure of EMTs, table adapted from Moore (2016, p.39).

Generic Structure		
[DEICTIC CENTER] **1. Initial state** **2. Continuing process** **3. Culminating process** **4. Post state**		
Moving Ego source (MOTION)	**Moving Time source (MOTION)**	**Target (ego-centered time)**
"Here" [DEICTIC CENTER] 1. Location that Ego is headed toward. 2. Location that Ego is approaching. 3. Ego's arrival and co-location. **4.** Location that Ego has passed.	"Here" [DEICTIC CENTER] 1. Distal Mover headed toward Ego. 2. Mover that is approaching Ego. 3. Mover's arrival and passing. 4. Mover moving away from Ego.	"Now" [DEICTIC CENTER] 1. A Future time. 2. A Future Time that is becoming more imminent. 3. Occurrence of a Time. 4. A Time in the Past.

This structure finally leads us to the representational paradigm applied in this study. Together with Huumo's (2017) model, the generic structure will be central to the description of the model applied to analyze the properties of the verb expressions used in this study and to compare the two language systems: English and Arabic.

2.2.3 Beyond a metaphor: Huumo's (2017) model of motion metaphors of time

As shown in the previous sections of this chapter, accounts of the expressions of temporal motion focus mainly on the metaphorical elements in mapping the conception of spatial motion onto the metaphorical motion of time. However, the clause-level components of ME and MT have not yet been explored. Fundamentally, metaphors of time are conceptual structures that are expressed in language using lexico-grammatical systems of reference. As part of the lexico-grammatical systems of reference, I specifically focus on **the composition of the conjugated verb expressions** used in an EMT. This composition can be conceived of as a combination of the lexical semantic meaning of the motion verb and the grammatical categories of tense and aspect. This distinction follows Huumo (2018) who proposes a classification of lexical vs. grammatical resources on the one hand, and a veridical vs. figurative resources on the other hand. More specifically, lexical resources are

semantic resources while the grammatical resources are structural. Furthermore, figurative conceptualizations of time are "motion-related" and veridical conceptualizations are "duration-related" (Huumo, 2018, p. 729). Overall, this study presumes that the description of EMTs is incomplete unless it covers the former four aspects. In fact, the identification of EMTs as a deictic problem is, in part, a result of **overlooking grammatical elements in EMT metaphors, namely with reference to the system of tense and aspect.** As such, exploring the former is imperative for the present comparative cross-linguistic exploration of this phenomenon.

Huumo's (2017) account combines metaphorical and veridical elements and shows how they interact. The following subsections will introduce a multi-level model of EMTs based on the metaphorical veridical interface. This model will subsequently serve as the foundation for the cross-linguistic analysis of the collected corpus and for the comparison of English EMTs to Arabic EMTs[16]. The model presentation comprises: a description of the concept of multi-leveled temporal reference (Section 2.2.3.1), a detailed and cumulative presentation of Huumo's (2017) model (Section 2.2.3.2), a discussion of the mapping between distance and duration (Section 2.2.3.3), a description of the distinctions between ME and MT based on the model (Section 2.2.3.4), a clarification of the positionality of the MP axis (Section 2.2.3.5), and finally a brief presentation of the veridical elements used in EMTs (Section 2.2.3.6).

2.2.3.1 EMTs' multi-levelled temporal reference

The expression of metaphorical motion of time is—above all—a conceptualization of time. By conceptualization, I refer to the "dynamic…mental processing (or neurological activity) …[which] occurs through time" (Langacker, 2008, p.79). At this point, two types of time need to be emphasized:

The first type refers to **conceived time** which depicts "time as an **object of conception**" (Langacker, 2008, p.79). In the expression of EMTs, this refers to the time talked about— henceforth, called the temporal entity—such as *summer, the moment, the future,* etc. Within EMTs, temporal entities have two criteria: they are construed objectively[17], and they are the explicit focus of attention.

The second type is the time through which conceptualization "develops and unfolds" (Langacker, 2008, p.79). In the case of EMTs this refers to the time through

[16] To align with the specific paradigm of this study, the forthcoming descriptions will focus on EMTs utilizing either a COME or GO verb of motion.

[17] Objective construals are characterized by "profiling and explicit mention" while subjective construals are related to "an implicit locus of consciousness" (Langacker, 2008, p.77).

which we talk about the lapse of time. This type functions as **a medium of conception** and is called **processing time** (Langacker, 2008, p.79). Processing time is construed subjectively and is not within the scope of the attention of the speaker.

Huumo (2017) uses this dual conceptualization of time to offer a new perspective on EMTs as a scenario where "we track a relationship through time" and where "the tracking occurs in processing time and the event itself in conceived time" (Langacker 2008: 110). Viewed this way, a simple expression like *Summer is coming* is only simple in the efforts we put in understanding it. Temporally though, it maps onto these two distinct conceptions: Time as an object of conception, evident in the use of the temporal entity *summer,* while the conceptualization of this metaphor is occurring in processing time which in turn refers to (the function of) time as a medium of conception.

This study combines Moore's generic scheme with the model proposed by Huumo (2017) to create schematic visual representations of EMT scenarios which are in turn defined using Tense x Aspect x Motion Stage combinations. Each classification will be treated as a conceptual model and will be used for clustering verb forms from Standard Arabic (SA, henceforth) and English and then for comparing the overall temporal systems of SA and English.

In order to present the metaphorical and veridical components of an EMT in a unified model, the model needs to 1) track the temporal entity on a spatial-like path within a metaphorical motion scenario, 2) relate the latter to the temporal conception, and 3) create a link between the speakers' present and the motion event. Evidently, representing and tracking these connections requires more than a single temporal axis, hence the necessity of a multileveled representation. More specifically, Huumo (2017) identifies a three-levelled model of EMTs that maps the above-mentioned temporal conceptualizations (processing time and conceived time) on temporal axes and adds a third axis that represent the notion of a spatial-like[18] path. The model thus results in three different axes which are described as follows:

1. ***Metaphorical Path (MP)*** denotes "the metaphorical conceptualization of time as a path" (Huumo, 2017, p. 10) to indicate the axis along which motion is profiled. MP shows the distance traversed by the metaphorical spatial counterpart of the temporal entity in Moving Time (MT) or Ego in Moving Ego (ME).

[18] The term "spatial-like" is used instead of "spatial" to indicate the metaphorical nature of the axis, namely that it refers to a mental representation of a motion scenario, not a real spatial or physical motion event.

2. ***Veridical Time (VT)*** is a subtype of Langacker's notion of Conceived Time (CT). VT refers to "the conceptualization of conceived time which hosts the processual profile of a clause-level predication" (Huumo, ibid). VT maps Ego's 'now' onto the speaker's present—if the present tense[19] is used—and onto EGO's 'here' on MP. In cases where the past or future tenses are used as in *Spring was coming* or *Spring will be coming*, Ego's 'now' is mapped onto the speaker's past and future, respectively.
3. ***Processing Time (PT)*** refers to "time as a medium of conceptualization" (Langacker, 2008: 79). PT tracks the speaker's present.

The three axes with their functions and reference points are presented in the table below:

Table 7. Overview of MP, VT, and PT in Huumo's (2017) model.

Path	Function	Reference point
MP	tracks the metaphorical (spatial-like) motion of the metaphorical temporal entity or Ego (MT/ ME respectively): distance	Ego's 'here' in Ego-centered expressions
VT	tracks the temporal duration, and correlates with PT	Ego's 'now'
PT	Using the non-metaphorical system of tense and aspect, it positions the speaker's present at the time of processing of the metaphorical scenario.	the speaker's 'present'

Now that they have been presented, the following section will present a detailed explanation of how these axes can function together with the tracking elements within a dynamic model.

2.2.3.2 Huumo's (2017) model

As mentioned above, the model specifies three axes: two temporal and one spatial-like. The two temporal axes (VT and PT) share the same direction with the future assigned on the right following a direction of time moving from the left to the right. Speakers of Arabic actually experience time from right to left, but for the sake of unifying the two language systems, and since the present study is written in English, the left-to-right direction will be adopted (see Casasanto & Bottini, 2010 for an examination of how the reading direction impacts the experience of the flow of time

[19] The model is based on the Indo-European conception of tense. As will be shown later in the analysis, the concept of tense is different in the system of Standard Arabic. However, the presentation above is "faithful" to the original model published in 2017.

across cultures including Arabic). The spatial-like axis (MP) represents the schematic motion event **orthogonally**, a point that will be explained in the end of this section.

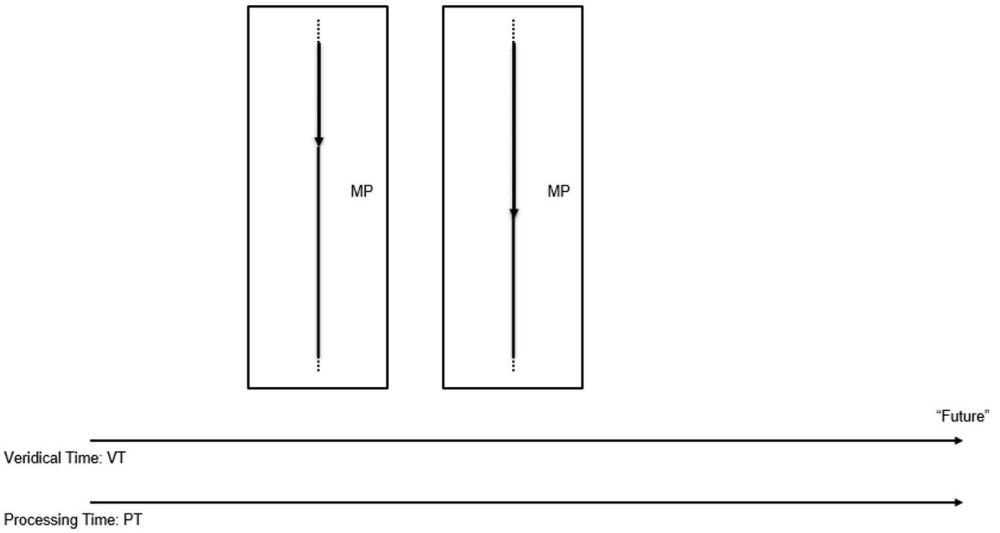

Figure 11. Metaphorical-spatial and temporal axes in Huumo's (2017) model: MP, VT, and PT.

The model also shows two actors in the metaphorical motion scenario of EMTs that use a COME or GO motion verb: the Trajector (TR) or the Mover and the Landmark (LM) which takes the role of the motion goal or Ground entity using Talmy's (2000) taxonomy. The TR and LM refer to the TE and Ego: in an ME metaphor based on the use of a motion verb, Ego takes the role of the Trajector, and the TE the role of the Landmark, while in an MT metaphor, the roles are reversed.

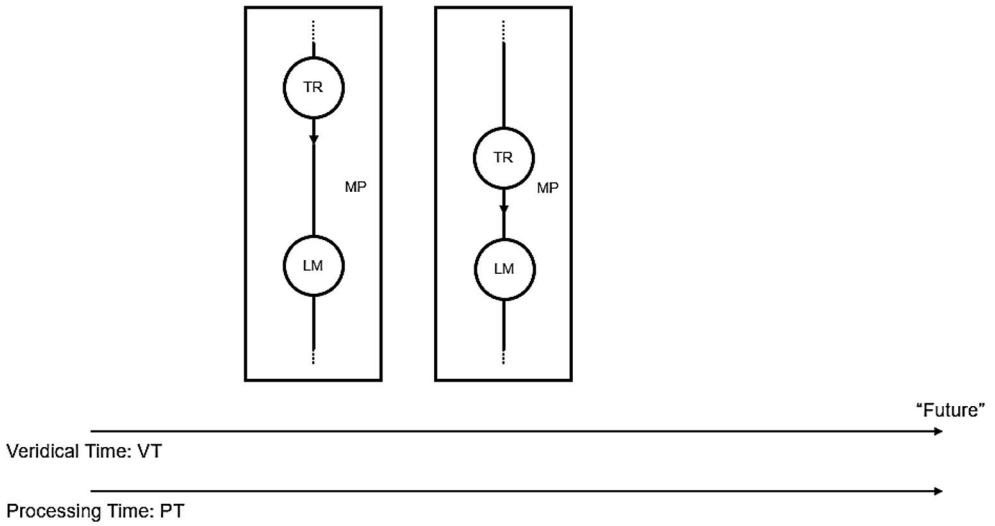

Figure 12. Trajector (TR) and Landmark (LM) on MP.

2.2.3.3 Mapping distance to duration

Distance plays a fundamental role in understanding both spatial motion and metaphorical temporal motion. More specifically, it serves to illustrate the gap between the Trajector (TR) and the Landmark (LM) entities. Changes in this gap indicate the progression made along a path, which, in turn, depicts metaphorical motion. In the context of EMTs, metaphorical distance is tracked on the Metaphorical Path as it is evoked either by a COME or GO verb of translational motion, or motion on a path. Duration, on the other hand, can be defined as passage of time restricted by the direction of time flow from earlier to later, located on VT (Huumo, 2017). In an Ego-perspective motion metaphor of time, Ego's 'here'—used to track distance—is mapped onto Ego's 'now'—used to track duration—with respect to the mapping of the primary metaphor NOW IS HERE. (Moore 2014, 2016). Huumo (2017) offers three possible metaphor combinations involving distance and duration:

a) Expressions that correlate distance with duration: an event has a duration on VT and a distance on MP.

Examples include *Spring is coming.* This example shows an unbounded duration expressed by the imperfective aspect evoked by the progressive construction and correlates with distance on MP. Motion on MP is motivated by the use of the verb

'come'; we can think of the temporal entity 'spring' metaphorically moving towards Ego's 'here' on MP and its veridical counterpart projected on VT.

Spring arrived on the other hand designates a bounded duration expressed by the perfective aspect and correlated with distance on MP. The expression shows that the metaphorical temporal entity 'spring' has arrived at Ego's 'here' on MP (distance). As the expression is grounded by the tense/aspect system in the past, Ego's 'now' is located in the speaker's past.

b) Expressions with distance and no duration.

Consider, for instance, *The meeting has been moved two days (earlier-wards/later-wards)*. Here, the temporal entity moves on MP, but the motion does not have a correlate on VT since the event (of making the decision about the change in the time of the meeting) is punctual. The meeting, as a future time, has been placed on a different point on the calendric system. Since the motion is not "gradual", it profiles minimal temporal duration, if any.

c) Expressions with duration and no distance.

An example of this type of expressions is *Your party is two weeks away.* This example highlights duration, without implying a traversed distance on MP as there is no indication of motion.

This difference between distance and duration can, in turn, be related to Tenbrink's (2011) distinction of static and dynamic situations and Moore's (2014) distinction of metaphorical location vs. metaphorical motion. A static situation can be identified with expressions that lack spatial motion or 'distance' on MP while dynamic situations involve a tracked distance, whether in correlation with duration or not. This distinction will be used in Chapter 4 and in framing the new classification of EMT metaphors (Section 4.4).

Since the diagram is a static representation of a figurative motion scenario, the latter is conveyed using more than one position of the Trajector (TR)—or the mover—vis-à-vis the Landmark (LM) which takes the role of the motion goal. The motion indicated is inferred based on the change from the initial position of the TR on MP to the final position of the former on the latter. Thus, for instance, if the comparison of the two phases shows that the TR becomes closer to the LM, then this traversed distance can be understood as an increased proximity expressed by a COME verb and mapped onto the veridical Time axis using the reverse of the primary metaphor CHANGE IN IMMEDIACY IS CHANGE IN PROXIMITY (Moore, 2016).

2.2.3.4 ME/MT distinctions

In the context of EMTs using a COME or GO verb of motion, for an MT/ME distinction to be shown, it suffices to assign either one of the TR/LM roles, and the second role can be inferred. It is also possible to indicate whether the model is describing an ME or an MT metaphor by assigning the "earlier" and "later" mappings on MP, which are evident by the direction of motion (illustrated and explained in Figure 13).

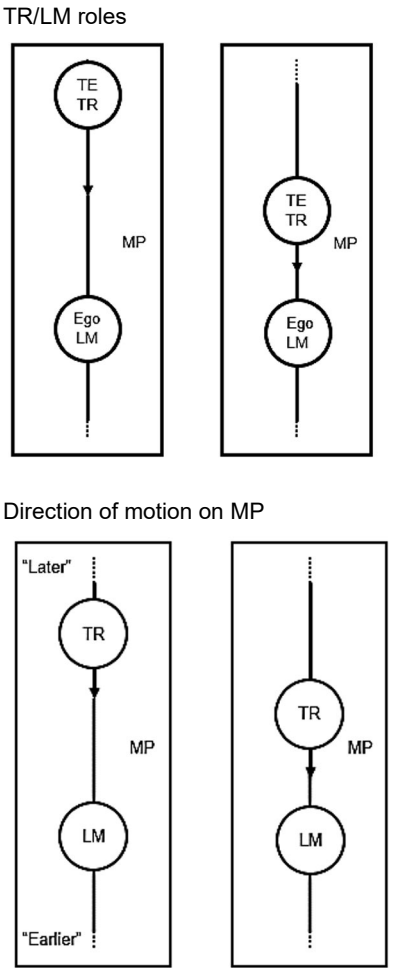

Figure 13. Indicating EMT types: Both illustrations show an MT metaphor with a future TE either by signalling the TR/ LM roles or the "later" and "earlier" notations.

2.2.3.5 On the orthogonal position of the Metaphorical Path

A relevant and important question at this point is why the MP axis is positioned orthogonally and whether it could be placed in a parallel position to VT and PT. This question was postponed mainly because Ego's 'now' and Ego's 'here' are part of the answer and so, their presentation needs to precede the presentation of the answer. In what follows, I illustrate ME and MT scenarios using horizontal MP axes which, in turn, will reveal the limitations of the latter representation (Figures 14 and 15 below).

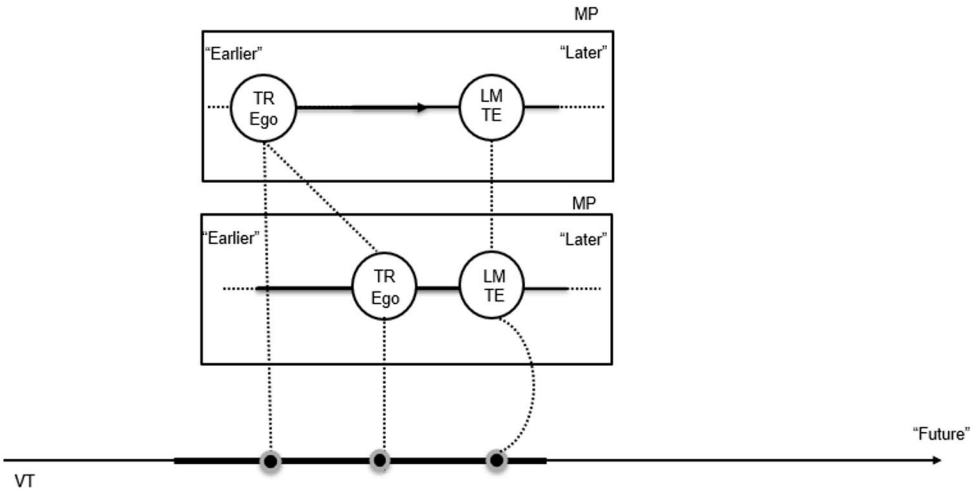

Figure 14. Horizontal illustration of the MP axis to VT and PT in an ME metaphor scenario. The figure shows the VT mappings only to simplify the analysis.

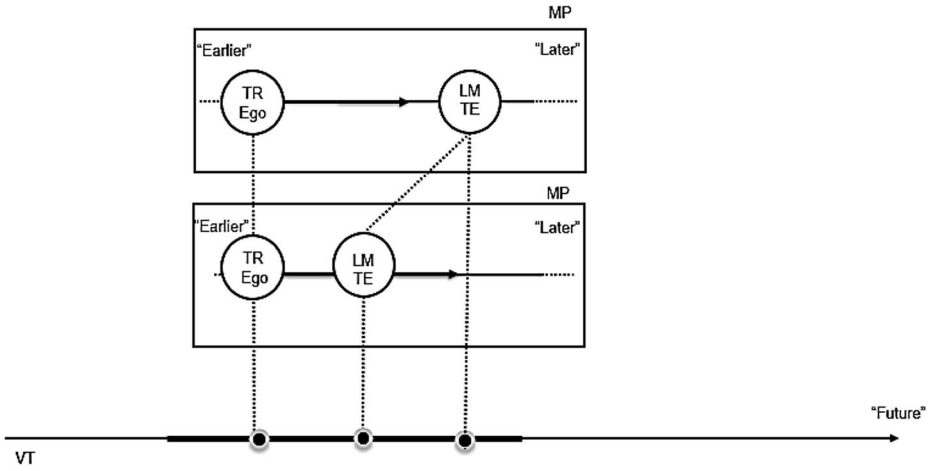

Figure 15. Horizontal illustration of the MP axis to VT and PT in an MT metaphor scenario. The figure shows the VT mappings only to simplify the analysis.

In an ME scenario, a horizontal MP is adequate: the moving entity or Figure Ego can be placed horizontally onto two different positions which are mapped orthogonally onto VT in two different positions mapping Ego's 'here' to Ego's 'now' each time. The TE in the same scenario does not change position and thus does not require two mappings on VT since its role is restricted by the scenario to a "fixed" goal of motion. As a result, its horizontal mapping is unique in both phases of the scenario (Figure 14).

In an MT scenario, the profiled Mover TE is placed in a Figure position and mapped onto two distinct positions on the MP (Figure 15). Ego's position remains constant on the MP, which is logical since Ego is not 'playing' the role of the Mover in this scenario. As a result, it is expected for Ego's 'here' not to change on the MP. However, Ego is not just the Ground in the motion scenario, it is also the part of the temporal axis of VT as the experiencer of the passage of time. That is to say, to correlate the increasing proximity of the TE vis-à-vis Ego, Ego's 'now' needs to be placed in two different positions on VT. However, using a horizontal presentation of MP means that Ego would have to "stop" experiencing VT in order to "wait" for the TE, which is psychologically inaccurate. This point, in turn, shows why a horizontal MP is inadequate. Subsequently, the MP axes need to be placed in an orthogonal position in order to present two separate positions of Ego's 'now' in VT, whether Ego is the Mover (in ME) or the Ground of motion (in MT).

2.2.3.6 Veridical elements

At this point, I am tentatively presenting the language resources included in EMT metaphors and assigning those relations either individually or in combination with other elements. According to Huumo's model, the elements of verb lemma, tense, and aspect system are associated with the motion scenario as follows: The tense/aspect system is expected to ground the relation between the motion scenario and the speaker's present while the verb lemma indicates the direction of motion and possible motion phase(s). The verb lemma can also indicate other motion information embedded in the lexical aspect of each verb, for instance, whether the verb indicates a goal or not, or whether it indicates an achievement or an activity; or by assigning the type of Mover for a verb that does not include the meaning of achievement like *to approach.*

These presumptions will be further elaborated on in the research questions and then explored in the analysis. The specific research questions are presented in the following chapter.

3 Research Questions, Language Background, and Corpus Procedures

3.1 Research questions

The present study contributes to the emerging data-driven scholarship on EMTs, such as Feist & Duffy (2020a), Kumcu, (2022), Piata & Soriano (2022), Valenzuela & Castillo (2022), and Waliński (2020). As is evident from the publication dates of these studies, the recent literature on EMTs is witnessing a methodological detour that moves away from qualitative models to quantitative corpus-based analysis. The paradigm for the present examination as well as for the aforementioned studies is based on a cognitive corpus-based approach; that is to say, an approach that looks at a cognitive-linguistic phenomenon using corpus-based data.

Three levels of analysis are relevant here:

Part I: Corpus properties of EMTs

This part will be mainly based on the exploration of the frequency distribution of the annotation variables.

- Type of metaphor: How are metaphor types distributed across verb expressions and to what extent do the frequencies of the observed metaphor types validate the expected metaphor types inferred by the study paradigm (Section 3.3.4)?
- Type of EXP: What types of Ego experiencers are included in the expression of EMTs and how are they distributed?
- Type of TE: What types of temporal entities (TEs) are involved in EMTs and how are they distributed?

Part II: Deictic properties of EMTs and the representation of motion construals

The questions here relate to the distribution of the conjugated verb expressions used in the corpus search across the different types of EMTs. A cognitive-linguistic model—mainly based on Huumo's (2017) account—will be used to create the verb clusters, and a statistical model will be used to reveal the complex interactions

between the lexico-grammatical properties of the verb expressions and the metaphorical properties of EMTs. More specifically, this level of analysis addresses the following questions:

- How can the generated verb expressions be grouped based on 'similar' metaphorical motion construals and how can the latter be determined?
- Which variables impact the selection of verbs for EMT expressions?
- How can these clusters be represented using Huumo's multiple conceptualizations of time?
    - How does the combination of veridical and metaphorical variables result in different EMT types and in different temporal and deictic configurations?
    - How is the distinction between Ego and the speaker (person deixis) and Ego's 'now' and the speaker's present (temporal deixis) an outcome of the metaphorical and veridical components of EMTs?

Part III: Comparative cross-linguistic explorations

The idea here is to provide empirical reflections on the distinct lexico-grammatical patterns of the two language systems involved in the expression of EMTs.

- How do Arabic and English as two unrelated languages express similar metaphor frames using completely different temporal and lexical systems?

The next section (Section 3.2) will explore Arabic diglossia and identify the Arabic variety examined in the present inquiry. Next, to explain the study methodology, this chapter will first present relevant language background (Section 3.3) on Arabic and then identify the paradigms for verb selection (Sections 3.4.1 - 3.4.3), derivation paradigm (Section 3.4.4), and the corpus procedures (Section 3.5).

3.2 Arabic Diglossia

There are more than 20 variants of Arabic the description and classification of which remain a subject of on-going research[20]. Despite this gap and the challenge that it implies, there are some defined properties that underlie the distinction among Arabic variants. That is to say, any given Arabic variant can be identified based on the following criteria, which are presented below as evaluation questions:

[20] For instance, Aliwy et al. (2020) identifies 21 dialects, one for each Arabic country, in addition to the standard versions of Arabic: Modern Standard Arabic and Classical Arabic.

Usage Distribution

1. Is the variant typically used for written or for oral communication?
2. Is the variant typically used in formal and official contexts or in informal contexts?
3. Is the variant used in one particular region or across the Arab world?

Level of standardization

4. Does the variant have a (written) standardized lexico-grammatical system that is unified across the regions of the Arab world?

Modernization

5. Is the variant modern? That is to say, does it display indications of contact with other languages—mainly English and French, or of vocabulary expansion resulting from modern technological advancement?

The first property concerns the **usage distribution across communication modes, (formal/ informal) contexts,** and **geographical locations**. In answering the evaluation questions above, we identify the differences in communication medium (spoken/ written) then the level of formality of the usage context ranging from informal to formal to official. The third question assesses the geographical distribution of the variant by verifying if it is unique to one region or used across regions. The standard versions usually correlate with more formal and written communications and are typically consistent across Arab regions while colloquial versions are frequently used in informal spoken contexts and are specific to particular geographic locations.

The next property relates to **the level of standardization**. If the variant is used uniformly among Arabic speakers in different geographical regions, then the lexical and grammatical systems of that variant are standardized. Otherwise, if the variant is unique to a particular location, then its lexical and grammatical systems are not standardized in relation to the Arabic-speaking community. The lexical distinctions among colloquial variants are among the most explicit indicators of the non-standardized lexical systems of Arabic variants. These differences are frequently discussed in general non-academic spaces, particularly on social media platforms. In academia, scholars also shifted perspectives by analyzing colloquial systems (e.g. Holes, 2006; Youssef & Gries, n.d.) and building colloquial corpora (Aliwy et al., 2020; Bouamor et al., 2018; Habash et al., 2018; Khalifa et al., 2016, 2018).

The third criterion relates to whether the variant is **modern or classical**. Modern influence is a result of—at least—two phenomena: 1) the language contact that followed colonization which brought about contact with French, English, Italian, etc.

and globalization with a focus on the influence of English (van Putten, 2020), 2) the vocabulary expansion due to the integration of new technological advancements. Subsequently, modern versions of any Arabic variant exhibit indications of language contact and incorporate new words, including verbs and nouns, related to modern tools and habits. For instance, modern colloquial dialects often involve code-switching with French and English (e.g., Lebanese, Tunisian, Algerian) as a result of language contact, while Modern Standard Arabic assimilates words originally from English, especially those referring to new technologies, which are then written in Arabic script, such as "كمبيوتر" (*kombyuuter*, computer).

These properties result in the following classification of Arabic variants, which are presented in Tables 8, 9, and 10 and compared below:

Table 8. Properties of Classical Arabic.

Question	Answer	Variant
Is the variant typically used for written or for oral communication?	Written	Classical Arabic
Is the variant typically used in formal and official contexts or in informal contexts?	Formal/ official	
Is the variant used in one particular region or across the Arab world?	Throughout the Arab world	
Does the variant have a (written) standardized lexico-grammatical system that is unified across the regions of the Arab world?	Yes--standardized	
Is the variant modern? That is to say, does it display indications of language contact, and does it include new words?	No	

Table 9. Properties of Modern Standard Arabic.

Question	Answer	Variant
Is the variant typically used for written or for oral communication?	Written	Modern Standard Arabic
Is the variant typically used in formal and official contexts or in informal contexts?	Formal/ official	
Is the variant used in one particular region or across the Arab world?	Across the Arab world	
Does the variant have a (written) standardized lexico-grammatical system that is unified across the regions of the Arab world?	Yes--standardized	
Is the variant modern? That is to say, does it display indications of language contact, and does it include new words?	Yes	

Table 10. Properties of Colloquial Arabic.

Question	Answer	Variant
Is the variant typically used for written or for oral communication?	Mostly spoken[21]	(modern) Colloquial Arabic
Is the variant typically used in formal and official contexts or in informal contexts?	informal	
Is the variant used in one particular region or across the Arab world?	Varies across regions	
Does the variant have a (written) standardized lexico-grammatical system that is unified across the regions of the Arab world?	No	
Is the variant modern? That is to say, does it display indications of language contact, and does it include new words?	Yes, use of codeswitching	

Standardized Arabic (SA) vs. Dialectical—or colloquial—Arabic (DA)

Standardized Arabic refers to the variants of Arabic—Modern Standard or Classical Arabic—which use a shared unified lexico-grammatical system. This is not to say that the system of MSA is identical to that of CA. It is simply to say that both systems contrast with the colloquial variants in that they are typically shared among the speakers of Arabic and unified across the Arab world.

Modern Standard Arabic (MSA) vs. Classical Arabic

The lexico-grammatical differences among MSA and CA are not easy to pinpoint. However, there is a distinction in usage that is easier to identify: namely that MSA is the version typically used in the news, in research, in formal and official communications while the CA variant is typical of historical and religious texts. In a way, MSA could be thought of as a contemporary globalized version of CA.

Dialectical Arabic (DA): the spoken variants

In the Arab world—and in the world of Arabic, the specific variant of Arabic a person learns depends on their geographical location. To be precise, people in different Arab countries acquire different colloquial variants. For instance, a person born in Tunisia, Algeria, or Morocco today will acquire a modern dialect which incorporates Arabic and French codes, with some influence from Amazigh, Turkish, Italian, and English. Meanwhile, individuals from Jordan, Syria, and Egypt will speak their respective colloquial versions of Arabic which are different in many aspects from the previously mentioned versions, yet to an extent intelligible.

[21] Currently, colloquial Arabic has also become a written form but mostly in informal spaces like social media and while texting. Both Latin and Arabic scripts are being used for this purpose.

Interestingly, the standardized versions (MSA or CA) of Arabic are not acquired by anyone as a first variant. Moreover, no Arabic population nor region uses any of the standardized versions in spoken informal contexts of use. Instead, some form of Standard Arabic is usually acquired at a later stage, that is, following the acquisition of a spoken colloquial variant of Arabic. The acquired properties of standardized Arabic depend on the structure and content of the language program. In a way, standard Arabic could be viewed as a shared "lingua franca" in the Arabic context which gives it a prestigious status and makes it an elite variant (Ryding, 2014). Consequently, standard Arabic is at the same time spoken by everyone—that is by almost every literate Arab person—and by no one—that is to say, no Arabic community uses it as a first dialect.

Whether the 'non-standardized' colloquial versions are related dialects of Arabic or separate languages remains a question of investigation (cf. Alnosairee & Sartini (2021) for a sociolinguistic overview of Arabic variants and a comparison of the phonological, morphological, syntactic differences among dialects). However, it is evident that these non-standardized varieties share many typological features among themselves and with the standardized versions and that they are intelligible, albeit with varying degrees. For instance, an Egyptian person can comprehend a person from the Gulf or from a Levantine country with relative ease. North African variants such as Tunisian or Moroccan, however, may pose a greater challenge due to the adoption of French code switching, yet they remain to an extent communicative.

This study explores the Standard version of Arabic, mostly based on Modern Standard Arabic, or the modernized version of Classical Arabic. This variant is chiefly determined by the corpus data available, predominantly consisting of modern newspaper articles in addition to a smaller corpus of Classical Arabic based on historical and religious texts (cf. Section 3.5.1.2). For the rest of the monograph, I will be using the notation Standard Arabic (SA) or Arabic to refer to the Arabic language.

3.3 Properties of Standard Arabic

The study of SA is derived from the study of Classical Arabic which, in turn, has its foundations in the literature of the "Traditional Arab Grammarians (TAGs)" (Al-Balushi, 2013, p.36). The early works on the grammar of Classical Arabic were closely intertwined with Quranic studies. Over time, however, this field evolved into an independent discipline of Arabic linguistics, encompassing areas such as Arabic grammar (*naHw*), lexicography (*lugha*), and comprehensive investigations into poetry (Bernards, 2020). The Traditional Arab Grammarians, like Sībawayhi and Abū l-Aswad al-Duʾalī are responsible for shaping the grammatical terminology considered in Arabic studies (cf. Al-Balushi, 2013). Over time, the field of Arabic

studies was further enriched by the contributions of non-Arab scholars who facilitated the interaction between Arabic and other languages, including Indo-European languages, by offering comparative perspectives on Arabic syntax and various other grammars. Works of this type include Blachère & Gaudefroy-Demombynes, (1952) who introduced a comparative study of Classical Arabic and Indo-European languages with a focus on French, and Wright (1967) who provides a description of Classical Arabic from an English perspective.

The present overview of Standard Arabic is based on a synthesis of classical foundational and contemporary scholarship with a specific focus on the expression of the representation of time (aspect, tense, mood). More specifically, it incorporates descriptions from scholars who are native speakers of Arabic, as well as those who study Arabic from the perspective of a second language speaker. This combination of sources contributes to a more comprehensive comparison, examining Standard Arabic from various linguistic standpoints.

The present overview is divided into two subsections: 1) an overview of Arabic phonology and orthography; namely, the vowel system and *tashkeel*, 2) an overview of Arabic morphology and inflectional system: root system, stem, derivation patterns, inflections, and case marking. To avoid repetition, an explanation of the temporal system of Standard Arabic is reserved to Section 4.3.9.

3.3.1 Phonology and orthography of the Arabic word

Arabic orthography is based mainly on the spelling of consonants and long vowels while short vowels are typically marked by *tashkeel*: a system of superposed notations that mark one of the following short vowel sounds: /a/, /u/, /I/ spelled as ◌َ, ◌ُ, and ◌ِ respectively. However, most Modern Standard Arabic scripts are written without these superposed notations mainly because the vowels are usually relatively easy to guess. That is to say, the context of use of a given word usually eliminates most alternative forms that share the same spelling with that word either through syntactic or semantic cues, that is, either through the position of the word in the clause or through meaning constraint.

First, let us consider an example that shows how syntactic cues are used. The word كتب can be read as كَتَبَ /*kataba*/ which is the equivalent of to write in the read.PERF.3SG.M and كُتُب /*kutub*/ which refers to book.PL. As such, this form can be either be read as a verb or as a plural noun. Identifying the correct reading can be determined by the syntactic position of the word in a sentence and the function it fulfills (Subject, Verb, Object, etc.). A subject or an object position selects the noun form */kutub/* while the verb (as a function) selects the verb (as a form) */kataba/*. This type of processing is somewhat similar to guessing the form of *read* in an English sentence, note for instance*: I read a book* (past tense form) vs. *I have read a book*

(past participle) vs. *I read a book every day* (simple present). Syntactic cues are used in each of these examples to identify the suitable form and pronunciation.

In terms of semantic cues, take the example of *yaHillu*, an imperfective verb form with two meanings: *to resolve (a problem)* and *to come.* Evidently, syntactic cues do not help in identifying the correct form since both extensions of the graphological form are verbs. Instead, context bias relies on the semantic cues indicated by the clause. That is to say, the context of meaning selects one of the forms over the other.

The use of *tashkeel* is one of the distinguishing features between Modern Standard Arabic and Classical Arabic in ArabiCorpus, and in general: while CA texts typically include *tashkeel*, MSA has—to a large extent—discontinued the use. This could be due to the advent of typing systems which impose more effort of the typewriter to spell with *tashkeel*. That said, it is still common for both native and second language speakers of Arabic to misspell a word and re-parse a phrase or a sentence, similar to the parsing of a garden-path sentence[22] in English. For that reason, authors often add *tashkeel* over a letter or a word if they assess a high risk of misinterpretation.

3.3.2 Morphology of the Arabic verb

Arabic is based on a root system whereby the root of the verb is usually made up of three to five consonants and contains a basic meaning. Roots are generally mapped across different templates to obtain standardized word forms: imperfective vs. perfective verbs, active vs. passive verbs, verbal nouns, etc. (Ouali, 2018). As such, the verb form is derived from any root and is typically "represented by the same form of the root *f?l* which carries the semantic concept of 'doing'." (Bahloul, 2007, p. 31, *transcription adjusted to the code used in this monograph*). The derivation of Arabic

[22] These are constructions that cause mis-parsing and re-parsing due to their ambiguous structural composition. They include examples like *While Anna dressed the baby spit up on the bed* (Ferreira et al., 2001). What makes this latter example a garden-path sentence is the misinterpretation of the first dependent clause *While Anna dressed* and which is likely to be thought of as *While Anna dressed the baby.* This second reading makes the processing of the rest of the sentence impossible because the independent clause then will lack a subject. Compare [*While Anna dressed the baby*] [*spit up on the bed**] *VS.* [*While Anna dressed*] [*the baby spit up on the bed*]. The analogy is made here between garden path sentence processing which happens for syntactic ambiguity and the parsing of Arabic sentences that contain ambiguous words which can also result in a syntactic ambiguity. The reading experience is similar in that when speakers of Arabic misread a word in a sentence, they are usually forced to restructure the sentence by attributing a new form to the mis-parsed word in order to make sense of the sentence structure.

words and the addition of morphological inflections are based on a non-concatenative paradigm (McCarthy, 1981; Zanned, 2011). Non-concatenative morphology is inherent to "semitic morphology [and] is pervaded by a wide variety of purely morphological alternations internal to the stem" (McCarthy, 1981, p. 374). That is to say, while the Indo-European languages use a morphology that relies mainly on affixation, the Arabic system complements affixation with an additional non-concatenative system by means of which changes are made to the internal structure of the verb either by "vowel lengthening" or by "consonant reduplication" (Zanned, 2011, p.182). For instance, the root /ksr/ results in the perfective form *kasara* which translates to *broke* (break.PERF.3SG.M). Through consonant reduplication, an additional meaning could be added to the derived stem in the form of *kassara* which means 'broke multiple times' (break[multiple times].PERF.3SG.M). The reduplication of the /s/ indicates a frequency of action following the template of *fa?ala* (to do) and *fa??ala* (to do more than once, or excessively). This consonant reduplication substitutes in this case an adverb of frequency and is used with other verbs that share the same template (cf. Glanville (2011) for a study of the meanings of the different Arabic templates).

Table 11. Agreement variables with the Arabic verb: gender, aspect, number, and person.

Gender	**masculine**		**feminine**
Aspect	imperfective		perfective
Number	Singular	Dual	Plural
Person point of view	1st person	2nd person	3rd person

Inflectional morphemes attach to the root to mark gender, number, and person (Table 11). For instance, the PERF.3SG.M form *dahaba* takes a suffix /t/ to mark the PERF.3SG.F *dahabat*. Perfective forms as well as the active and passive participles can only be modified by suffixes while the imperfective forms can be modified by both prefixes and suffixes (Ryding, 2014). The present analysis will use a specific selection of Arabic verbs and will focus on the characteristics of the sample in due course (cf. Section 3.4.4 Selection of the Derivation Paradigm).

3.4 Selection procedures

So far, the notion of the verb form has been identified loosely as a conjugated verb. At this point, however, it is essential to pinpoint the component structure of a verb expression as used in this study:

- **Verb type:** with reference to verb typology, I use the COME and GO verb notations to refer to basic verbs that map onto basic human activities and which are presumably present across human languages (Newman, 2004).
- **Verb lemma:** the bare infinitive verb in English and the perfective form in Arabic which is usually used as a representation of the root in the literature.
- **Conjugated verb expression:** this is the verb resulting from a combination of the verb lemma, tense, and grammatical aspect systems (perfective/ imperfective, progressive/simple).
- **Queried verb expression:** the word or string of words that was or were used in the corpus search. The verb expression is more specified than the derived verb in that the former might include additional particles—usually justified for the purpose of targeting time metaphors and optimizing the search process. The terms verb expression and verb form are both used throughout the study. The verb expression is the most comprehensive term as it includes the verb form and any other linguistic entities, i.e. pronouns or prepositions.

Table 12. Illustration of verb lemmas, verb forms, and verb expressions.

	Verb type	Verb lemma/ root	Conjugated verb expression	Queried verb expression
English	GO	*go*	*went*	*we went through*
Arabic	GO	*/mrr/* (to pass)	*namurr* (pass.IMPF.1PL)	*namurr bi* (pass.IMPF.1PL=PREP)

3.4.1 Selection of verb lemmas

Generally, for a corpus to be representative, it needs to include "the range of linguistic distributions in the population" (Biber, 1993, p. 243). This statement has two implications: First, that an ideal sample corpus should include all the aspects of the studied phenomenon, and second, that it should be reflective of the frequency distributions of these aspects. In the case of EMTs, such evidence is not available. For example, there is no evidence on the range of distribution of MEs vs. MTs, nor on the distributions of the different types of verbs, temporal entities, etc. which, in part, could assist the estimation of proportionate sample sizes. For this reason, the study uses **diversity** as a **"proxy"** to **representativeness** as justified in Stefanowitsch (2020, p. 35): "[G]iven that representative corpora are practically (and

perhaps theoretically) impossible to create, diversity is a workable and justifiable proxy".

There are two ways to retrieve a diverse sample of EMTs from any source corpus: either by searching potential TEs (*year*, *time*, etc.) or by using verbs and, in both cases, selecting EMT lines manually. I opted for the second option for two reasons: First, to control the verb type, tense, and or aspect[23] which make up part of the comparative analysis paradigm. Second, to access a more diverse sample of EMTs presuming that the temporal entities make a larger semantic class than verb forms. That is to say, if we estimate the diversity of EMTs by the number of distinct EMT lines and presuming that the number of TEs that can occur within EMTs is larger than the number of verb forms, using the verb form as a search token increases the probability of accessing a larger variety of EMTs. This way, the verb form is the controlled variable while the TE is an independent variable.

Since there is no direct evidence that indicates the types of COME and GO verbs used within EMTs nor to their dispersion across ME/MT expressions, I chose a balanced sample of 50 lines per verb form. It is evident from the corpus analysis, however, that some verbs are used more often within EMTs than others, a point which will be elaborated on in the analysis chapter (Section 4.1). Nevertheless, following the standard set in Biber's statement, and its adaptation based on Stefanowitsch (2020), the primary objective of this study is to quantify the impact of the tested variables against a wide range of EMTs. Therefore, a variety of verb forms were used as a way to trigger access to a large (and randomized) sample of EMTs. The selection procedures of the verbs and the derivation patterns are presented in the subsequent sections.

3.4.2 Selection of the English verbs

The selection of the English verbs was informed by the following criteria:

First, they need to be strongly associated with EMTs. Second, each verb needs to indicate deictic landmark-related translational motion in that it should evoke a goal and a source landmark, respectively. This, in part, excludes manner verbs such as *fly* and non-deictic motion verbs such as *move* (cf. Talmy, 2000). The selected verbs should also be basic motion verbs with defined lexical aspects that can be mapped onto the stages of the schematic motion event later in the analysis. Finally, as an ensemble, the verb sample should cover all the motion phases from the schematic motion event (cf. Moore, 2016) which were identified in Section 2.2.2.2. Again, this procedure explains the selection of a sample, not a comprehensive

[23] Tense and aspect are relevant to English while Arabic temporality is based on an aspectual dichotomy of perfective and imperfective, hence the 'and/or' indication.

selection of the verbs used in EMTs. In fact, since both the derivation and the annotation paradigms are extensive, the selection of verb lemmas needs to be—to an extent—limited.

With these criteria in view, the selection of the English verbs was empirically deduced from the literature. More specifically, to identify the most used verbs in EMTs, I collected a sample of the illustrations from the literature so far and highlighted the used verbs. This method is, in turn, informed by Feist & Duffy's review of the examples of EMTs from the literature (2020). The retrieved corpus is based on four sample papers: Huumo, (2017), Kranjec (2006), Moore (2011), and Núñez & Sweetser (2006), and is made up of 203 lines including examples that indicate metaphors of time: TIME IS A LOCATION (*Summer is here*) and Motion Metaphors of Time: Ego-centered (*Summer is approaching/ We are approaching summer*) and field-based (*Summer follows spring*). The verbs were recorded from 63 EMT lines (Appendix A). The analysis identified the following:

> *to come, to approach, to race toward, to fly, to go, to pass, to leave, to reach, to creep up on, to go, to flow, to recede, to rush, to struggle through, to lurk/wait ahead.*

As anticipated, the usage frequency of these verbs is unequal. The quantitative analysis reveals the following distributions of usage occurrences: *to approach*: 57%, *to come*: 21%, *to arrive:* 5%, *to go:* 6%, *to pass:* 3%, *Other:* 8 %. Following this, the verbs selected for the analysis are *to come, to approach, to arrive, to pass, and to go.* The lemmatized frequencies of the selected verbs are shared in descending order of frequency in Table 13. A detailed distribution of the lemmatized forms and their usage frequencies is also available in Appendix B.

Table 13. Total frequency of occurrence for each of the selected verb lemmas in English, table adapted from COCA (Davies, 2008-), [Last accessed on 11/11/2023].

Verb lemma	Usage Frequency
[go]	3572906
[come]	1802250
[pass]	243962
[approach]	173790
[arrive]	99827

3.4.3 Selection of the Arabic verbs

The selection paradigm is motivated by two observations. First, there is very little literature on Arabic EMTs, so the first selection strategy cannot be applied. Second, the Arabic language contains a large inventory of COME and GO verbs (cf. Abdulrahim, 2013; Alhamdan et al., 2018). As a result, selection is necessary for practical reasons. The main purpose of this step, therefore, was to identify the Arabic COME and GO verbs that, on the one hand, are equivalent to the English verbs used in this study, and, on the other hand, are used frequently (in general and within EMTs).

As an alternative to analyzing the illustrations in the EMT literature, I followed the selection procedures by Abdulrahim (2013) and used the Frequency Dictionary of Arabic Vocabulary (Buckwalter & Parkinson, 2011) to identify suitable verbs. The Frequency Dictionary is one of the unique resources available for the quantitative inquiry of Arabic, among other uses. In the context of this study, it was employed to access the COME and GO verbs with high general frequency of use. Overall, the dictionary cites the 5000 most used words in Arabic based on a 30-million-word corpus. Each word entry includes 1) the word's meaning(s), 2) corresponding English equivalent(s), 3) an Arabic example sentence along with its English translation, 4) the raw frequency of use, and 5) a ranking index that ranges from 1 to 5000.

The selection procedure is as follows: First, I searched the selected English verbs: *to come, to approach, to arrive, to go,* and *to pass* using the find function and collected the Arabic counterparts that were associated with these English verbs. Then, I noted down the Arabic verbs linked to the pre-selected English ones. Subsequently, for each search result, I made a justified decision as to whether I will use or eliminate it.

Just as is in the case with the selection of the verbs in English—the aim here is not to make an exhaustive list of COME and GO verbs used in EMTs, but rather to find Standard Arabic verbs that are likely to be used with EMTs with both metaphor types: ME and MT. For this reason, the collected verbs were reviewed one-by-one, and the decision of whether to choose or eliminate them was made each time based on specific criteria. In other words, a verb was eliminated if it did not indicate:

1. Metaphorical motion of time in ME and MT metaphors, eliminating verbs that are reserved for motion of time only; for example, *Haana* (to occur of time only).
2. (prototypical) Deictic motion with an Ego in either a Figure or Ground position. This explains the exclusion of verbs like *saara* (to walk).

3. The meaning of **translational motion** or motion on a path as the basic meaning of the verb. These verbs are, in turn, unlikely to be used metaphorically with time within an EMT scenario. Verbs like *balagha* (to reach), *HaDara* (to attend), and *'aala* (to become) were eliminated on these grounds.

The details of the process are shown in Appendix C. It is also important to note here that I used the ArabiCorpus (together with my native speaker intuition) to verify my judgments by looking at example sentences and collocations for each verb. The 10 verbs included in this study were identified using this strategy and are as a result within the 5000-top frequency rank of use (Table 14).

Table 14. COME and GO verb ranking according to *A Frequency Dictionary of Arabic* (Buckwalter & Parkinson, 2011).

	Verb	Transliteration	Translation	Rank (descending)	Raw frequency	Dispersion
	COME verbs					
1	اقترب	*iqtaraba*	approach	1383	2475	89 (+ written literature)
2	أقبل	*aqbala*	approach	3263	613	72 (+ written literature)
3	قارب	*qaaraba*	approach	2851	742	81
4	جاء	*jaa'a*	come	109	26234	99
5	أتى	*ataa*	come	343	12231	90
6	قدم	*qadima*	come	3121	566	87
7	حلّ	*Halla*	arrive	3384	495	81
	GO verbs					
8	ذهب	*ḏahaba*	go	489	8703	90
9	مرَّ	*marra*	pass	510	7524	99
10	مضى	*maDaa*	pass	908	4502	89 (+written literature)

A detailed description of the meanings of each of verbs above is available in Appendix D.

3.4.4 Selection of the derivation paradigm

In line with the work of Feist & Duffy (2020a), the corpus data used in this study is comprised of "a set of naturally occurring uses of motion verbs for the expression of time" (p.450). Contrary to Feist & Duffy (2020a), however, the aim of this study is

not to look at the usage profiles of verbs of motion, but rather to use the latter to target a set of EMT expressions and then explore their grammatical, deictic, and metaphorical properties and compare the two languages under study. That is to say, while the primary **unit of examination** in the current analysis is the **verb expression**, the primary search **target** is **EMT expressions**. As a result, the present methodology is designed with the purpose of identifying verb expressions that return EMT lines following **a function-based approach to corpus query** by structuring the search around the structure of EMTs. This choice goes in line with Waliński (2020) who also followed a cognitive corpus-based approach to studying metaphors of time through "bring[ing] together the descriptive framework of cognitive linguistics …with the methodological workbench of corpus linguistics" (Waliński, 2020, p. 169). Waliński's methodology "combines searching for source domain vocabulary with searching for sentences containing lexical items from the target domain" (Waliński, 2020, p. 169). The present study adopts a similar approach by combining verbs of COME and GO motion with specific person/tense/aspect properties to look up specific types of EMTs. Person agreements are expected to target different types of EMTs: namely Moving Ego and Moving Time while agreement with tense and aspect are expected to highlight different segments of the schematic motion event.

Prior to presenting the specific hypotheses and the derivation paradigm for each language, two observations, one practical and the other theoretical, are important to note here:

First, the verbs under study are not exclusive to the expression of temporal motion; that is to say, each verb triggers several motion scenarios and hence, temporal motion can only be identified using manual selection. Nonetheless, although EMTs cannot be determined using a defined lexico-grammatical code or combination, the querying process can still be optimized by using search expressions that target more specified motion scenarios.

Second, EMTs are not equally used across the motion scenarios which are evoked by the verb expressions. This observation is in turn validated by the available literature as follows: One the one hand, some verb expressions are frequently used and might even be psychologically salient since they appear consistently in the literature. These include for instance, expressions like *we are coming, we are approaching, is coming, is approaching, will come,* etc. (Appendix A). On the other hand, some verb expressions are less frequently used or might even be semantically odd. These include examples like ?*we arrived (at summer),* ?*we approached (summer)*. This, in turn, poses questions about the level of entrenchment of these verb expressions and prompts hypotheses about the presence of constraints to their usage.

With these two observations in mind, the idea here is to replace lemmatized searches by a systematic derivation of search tokens using pre-determined criteria that include selections of subject-verb agreements and tense and aspect. That is to say, instead of investigating the verb lemma [COM] for instance and returning all possible tense/aspect/person derivations of the verb, using a derivation paradigm, I will query more specified search expressions such as *is coming* or *we are coming*, etc. This method thus optimizes the querying process by making the search more focused while it also controls some of the criteria of the motion scenarios.

The derivation[24] patterns are fundamentally **a categorical cross-tabulation of verb type with person and temporal agreements,** and, as such, the derivation of verb expressions is not just a tool to elicit search tokens. It is rather a (controlled) testing procedure that prompts specific aspects of the motion scenarios embedded in the verb expressions. In other words, the derivation procedure itself is a testing paradigm wherein the motion verb is the controlled or dependent variable, while the resulting motion scenario is the free or independent variable. More specifically, the derivation patterns are a means of triggering combinations of verbs of motion, (expected) Mover types, tense and aspect system to ultimately compare the resulting levels of usage salience of the derived verb expressions. At a macro-level of analysis, they also reveal important insights in relation to the organizations of the temporal systems in the respective languages; for instance, whether the system 'reserves' a grammatical category for tense or not, or whether the expression of progressive action is categorical or subject to contextual evaluation.

Overall, the derivation paradigm is set to test each verb lemma for ME and MT metaphors in three temporal configurations: past, present, and future of Ego on VT. The derivation paradigm is divided into two subsections: the subject-verb agreement patterns are shared in Section 3.3.4.1. Next, the temporal patterns that follow the organizational structure of each language system are shared in Section 3.4.4.2.

3.4.4.1 Subject-verb agreement

Most literature on Moving Ego and Moving Time metaphors treats these two categories with the same weight while their relative frequency of use remains—to a large extent—unclear. In a comparative corpus-based study of EMTs, Feist and Duffy (2020a) reported on the frequency of ME/MT expressions by testing a variety of COME and GO verbs in English and Spanish. The study observed "no difference in frequency" in Spanish while in English Moving Time metaphors were found to be

[24] The word *derivation* does not refer to the traditional meaning related to the study of morphology. By derivation here, I refer to the paradigm used to generate the verb expressions used as search tokens in corpus query.

"more prevalent" than Moving Ego metaphors (p. 2). This study seeks to add to the aforementioned observations by testing whether, based on corpus query then annotation, MT expressions are more prevalent than ME expressions or vice versa in the two tested languages, i.e., English and Standard Arabic.

As previously explained (cf. Chapter 2), ME and MT metaphors are "figure-ground reversals" (Moore, 2020). In other words, a ME metaphor describes the same scenario as an MT metaphor but with reversed participant roles: namely, the Figure and Ground entities. For EMT expressions that use a verb of motion, the type of metaphor can be identified in a paradigm that relates the semantic[25] role—Figure and Ground of motion—to the grammatical roles of subject and object. That is to say, provided the expression is an EMT using a verb of motion, if the Figure is a Temporal Entity, then the metaphor is a MT, and if the Figure is Ego then the metaphor is ME. Grammatically, in a MT, the Temporal Entity is in metaphorical Figure position which corresponds to the grammatical subject position as in ***Summer*** **[Figure]** *is approaching (us)* **[Ground]**, and in a ME the Ego in the Figure role maps onto the subject position as in ***We*** **[Figure]** *are approaching summer* **[Ground]**.

In the paradigm of this study, Ego in ME is either a HUMAN typically indicated by a pronoun or a noun phrase, or a GROUP that represents a collective group of humans like *the government, America,* etc. (cf. Abdulrahim, 2013, for the classification of subject semantic categories). Most importantly, in line with the work of Waliński (2020), this study paradigm also presumes that the **subject-verb agreement is associated with the type of metaphor**. Moreover, in line with the same study paradigm, the study uses the third- and first-person agreement, and, for verbs that do not show person agreement like *came,* or *will pass*, the verb expression is left uninflected for person. Evidently, there are hypotheses related to these choices in terms of the expected metaphor type to be returned by each agreement type. Further details are shared in the following subsections.

3.4.4.1.1 First-person plural

The first scheme refers to the first-person plural verb inflection accompanied by the first-person plural pronoun *we* and its equivalent verb inflection in SA: the *-na* suffix for a perfective form and the *n-* prefix for an imperfective form both of which mark the verb for a plural first person ME, uninflected for gender. This choice is, in part, informed by the examples in the literature where ME metaphors are usually exemplified with collective motion scenarios using the first person plural pronoun

[25] I use the terms semantic roles and grammatical roles following Langacker (2008, Chapter 11) to map the metaphorical structure to the grammatical structure.

we (cf. Appendix A). It is also established on the grounds that a great part of temporal experience is actually collective and shared.

3.4.4.1.2 Zero-inflection and third person singular paradigms

Two cases are considered here, as follows:

- In the case of verb forms that do not show agreement, I use the **verb uninflected for person, gender, and number**, e.g., *came* or *will come*. This type is mainly reserved for all the verb expressions which do not show subject agreement.
- In cases where agreement is used, which is the case for Arabic verbs and for many English verb expressions, I select a verb form that agrees with a **third person singular subject (3SG):** e.g. *is coming, yuqbil* (come.IMPF.3SG.M), *tuqbil* (come.IMPF.3SG.F), etc. In Arabic, I chose the masculine marking for the verb since the latter is necessarily marked for gender. However, I do not have any associated hypotheses regarding the relationship between gender marking and the type of metaphor.

Another important distinction needs to be made here concerning the agreement patterns of the verb in Arabic. In general, the perfective and the imperfective verbs in Arabic have separate agreement patterns. The perfective verb typically agrees with the subject person, number, and gender independently of its position using suffixation patterns. On the other hand, the imperfective verb uses affixation paradigms (both prefixes and suffixes) and shows an asymmetry of agreement patterns depending on the position of the subject, i.e. between **pre-verbal** vs. **post-verbal** subjects (Ryding, 2014). The description of this asymmetry is really extensive and goes beyond the scope of the present analysis (see Harbert & Bahloul (2002) for a syntactic account of verbal agreement in Arabic and Ahmed (2015) for morphological account of the affixation paradigm associated with both patterns). To keep the description brief and adjusted to the purpose of this study—mainly to the derivation paradigm of the queried verb expressions, the subject agreement with imperfective verbs can be summarized as follows: Depending on the position of the subject in the sentence, the imperfective can have different agreement schemes. If the subject is in pre-verb position, then the imperfective verb in the third person necessarily agrees with the person, number, and gender of the subject. If the subject is used in post-verbal position, then the imperfective verb in the third person does not have to agree with number, only in gender. If we apply this to the IMPF.3SG verbs to be considered in this study, then the latter are always preceded by a 3SG. subject but can be followed by a 3SG or 3PL subject as illustrated in examples 7–10, below:

(7)

الولد	يذهب
Yadhabu	*al-waladu*
go.IMPF.3SG.M	ART=boy
goes	the boy

'the boy goes'
The 3SG.M verb agrees with the 3SG.M subject used in **post-verb** position.

(8)

يذهب	الولد
al-waladu	*yadhabu*
ART=boy	go.IMPF.3SG.M
the boy	goes

'the boy goes'
The 3SG.M verb agrees with the 3SG.M subject used in **pre-verb** position.

(9)

الأولاد	يذهب
yadhabu	*al-awlaadu*
go.IMPF.3SG.M	ART=boys
goes	the boys

'the boys go'
The 3SG.M verb agrees with the 3PL.M subject used in **post-verb** position.

(10)

يذهبون	الأولاد
al-awlaadu	*yadhabuna*
ART=boys	go.IMPF.3SG.M
the boys	go

'the boys go'
The 3SG.M verb agrees with the 3PL.M subject used in **post-verb** position.

Expected metaphor types:

An EMT that uses a verb in the third person either agrees with a third person Ego or a singular Temporal Entity in the form of a Noun Phrase. To test the association between an uninflected verb form (in terms of person) and an MT metaphor and also the association between a third person singular and an MT metaphor, I piloted this

paradigm by testing a few verb expressions and looked at the returned metaphor types. Below are the first verb forms tested:

Table 15. Testing the ME/MT verb patterns: observed ME/ MT frequencies from the corpus query.

Verb expression (N= 50 tested lines for each verb expression)	Returned Frequency of ME lines	Returned Frequency of MT lines
was coming	0	50
is coming	0	50
will come	0	50
ya'tee **(come.IMPF.3SG.M)**	0	50
jaa'a **(come.PERF.3SG.M)**	0	50

Will come is uninflected for person agreement while *was coming* and *is coming* agree with a 3SG. All forms returned 100% MT lines. *Jaa'a* and *ya'tee* in SA are both inflected for person, number, and gender, and also returned 100% MTs. It is important to note here that both verb expressions can precede a plural subject as discussed above. This suggests an association between subject-verb agreement and metaphor type at an early stage of corpus query. Nonetheless, it remains plausible that certain verb forms could be used with ME metaphors, or they might even exhibit a strong association with ME metaphors.

At this stage, these primary results can be related to and partially explained by the lexical meaning of 'come' which might have a stronger association with MT metaphors than other verbs, like 'approach' and 'pass'. This, in particular, is related to the lexical preferences of a verb for a given subject over other types, or what is called the subject semantic category (explained in the next section). That is to say, if 'come' in both languages generally prefers a temporal subject over a human subject, then MTs are more likely to be found than MEs in a sample of 50 EMTs. On the other hand, if the verb prefers a human subject, it is expected to return ME metaphors, even when used in MT paradigms. These explanations evidently remain tentative, as the comparison of the expected metaphor rates to the observed rates can reveal more aspects for the verb form – metaphor type mapping.

3.4.4.1.3 Lexical preferences of verb lemmas: Subject semantic category

Whether a verb expression used within an EMT returns a majority of ME or a MT metaphor is, as stated in the previous section, subject to the verb preference towards a given subject semantic category or the types of subjects that a verb takes in general. The aim of this subsection is to provide a more comprehensive account of the notion of subject semantic categories

In a study that looks at the usage profiles of basic COME and GO verbs in Modern Standard Arabic, Abdulrahim (2013) identifies 18 subject semantic categories which she used to annotate the GO verbs: *ḏahaba, maDaa,* and *raaHa* and the COME verbs: *ataa, HaDara, jaa'a,* and *qadima*. The categories are as follows: TIME, ACTIVITY, ANIMAL, ATTRIBUTE, BODY, COGNITION, COMMUNICATION, CONTENT (of a documentary/ speech), DEMONSTRATIVE, EVENT, GROUP, HUMAN, LOCATION, NOTION, PHYSICAL OBJECT/ARTIFACT, SENSE, STATE, SUBSTANCE, and TIME. Different verbs have different preferences towards a subset of these categories, which in turn gives an idea on how specified or versatile a verb is based on its usage profile. Of the eighteen subject semantic categories indicated in the study, the most relevant categories for this study are the following:

- activity, e.g. 'voting', 'operations' 'attack' (Abdulrahim, 2013, p. 275),
- event, e.g. 'meeting', 'summit', 'lecture' (Abdulrahim, 2013, p. 276),
- time, e.g. 'season', 'time', 'day' (Abdulrahim, 2013, p. 276),
- group[26] "representing humans collectively", e.g. 'the government', 'the committee' (Abdulrahim, 2013, p. 276), and
- human.

The relation between the type of metaphor and the subject semantic category is as follows: A ME metaphor uses a human-related subject in the Figure/Mover position be it in the form of HUMAN or GROUP. A MT metaphor uses a time-related subject in the Figure/Mover position be it in the form of ACTIVITY, EVENT, or TIME.

Although the subject semantic category does not perfectly anticipate the derivation outcomes of a given verb lemma nor the usage frequencies of a verb form within EMT expressions, they nonetheless relate to both of these observations. From verb lemma to verb expression, two hypotheses are at play here:

First, a strong preference towards a semantic category related to time (be it in the form of ACTIVITY, EVENT, or TIME) as a subject correlates with the likelihood of the verb yielding MT metaphors with a TE as the Figure in subject position. For instance, the verb maDaa is found to occur with a majority of a subjects related to TIME (Abdulrahim, 2013, p. 68). If the same preference of a verb subject to (a) given semantic category(ies) transfers from general frequency to the frequency of use with

[26] According to Langacker (2008), "[t]he term experiencer alludes to mental experience, whatever its nature: intellectual, perceptual, or emotive. An experiencer is … sentient and normally human. In contrast, a mover can equally well be inanimate. It is defined straightforwardly as anything that moves (i.e. changes position in relation to its external surroundings)" (p. 356). In cases where ME is showing a GROUP in Mover position, the experiencer is a group of humans, but it is not animate or sentient. e.g. *Pakistan is passing through tough times and the economy is slow* [COCA, WEB, 2012]

EMTs, then it is expected that the EMTs inflected for 3SG will return a majority of MT metaphors.

Second, not taking into consideration a ME metaphor where the experiencer is not human as in ***[T]he United States*** *is approaching a period of violent upheaval.* [COCA, BLOG, 2012], a general preference to subject semantic categories related to humans be it in the form of GROUP or HUMAN can increase the verb preference for a ME metaphor with Ego as the Figure of motion in subject position. This indicates that, in general, the verb is likely to return a large number of corpus hits when inflected for a1PL. Also, it is expected for 3SG inflected verb forms used in EMTs to 'prefer' a human Mover to a temporal Mover. However, the tendency to be used in 1PL does not guarantee usage in EMTs as humans move towards all types of motion Grounds (physical locations, number thresholds, etc.). Still, this hypothesis can partially explain restrictions in the derivation paradigm. That is to say, some of the verb forms which are expected to return ME metaphors using a 1PL inflection, do not return enough corpus hits because the verb prefers a non-human Mover. In addition, some verbs using 3SG. return a majority of ME metaphors because the verb is associated with time-related subjects (ACTIVITY, EVENT, or TIME).

3.4.4.2 Temporal reference

So far, the analysis has for the most part combined the language systems under study, but it has not yet provided a systematic comparison of the former. For now, it suffices to say that a major point of distinction between SA and English is related to how the language systems represent and structure temporal reference. The upcoming two subsections provide an overview of the tense and aspect forms used in this study.

3.4.4.2.1 English

The selected tenses were identified with reference to the EMT examples in the literature. Five English tenses were employed in this study paradigm; they are as follows:

1. The simple present
2. The present progressive
3. The simple past
4. The present perfect
5. The simple future

Table 16. Derivation paradigm for searching English EMTs

	Past				**Present**				**Future**	
Tense/ aspect	simple past		present perfect		simple present		present progressive		simple future	
Subject agreement	NA	1PL	3SG	1PL	3SG	1PL	3SG	1PL	1PL	NA
(Expected) EMT type	MT	ME	MT	ME	MT	ME	MT	ME	ME	MT
Example *to come*	*came*	*we came*	*has come*	*we have come*	*comes*	*we come*	*is coming*	*we are coming*	*we will come*	*will come*

The rationale for using these tense and aspect forms is as follows: Simple tenses were used for the past, present and future. The present progressive is added as a highly frequently used tense/aspect combination in the literature. Of the progressive tenses, the present progressive stands out as a frequently used tense, hence its selection. Adding the past and future progressive would inevitably be relevant, but in order to keep the number of generated verb forms somewhat limited, they are eliminated. The present perfect was also found to be relevant due to its intuitive use in the literature on EMTs. This way, the selection somewhat simulates the illustrations provided in the scholarly metaphor models.

3.4.4.2.2 Arabic

Arabic temporality is based on an aspectual dichotomy, rather than a system of tenses. More specifically, Standard Arabic makes the distinction between the perfective aspect and the imperfective aspect, which are in turn related to complete and incomplete actions, respectively. Consider the following excerpt:

> The temporal forms of the Arabic verb are but two in … number, the one expressing a finished act, one that is done and completed in relation to other acts (the Perfect); the other an unfinished act, one that is just commencing or in progress (the Imperfect).
>
> Wright (1967, I.51)

A comparison of these verb forms Perfect and Imperfect—also termed as perfective and imperfective, which is the terminology adopted in this thesis—to the temporal systems of tense and mood in the Indo-European languages is as follows:

> En général, dans les langues indo-européennes, les notions de temps et de mode se présentent sous un aspect défini. Il peut arriver cependant qu'un même temps

> ou un même mode soit affecté à plusieurs usages. Ces faits sont néanmoins rares dans ces langues dont le système verbal est riche.
>
> Ils sont au contraire constants en arabe classique. Cette particularité a deux causes anciennes: 1° on retrouve souvent dans l'arabe classique 'des survivances d'un état d'indistinction' entre les deux 'aspects' du verbe arabe; 2° le verbe, à l'origine, en arabe comme dans tout le sémitique, n'exprime pas le temps situé (c'est-à-dire celui où se localise un procès par rapport à un autre moment du temps qui est celui où se place le sujet parlant), mais seulement le degré de réalisation du procès, dans le temps.
>
> (personal translation)

> Generally, in Indo-European languages the notions of tense and mood are presented with a defined aspect. Nonetheless, **it can happen that the same tense or mood is mapped onto multiple usages.** These cases are rare in languages with rich verbal systems [referring to Indo-European languages]. The latter occurrences are, however, consistently (frequent) in Arabic. This particularity has two established causes: 1) we often find in Classical Arabic 'survivals [some indicators] of a state of indistinction between the two aspects of the Arabic verb; 2) **the verb, in Arabic** as with the rest of the semitic languages, **does not express situational time [tense]** (that is to say the time where the process is situated with reference to a moment of speech where the speaker is located), only just the degree of **completeness/ realization** of the process, in time.
>
> Blachère & Gaudefroy-Demombynes (1952, pp. 245–246)

The statement above makes a few important observations: First, it presents the challenge of comparing Indo-European languages, like English to Arabic as part of the semitic language group. This challenge pertains mainly to fundamentally different temporal organization structures: On the one hand, Indo-European languages are tense/mood-based by virtue of the existence of defined grammatical categories that make tense and mood distinctions. Arabic, on the other hand, does not follow the same categorization of tense and mood. Instead, it relies on an aspectual distinction of perfect vs. imperfect which relates to the level of completeness or realization of a given action. While situational tense, or tense that relates the temporal reference of the verb to a given moment of speech, can be interpreted or inferred from the level of completeness of an action, the latter is not sufficient in most cases. That is to say, especially for the case of the imperfect, the verb form can indicate a large variety of temporal configurations: in terms of tense (present, past, or future), aspect (progressivity) and mood (indicative, subjunctive, jussive, or conditional). This last

observation that the perfect and imperfect cannot be mapped onto defined tenses was further supported by Wright (1967) in what follows:

> A Semitic Perfect or Imperfect has, in and of itself, no reference to the temporal relations of the speaker (thinker or writer) and of other actions which are brought into juxtaposition with it. It is precisely these relations which determine in what sphere of time (past, present, or future) a Semitic Perfect or Imperfect lies, and by which of our tenses it is to be expressed – whether by our Past, Perfect, Pluperfect, or Future-perfect; by our Present, Imperfect, or Future. The Arabian Grammarians themselves have not, however, succeeded in keeping this important point distinctly in view, but have given an undue importance to the idea of time, in connection with the verbal forms, by their division of it into the past (اَلْماضِى [al-maDi]), the present (اَلْحَاضِرُ or اَلْحَالُ [al-HaaDir or al-Haal which respectively translate to the present and the concurrent state]) , and the future (اَلْمُسْتَقْبَلُ [al-mostaqbal]). The first of which they assign to the Perfect and the other two to the Imperfect.
>
> (Wright, 1967, I:51)

In a way, the SA system selected the derivation patterns for this study. Contrary to English, the language system does not provide many conjugation patterns to choose from, and so, I chose to work with the available categories and elaborate on the latter in the interpretation sections.

Table 17. Derivation paradigm for searching Arabic EMTs.

Form used	**Perfective**		**Imperfective**		***sa-* + Imperfective**	
Subject agreement	3SG.M	1PL	3SG.M	1PL	3SG.M	1PL
EMT type	MT	ME	MT	ME	MT	ME
Example: اقترب *iqtaraba* (‘approach’)	اقترب	اقتربنا من	يقترب	نقترب	سيقترب	سنقترب
Transliteration	*iqtaraba*	*iqtarabna min*	*naqtaribu*	*naqtaribu*	*sa-yaqtaribu*	*sa-naqtaribu*

The two main forms that the SA verb, i.e. the perfective[27] and imperfective are derived from the root based on a fixed template (Table 17). These forms are also subject to affixation. Prefixes and suffixes, in turn, attach to the verb form and map onto relevant moods. There are four possible "mood endings" depending on the verb pattern, three of which are morphologically marked, namely the "*marfuu?* 'Indicative', *manSuub* 'Subjunctive', *majzuum* 'Jussive'" while the fourth type is morphologically unmarked, also called "*mabni* 'uninflected for mood'" (Al-Balushi, 2013, p.36, *transcription adapted to the present code)*.

Table 18. Types of moods and types of verb forms in SA.

Types of Moods	Types of Verb Forms
• indicative • subjunctive • jussive • imperative • energetic	• perfect • imperfect

The perfective is traditionally classified uninflected for mood or *mabni* while the imperfective generally can take any of the other three moods: the Indicative, the Subjunctive, and the Jussive (Al-Balushi, 2013). The perfective and the imperfective forms generated for the corpus search can fall into the different mood categories, which will be taken into account in the analysis phase. The collected EMT data in Arabic is thus based on an aspectual distinction and a variety of moods and tenses.

[27] The literature uses both terms 'perfect' and 'perfective'. The same goes for the 'imperfect' and the 'imperfective'. I opt for perfective and imperfective in the description of the two aspects that the Arabic verb can take.

Table 19. Verb expressions used in the corpus query.

	Verb expression		
	Arabic		**English**
1	*yamDee* (pass.IMPF.3SG.M)	**1**	*is coming*
2	*marra* (pass.PERF.3SG.M)	**2**	*arrives*
3	*maDaa* (pass.PERF.3SG.M)	**3**	*will come*
4	*yajee'* (come.IMPF.3SG.M)	**4**	*has passed*
5	*ataa* (come.PERF.3SG.M)	**5**	*came*
6	*aqbala* (come.PERF.3SG.M)	**6**	*comes*
7	*jaa'a* (come.PERF.3SG.M)	**7**	*has arrived*
8	*qaaraba* (approach.PERF.3SG.M)	**8**	*approached*
9	*Halla* (arrive.PERF.3SG.M)	**9**	*approaches*
10	*yaHill* (arrive.IMPF.3SG.M)	**10**	*is passing*
11	*iqtaraba* (approach.PERF.3SG.M)	**11**	*goes by*
12	*yaq'tarib* (approach.IMPF.3SG.M)	**12**	*has gone*
13	*saya'tee* (FUT=come.IMPF.3SG.M)	**13**	*will pass*
14	*ya'tee* (come. IMPF.3SG.M)	**14**	*is approaching*
15	*yamurr* (pass.IMPF.3SG.M)	**15**	*has come*
16	*sayamurru* (FUT=pass.IMPF.3SG.M)	**16**	*went by*
17	*dahaba* (go.PERF.3SG.M)	***17***	*passed*
18	*namurru bi* (pass.IMPF.1PL.=PREP)	***18***	*arrived*
19	*mararna bi* (pass.PERF.1PL.=PREP)	**19**	*we are approaching*
20	*naqtarib* (approach.IMPF.1PL)	***20***	*we went through*
		21	*we are coming*
		22	*we are going through*
		23	*we go through*
		24	*we approach*

Notes:

- For the most part, the corpus data is made up of 3SG.M verb expressions, but occasionally, the 3SG.F is used in cases where there are not enough corpus hits using the 3SG.M inflected verb form. The hypothesis that relates subject agreement to metaphor type (ME/MT) still holds in this case, namely that a 3SG.F inflected verb expression is expected to return a majority of MT metaphors.
- The Arabic and English verbs displayed Table 19 are not the equivalent of each other. They are just shown in parallel columns to save space. In addition, the index numbers are added to show the total number of verb expressions included in the study.

3.5 Corpus procedures

The corpus under study is the result of a fine-grained process of cleansing of the original corpus returns generated by the original corpora: COCA and ArabiCorpus (Figure 16).

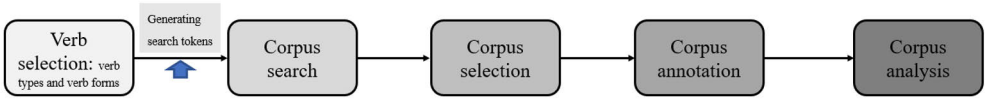

Figure 16. Corpus-based study paradigm.

Corpus cleansing refers to the identification of EMTs from the returned expressions of motion. This is followed by the annotation of the identified EMT lines and the elimination of repetitions. To make sure that I use the FAIR principles[28], I am presenting a clear, simplified, and detailed description of the data collection process; that is to say, the search tokens, the selection processes, and the treatments of the corpus data (Section 3.5.2 to Section 3.5.4). The previous section together with the following subsections follow the development of **query-cleansing-annotation** in order to clarify the criteria of the collected corpora. Additionally, I will present a critical comparative overview of the features of COCA and ArabiCorpus in Section 3.5.1.3.

3.5.1 Presenting the corpora: ArabiCorpus and COCA

3.5.1.1 COCA

COCA or the Corpus Of Contemporary American English (Davies, 2008) was used to look up EMT expressions in English. COCA is a mega-corpus that contains more than one billion words. The corpus is presented on the COCA homepage as "the only large and "representative" corpus of American English" (Davies, 2008-). More generally, the uses of corpora benefited from the development of statistical models that use textual data from corpora to explain usage patterns and build predictive language models. COCA, in particular, has proven to be a leading competitive corpus that is used extensively to study a large variety of linguistics topics including synonymy (for example: Jarunwaraphan & Mallikamas, 2020; Petcharat & Phoocharoensil, 2017) functions and constructions (for example: Azizah et al., 2020;

[28] Following the Data Management Plan (DMP) at the University of Turku. FAIR principles refer to data that is Findable, Accessible, Interoperable, and Re-usable.

Liu, 2012; Uçar & Yükselir, 2017), and metaphors (for example Alekseeva et al., 2013; Ding, 2021; Hu & Chen, 2015; Kuczok, 2016) among other topics.

COCA is also a "monitor corpus" (Davies, 2010, p. 447); that is to say a corpus that is updated regularly with more text. This property makes COCA stand out against other static corpora (ibid). COCA has been in use for more than a decade now and has developed from a few million words to more than 1 billion, to date. These words are divided among eight genres equally; namely **spoken, fiction, popular magazines**, **newspapers, academic texts, TV and Movies subtitles, blogs,** and **web pages.** Interestingly, even with such a large word count, some search tokens returned less than 50 lines, which can be taken as an indication of the low frequency of use of the search token overall.

COCA provides many tools and functions, but only a few are relevant to this study. I will therefore present the former by explaining the querying process of the English EMTs. The querying process starts by first inserting the search string and running the search. The search summary page shows the frequency of the search string in the corpus which also represents the number of concordance lines. The concordance lines are then copied and pasted onto the analysis sheet. Each line is presented in one column that highlights the search token in green. The concordance column is preceded by four columns that give information on the number of the line, the date, the genre, and a hyperlink to the source. Only the number of the line and the genre are kept in the analysis sheet as useful metadata. The expanded context is accessed by clicking on the concordance number on the corpus website. The former is usually an excerpt from the original source.

Access to the expanded context was sometimes needed in the annotation phase (post-cleansing), and it was possible for most lines to be checked in this study. Access was lost for very few lines due to the change in the indexical number (since the COCA is a monitor corpus and changes in the text volume interferes with the line numbers) or simply due to a lack of expanded context, albeit it is a rare occurrence. In this case, the line is discarded from the analysis sheet and a new line is added to conform to the number of annotated lines (N=50).

Another relevant feature for this study is the collocate with Part Of Speech (POS) tagging. The latter allows the selection of up to nine collocates before and after the searched token with a possibility of choosing the word category of the collocate. Although this study is not based on collocation analysis, additional analysis of collocates is also relevant because it gives a view that focuses on the combination of one verb form with a specific temporal entity and the type of person.

3.5.1.2 ArabiCorpus

ArabiCorpus is a "medium-sized" (Parkinson, 2019, p. 18) corpus that contains 173,600,000[29] words in five main categories or genres: **Newspapers, Modern Literature, Nonfiction, Egyptian Colloquial**, and **Premodern** (arabiCorpus, n.d.) The available Arabic variants are 1) Classical Arabic, mostly in older sources like old literature and Islamic discourse, the Hadith (reported sayings of the prophet Muhammad), and the Quran, 2) Modern Standard Arabic, in newspapers and modern fiction, and 3) Egyptian Arabic in Egyptian Colloquial.

While there is abundant literature that compares Standard Arabic to colloquial variants, Modern Standard Arabic and Classical Arabic are rarely compared. As such, it is safe to say that the scholarship on Arabic Linguistics does not make a clear-cut distinction between Classical Arabic and Modern Standard Arabic in terms of their metaphorical compositions. Subsequently, EMT expressions from both modern sources like blogs and newspapers which use Modern Standard Arabic and older sources like religious texts which use Classical Arabic are included in this study. Returns in Egyptian Arabic are, however, eliminated as the variant is different from Standard Arabic in both form and structure. In the case of EMTs, these differences are chiefly concerned with the motion verbs used. For instance, Egyptian colloquial does not use the verb *ataa* ('to come') while the same verb is used in Standard Arabic. Other verbs are used in Egyptian and not in Standard Arabic. These include, for instance, the verb *raaHa* ('to go'), the Standard Arabic equivalent for which is *ḏahaba* ('to go'). For this reason, the Egyptian Colloquial corpus has been eliminated from the study.

[29] This number was given as of October 2, 2021. ArabiCorpus is continuously growing, as a result the number of words is subject to change.

Table 20. Number of words in ArabiCorpus (arabiCorpus, n.d.), source: https://arabicorpus.byu.edu/instructions.php, accessed on January, 31, 2024.

Total number of words: 173,600,000
All Newspapers: 135,360,804
Al-Masri Al-Yawm 2010: 13,880,826
Ahram 1999: 15,892,001
ShuruqColumns: 2,067,137
AlGhad01: 19,234,228
AlGhad02: 19,628,088
Hayat 1997: 19,473,315
Hayat 1996: 21,564,239
Tajdid 2002: 2,919,782
Watan 2002: 6,454,411
Thawra: 16,153,918
Modern Literature: 1,026,171
Nonfiction: 27,945,460
Islamic Discourse: 27,365,915
Other Nonfiction: 579,545
Egyptian Colloquial: 164,457
Premodern: 9,127,331
Adab Literature: 2,073,071
Grammarians: 1,210,614
Medieval Philosophy/Science: 1,576,860
Hadith Literature: 3,624,346
Quran: 84,532
1001Nights: 557,908

One of the main reasons I selected the ArabiCorpus is because it is easy to use without any prior technical training. An alternative corpus is the Arabic Gigaword which provides more features but cannot be used without specified training. Although not a representative mega-corpus, ArabiCorpus is among the leading Arabic corpora used in corpus research on Arabic morphology, semantics, and grammar (Abdulrahim, 2014, 2019a, 2019b; Anizi & Dichy, 2009; Hashad, 2015; Lahlou & Abdul Rahim, 2020; Traboulsi, 2009; Waltisberg, 2012, among others). ArabiCorpus presents several tools and functions that allow for a relatively focused search. The latter are as follows:

The features of the basic search: To enter the search string, the platform gives a choice of either Arabic under the Arabic Chars tab or Latin script under the Latin

Chars tab. The search results can be limited using the 'part of speech' tool with a selection among five categories: nouns, adjectives, adverbs, verbs, and strings and/ or the 'corpus' function by choosing one of the corpora listed in the table above.

The features of the advanced search: The advanced search provides the additional features of including vowels and differentiating the initial *hamza* (glottal stop). Most of the queries in this research used the basic search tool, while the advanced search was only used to optimize the search results of a couple of search tokens.

3.5.1.2.1 Limitations

The features of a corpus are a function of its technical properties as well as the structure of the language it represents. As a result, some of the missing features in the ArabiCorpus are in part due to the aspects of the Arabic language. For instance, one of the main features absent from ArabiCorpus is the lemma-based searches considering the challenge of Part Of Speech (POS) tagging in Arabic. This, in turn, is due to what D. Parkinson called a "massive natural morphological/graphological ambiguity" (Parkinson, 2019, p.21). Graphological ambiguity is, in part, explained by the shared spelling of different words (verbs, nouns, adjectives, etc.) and emphasized by the lack of vowel marking in written Arabic, both of which make the automatic distinction between different words almost impossible. An example of this is the word كتب /*ktb*/ which can be read as a 3rd person singular perfective verb form *kataba* (write.PERF.3SG.M), a third person singular passive verb form *kutiba* (write.PASS.3SG.M), and a plural noun *kutub* (book.PL). This example is categorized by the corpus as both a verb and a noun.

Although a perfect distinction of word categories, in general, and verbs/ nouns, in particular, is impossible, it is nonetheless improved based on the use of affixation. For instance, only nouns take the definite prefix /al-/ which is the equivalent of the English *the*. Going back to the example above, if we use the word /ktb/ as a search string and choose the "part of speech" category "verbs", the form *al-kutub* (the books) is eliminated.

Mixed search results are not just limited to the process of query and cleansing. Another implication relates to the accuracy of the collocations which relate to all generated verb forms. As such, if the search token is 'read' by the corpus as multiple unrelated forms, collocation-based generalizations are limited. Another limitation relates to the frequency of repetitions in corpus returns. Arabic discourse uses Hadith (the Prophet's reported sayings) and verses of the Qu'ran as evidence for different speech situations. As a result, the corpus returns contain many repetitive lines from both sources.

A final area for improvement is the waiting time of the corpus query. The latter is relative to the size and distribution of the corpus returns. This usually makes the querying process of some strings too long, taking up to one minute or more.

3.5.1.2.2 The querying processes

The search instructions are simple: First, the search string is typed using Arabic script in the Arabic Chars box. To optimize the search process, I used the Part Of Speech and Verb Forms functions. In so doing, I created verb inflected patterns and used them as search strings while choosing the category Verb for single verb tokens, and String for verbs with separate prepositions or pronouns. Finally, I chose the category All[30] under the corpus tab to include all the available genres and thus generate language-specific generalizations and eliminate genre-specific bias, albeit to a limited extent taking into consideration the unbalanced composition of the corpus itself.

Even in case the part of speech category is used, the corpus search returns other word categories than the one selected, so to restrict the search results and optimize the cleansing process, I used the Word Forms function which shows the different iterations of the searched token and their frequencies. I then selected the verb form that is identical to the search token for cleansing. This strategy makes the search more focused, but at the same time limits the search results by eliminating other person inflections (feminine, dual, etc.), coordinating conjunctions like *fa-* 'so' and *wa* 'and', the article *al-* 'the', etc. In case the corpus returns from the cleansed word form were not sufficient, I went back to the list of word forms and chose an additional form—particularly the one with the same category and the most similar morphology and which came second in frequency to the first selection.

3.5.1.2.3 The presentation of the corpus returns

The returned concordance lines are segmented into three main parts: the search string in a column in the middle, the words before it in a column on the left, and the words after in a column on the right. This particular division was useful for the annotation process particularly as it was easier to visually locate the TE in the sentence and it was also easy to automize the process of TE identification by using the flash fill[31] function in MS Excel. Each search string is given in the context of a sentence,

[30] It is possible to make a search in the largest category 'All' or in one of the sub-genres.

[31] The flash fill function estimates the contents of the TE column based on the pattern of manual filling. This in part is based on the location of the TE in the sentence. Usually, the TE refers to the 2-3 words that precede the queried verb expression.

specifically within a contour of ten words before and ten words after. The search results are divided into 100 lines per page, and the full citation is available by clicking on the indexical number of each line. The name of source (title of the newspaper, book, or blog) is presented on the far-right column under the heading Subsection. The returned lines can also be classified alphabetically either by word before or by word after. Since it is usually easy to predict the position of the TE in a sentence – an observation that was verified in the analysis – I had to select the classification order accordingly. More specifically, if the TE is positioned before the search string, the search results are sorted by the word after and vice versa. This choice was made in order to randomize the search returns and analyze a variety of TEs that are not represented in alphabetical order.

In order to save the corpus returns, the ArabiCorpus gives the option of downloading the latter onto a text file using the Download Citations function. However, if downloaded this way, the lines are kept without the index number and access to the context is lost. For this reason, I did not use the Download Citations function and instead, I opted for copying and pasting to keep the original numbers.

3.5.1.3 ArabiCorpus vs. COCA

The most outstanding difference between the two corpora is the respective number of words and the scope of representativeness. In the specific case of this study, the limited corpus size impacts the number of tested search tokens. From a comparative perspective, several search tokens are available in English and not in Arabic. Some forms, however, are absent in both corpora which suggests that the derived verb forms are not frequently used in general and in EMTs. The search also shows that MT forms are generally more frequent than the ME forms in both language systems. Even within MT forms, however, there is a large variability of distribution. The latter will be explored in the analysis chapter by analyzing the frequencies of EMTs within a verb form (dividing the number of EMT lines by the number of cleansed lines).

Another important point of comparison relates to the number of sources, and their respective registers. Table 21 gives a comparative overview of the sources. While newspapers are the leading source in the ArabiCorpus (63%), they are overall more constricted than the COCA, not just in the number of words, but also in the types of sources and respective registers. Missing registers include academic journals, spoken language, and web pages. Blogs, however, are included in the ArabiCorpus under the non-fiction category. It is difficult to predict the impact of this on the analysis paradigm of the present study since little is known of the use of EMTs across registers and channels.

Table 21. Distribution of sources in ArabiCorpus and COCA.

COCA	Frequency of words	ArabiCorpus	Frequency of words
Newspapers	123 million	Newspapers	135 million (63%)
Fiction	120 million	Premodern	9 million
Popular Magazines	127 million	Modern Literature	1 million
TV/Movies subtitles	128 million	Hadith and Islamic discourse	30,9 million
Academic Journals	121 million	Quran	84,532
Blogs	125 million	Premodern	9 million
Web pages	130 million	Non-fiction	Around 28 million
Spoken	127 million	Egyptian Colloquial	164,457

As for the search process, the testing of different verb expressions in the ArabiCorpus is found to be time consuming because of the waiting time. However, the free access in the COCA also limits the number of searches and posits waiting time between searches which is also a limitation to the search trials. Finally, using lines from both corpora could be made much more convenient by providing other download options on CSV and XLS file formats.

As stated above, for both languages, each individual verb is searched then concordance lines are copied into a separate sheet and selected if they express a motion metaphor of time and discarded if they do not. The index numbers from COCA and ArabiCorpus are kept to enable access to the expanded context when needed. For each verb form, the first 50 corpus hits that express EMTs are analyzed based on a specific annotation frame. The metadata kept in the sheet includes saved information about the type of search, search time, date of access, date of annotation, number of corpus returns, part of speech, selected word form, and type of corpus to manage the annotation of 44 different sheets, keeping these records allowed me to cleanse more lines if needed and to verify the annotation of the corpus (Figures 17 and 18).

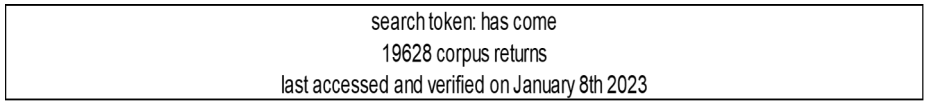

Figure 17. Summary of search results (COCA)—example of the verb form ‘has come’.

BASIC SEARCH; CorpusName =All, search string: قارب — qArb- WORD FORM search
database: All, search time: 62 seconds
part of speech: verb; search part of speech: verb
total number of occurrences: 12,011; 6.92 instances of قارب per 100,000 words in All.
Word form, 921 corpus returns, sorted by word before, collected on December 26, 2022
last accessed and annotated on January 15 2023

Figure 18. Summary of search results (ArabiCorpus)—example of the verb form qaaraba ((it) approached).

3.5.2 Corpus cleansing: Identifying EMTs from expressions of motion and defining TEs

Each verb expression is used to perform a basic search. The number of returns varies depending on the frequency of use of the verb form relative to the corpus. In Arabic, I start with a basic search using the Arabic search string. However, because the short vowel system is by default not written, some verb forms can be confused with other forms. For instance, *Aqbala* (arrive.PERF.3SG.M) can be confused with *Aqbalu* (accept.IMPF.1SG) because they are both spelled أقبل. The process of data selection stops once there are 50 EMTs, excluding repetitions. I organized my data in excel sheets: First, I kept the construction index number as per the original corpus, so each construction has two index numbers: one that describes its position within my corpus and the other that describes its position within the original (mega)corpus. Then, I applied the data framework by manually annotating my data. The excel workbooks were then finally imported to R for the application of the statistical analyses. In cases where the corpus returns in general or EMTs were below 50, the analysis of a given verb expression was eliminated due to limited frequency of use within metaphors of time which, in turn, makes it difficult to draw patterns of use.

3.5.2.1 Identifying EMTs

The primary challenge in conducting a data-driven study of Ego-centered Motion metaphors of Time is identifying this specific type of metaphorical motion among others. Feist & Duffy (2020) used a similar approach to identify what they termed as TEMPORAL MOTION or the "use for which the medium through which motion takes place is time" (Feist & Duffy, 2020b, p. 12) in their own corpora. As they observe, it is important to develop criteria that distinguish expressions of motion metaphors of time from motion of other entities that occur in time,[32] since, according to the

[32] Huumo (2018) and Moore (2014) raise this question of time and motion; notably that time is part of all motion and that even motion of time happens in time.

same source, "changes in time are part of all motion" (Feist & Duffy, 2020b, p. 12). For this reason, the cleansing phase started with distinguishing motion metaphors of time. The latter is chiefly dependent on how we define the temporal entity (TE). For that, I set specific characteristics of a TE in both MEs and MTs.

The following categories have been identified and excluded. These include any subject or object the ontological nature of which is not 'purely' temporal:

- place for time, e.g. *The long-awaited shopping center has arrived.* This subject is at the same time a metonymic TE that refers to the event of the opening of the shopping center. Alternatively, it can also be seen as "site arrival" type of fictive motion (cf. Talmy 2000a, p.135).
- Sensory experience: e.g., *November's cold has arrived.*
- A baby, e.g. *The baby is coming.*
- A government, a movement, or a person's rule, e.g. *Blaire's government is coming.*
- Physical beauty: e.g., *Physical beauty is passing.*
- State or status: *rock star status, we will go from strength to strength* (STATE TO STATE)
- Generation(s): *The following generation will soon come.*
- A movie/ series episode: e.g. *The new season of Games of Throne is coming.*
- A weather event (unless there is a temporal indicator that makes it refers to a temporal event, not the physical entity)
- Example*: A hurricane is approaching*: excluded
- Example: *When the rainy day arrives, they panic*: included
- Article/ book/ etc.: upcoming articles, sections, etc.
- Stage, stage of development: Purposeful Activity (PA) metaphor (to be explained in the next section)

3.5.2.2 Purposeful Activity metaphors

ME metaphors are classified under motion metaphors of time (MMTs) while Purposeful Activity metaphors (PAs) are under event-structure metaphors (Moore, 2014, Chapter 4). An event-structure metaphor "depicts events, causes, changes, states, actions, and purposes in terms of motion and location" (Moore, 2014, p. 46) from earlier to later. PA metaphors are particularly concerned with Ego's motion

towards a purpose, as in for example *I have not yet finished, but I am getting there.* Here, *getting there* refers to the state of finishing the activity at hand. In other words, Ego is moving towards the end of the activity.

However, once the purpose is replaced with a TE, the type of metaphor changes. For instance: *The month is not yet finished, but we are getting there*. Here, Ego is moving towards a time marked by a calendric reference; that is *the end of the month*. Consequently, this example is a ME metaphor.

Besides the ontological nature of the motion Goal, a purpose or a TE, Moore (2014) notes another difference between ME and PA, particularly related to Ego's achievement to 'move' towards the end of an activity, a condition that is not relevant to the motion towards time. To put it in Moore's words, "ego only moves forward if she achieves (or partially achieves) a purpose, whereas in the latter ego necessarily moves forward no matter what happens" (p. 48)

Now that the distinction between PAs and MEs is explained, it is important to note the possibility of reading the same expression as a PA and an ME at once. Going back to the example *I have not yet finished, but I am getting there,* if getting there is not thought of only as the finishing phase of an activity, but also in reference to a time at which the work will be finished then the expression can be read as a ME metaphor (Moore, 2014, p.49).

I personally realized the difference between PAs and MEs in my Ph.D. experience: For the first three years of my PhD candidature, I used to refer to the end of my PhD in statements like *I am approaching the end of my Ph.D*. as a PA metaphor. The end of my candidature meant the end of my research activity once my corpus is annotated and my thesis is written, but I was not relating the former with any specific time or date. In my last year of Ph.D., with a deadline set for my work to be submitted, the same statement was a ME with *the end of my PhD* referring to *the end of June 2024*.

In terms of corpus annotation, most PAs are kept in the sheet, but eliminated from the annotation by filling the annotation cells with an NA value, unless the purpose in the expression can be metonymic of a time. In that case, the expression can be understood both a PA and an ME and then the goal of motion is a TE.

3.5.2.3 Repetitions

Three types of repetitions are signaled here.

Repetition of the line: All exact repetitions are eliminated from the analysis and discarded from the sheet. The corpus is made of 2200 different EMT lines.

Repetition of TE and the experiencer type: This is considered as a repetition. For instance, the expressions *Summer will come soon* and *Summer will come early*

this year count as one example. The first is annotated and the second is not, but rather color-coded and kept in the sheet.

Repetition of the TE: If the same TE is used with a different experiencer, then the two utterances are annotated for EMT and experiencer type only while the type of TE is not annotated, and the TE cell is color coded in blue. For instance, *RamaDaan will come to me with good news* depicts personal experience vs. *RamaDaan will come soon* depicting a collective experience. This is to ensure that the classification of TEs is made based on distinct TEs. This also allows us to see the collocational aspects of the verb expressions.

3.5.2.4 50 observations: Sample size

One of the primary goals of this study is to explore Ego types in EMT expressions. I chose sample of equal sizes in order to control the frequency of EMTs per verb form and thus make statistically balanced comparisons among verb forms and cross-linguistically. This approach, in turn, ensures that my observations are based on the same proportionality of EMT lines. That said, however, it is important to note that some verbs and some verb forms were found to be more frequently used with EMTs while others were more polysemous, which lengthened the cleansing phase.

A corpus line in the paradigm of this study represents an observation of an EMT that uses a particular verb expression. Initially, the sample size per verb form was set to 100 lines. However, for practical reasons related to cleansing and annotation, and considering the substantial number of tested verb expressions, I adjusted the sample size to 50.

3.5.2.5 Annotation frame

The goal here is to identify annotation categories that can help analyze the deictic nature of EMTs and that address the research questions. The following sections give a detailed description of the annotation variables and a thorough account of the coding process. In so doing, I have two main goals: First, to clearly state the categorical definitions applied to the corpus data. Second, to make the coding guidelines explicit. This, in part, is important to verify the reliability of the annotation, on the one hand, and to make this study reproducible, on the other.

3.5.2.5.1 Variable 1: Type of Ego-centered Motion metaphor of Time (EMT)

As previously noted, the categories ME and MT have been identified across the different descriptive models on EMTs. In annotation, ME is canonically identified

through the use of an Ego subject that marks the Mover, usually in the form of either a pronoun or a Noun Phrase and MT with the Temporal Entity in the subject position.

3.5.2.5.2 Variable 2: Type of Temporal Entity (TE)

Admittedly, the early phases of annotation were limited to the types of metaphors and experiencers. This classification emerged after the beginning of annotation and was motivated by an observation and a hypothesis: The observation relates to the fact that interchangeable[33] verb expressions relate to different types of TEs. For instance, some verb expressions are used more with times from the calendar while others with events. From this, I presumed **a correlation between the type of TE and the verb expression**. If this holds true, then TE types are also related to metaphor types and to different temporal configurations (provided by interactions of tense and aspect) over others since the verb expression represents tense and/or aspect and expected metaphor type together with motion properties.

Following this, the aim was to create a division of the TEs found in the corpus, thus providing a better representation of time in EMTs and making it possible to quantify its effects on the grammatical and metaphoric compositions of the EMT expression. For the purpose of creating an analysis of the different temporal entities, it is important to define a categorization that can serve to classify any given TE in the data. These categories are partly data driven and partly drawn from literature.

Literature-wise, the present analysis is specifically inspired by the distinction made in Moore (2014) between times and events in what follows:

> …At this point it is appropriate to ask why the mappings are stated in terms of *times* rather than *events*. The reason is that these metaphors can be used to talk about times abstracted from events …For example, … the concept of *Christmas*, involves a regularly recurring entity (i.e. a time) that is defined by means of a calendar …The occurrence of a time is understood to be inevitable independently of any event that is supposed to occur with the time. For example, *Christmas* is understood to come on the 25th of December no matter what happens as long as we have the current calendar. This condition also applies to situations in which the time in question is not defined by a calendar. For example, if the day of the wedding arrived and the wedding did not happen, we could still say that the day of the wedding arrived. **Linguistic structures that are used to talk about time abstracted from events may also be used to talk**

[33] The notion of 'interchangeability' will be explained in Chapter 4. For now, we take interchangeable verb expressions as expressions that highlight similar motion scenarios and are intuitively interchangeable, for instance, *jaa'a* and *ataa* (come.PERF.3SG.M).

> **about time not abstracted from events** …as in *The rain is coming*. This involves a metonymy in which an event stands for the time of the event. For example *The wedding is coming* can mean *The day of the wedding is coming*. These phenomena involving metonymy and event-based time play a role in the experiential bases of metaphors ...
>
> Moore (2014, pp. 12–13)

The quote above shows that EMTs can involve times or events which are related, but different: *Times* are represented as points or periods of time from the calendar while *events* are metonymic relative points or periods of time usually characterized by a specific personal or shared happening of some sort. Following this observation, the main criterion of categorization is the connection of TEs to **the calendar.** Three levels are identified here:

1. Calendric TEs refer to the set of TEs that express calendric times. Calendric references include 1) calendric units: such as years, months, days, hours, etc., 2) calendric landmarks like January, Christmas, winter and 3) defined dates like 2023, the day of the meeting, etc.
2. Anchored events comprise all the shared cyclical and personal planned occurrences like meetings, elections, weddings, etc. "I define the count noun time as 'when something happens or could happen'." (Moore, 2011, p. 4) These can be planned, anticipated, or sudden but are most importantly related to the calendar.
3. Non-anchored events are times that are not related to the calendar at the time of speech. They include unbounded TEs like the future, the past and hypothetical or imaginary times like good times, a moment of truth, etc. They also involve imaginary anticipated events like disasters, wars, etc. Non-anchored events are more difficult to characterize using well-defined properties, and so they are identified by elimination to include any temporal entity that does not describe a calendric time or an event.

3.5.2.5.3 Variable 3: Type of experiencer (EXP)

The type of experiencer is in focus here, looking at who is experiencing the temporal passage in the EMT. The classification of experiencer types is based on the identification and distinction of Ego and the speaker. More specifically, this study looks at a continuum of deictic references or personas in order to determine the differences among types of experiencers and deictic categories included within a deictic expression; namely, personal, collective, shifted, and virtual experiencers (Figure 19).

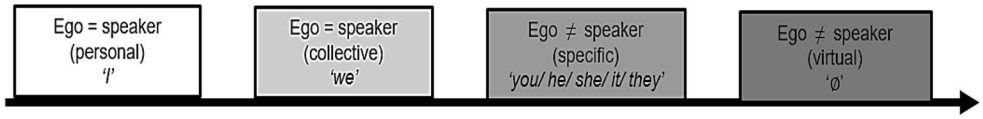

Figure 19. The continuum of Ego experiencers.

Based on the comparison of Ego the experiencer to the speaker, the EXP category can be one of the following values:

1. *The collective experiencer* is inclusive of the speaker and a broader community and is likely also to include the addressee (Table 22). In ME, it is typically encoded with the pronoun *we* in English and the prefix *n-* in an Arabic imperfective verb or the suffix *-na* in a perfective verb. In a MT expression it can either be explicit or implicit depending on whether the Ground Ego is encoded or not.
2. *The personal experiencer* marks the identification of Ego and the speaker as in *My birthday is coming*. This also includes small-scale shared experiences as in *Our wedding is coming* or *We are approaching our wedding*. Personal experiencers in subject position are explicit—usually encoded with either the singular or plural first-person pronoun. In the case of a personal experiencer encoded with a plural subject, the type of experiencer is determined based on the types of TE and validated with the preceding or following clause within a corpus line. This is particularly useful because *birthdays, weddings, exams, meetings*, *etc.* are personal events and so they are experienced by a limited number of people who are involved in the event.
3. *The shifted experiencer* is the only category that marks exclusive reference; that is to say, the speaker is not a participant in the experience of temporal motion and so, Ego is different from the speaker. Grammatically, when used in a ME metaphor, a shifted experiencer is encoded using third person pronouns that exclude the speaker from the experience (singular or plural) or by using Noun Phrases that identify the experiencer. In MT metaphors, a shifted experiencer can be explicit or implicit. In either case, the annotation is based on a clear indication either within the same EMT clause or in the preceding/following clause as in this example ***School leaders*** *had seemingly found their choice of technology. But next came* ***more challenges****. Here the board members, parents, teachers and staffers felt much like innovators.* [COCA, BLOG, 2012] The testing of shifted experiencer type is limited, in part, by the derivation paradigm of the verb expression, namely the ME paradigm. Nonetheless, it is still possible to identify cases of ME metaphors with a shifted experiencer using the MT verb expressions as in the preceding example.

4. *The virtual experiencer*, also referred to as "decentered", or "imaginary" (Moore, 2016) refers to an imaginary experiencer which does not specify any Ego identity at the time of speech, and which refers to any possible experiencer. A virtual experiencer was identified thanks to either an indefinite noun or a pronoun like *anyone, all, etc.* or as it can be implicit it was identified in case of a generic motion event like definitions or general descriptions of temporal motion, etc. as in *The past refers to a time that has gone by*. Although virtual experiencers are the least frequent in the corpus, the discussion of virtuality is of great value to this study.

Table 22. Types of experiencers.

Shifted experiencer	**Exclusive** reference: the speaker is not a participant in the experience of temporal motion.
Personal experiencer Collective experiencer Virtual experiencer	**Inclusive** reference: the speaker is/ can be a participant in the experience of temporal motion

3.5.3 Corpus annotation

Overall, this study examines the usage properties of Ego-centered Motion metaphors of Time (EMT) based on three variables. They are 1) the syntactic-semantic and "deictic" composition of the verbs, 2) the 'veridical' tense/ aspect system, and 3) the properties of the Ego-centered motion scenario. Since the two first variables are contained in the verb expression used as a search token, they are constant across each corpus sheet and so they require no line-by-line annotation. The categories developed for annotation—or the annotation frame—are, therefore, mainly concerned with the third variable: the properties of the EMT expressions (Table 23). As a reminder, the latter is divided into three main categories: 1) the type of EMT: Moving Time or Moving Ego, 2) the type of Temporal Entity used within the EMT expression: calendric references, anchored events, and non-anchored events, and 3) the type of the deictic experiencer: personal, shifted, collective, and imaginary.

These categories are all "**taxonomic**" meaning that they create a "subdivision into kinds" (Tversky, 2014, p. 334). They are also all **mutually exclusive** and **discrete**; that is to say, only one sub-category is chosen at the time and tagged with 1, if selected and 0, if not. For instance, a TE is either calendric reference, an anchored event, or a non-anchored event. This choice was made on statistical grounds; to make sure that the contexts calculated for each use are unique. The annotation aims at providing a quantified representation of EMT usage. In this sense, each category represents one of the contextual features and, together, the used categories provide a quantitative data frame for the analysis.

Table 23. Annotation frame.

Type of EMT	Moving Ego	0/1
	Moving Time	0/1
Type of TE:	TE= calendric	0/1
	TE=anchored event	0/1
	TE= non-anchored event	0/1
Type of Experiencer	Personal Experiencer Speaker = EGO (*I*)	0/1
	Shifted Experiencer Speaker ≠ EGO (*he, she, it, they*)	0/1
	Collective Experiencer Speaker < EGO (*we*)	0/1
	Imaginary Experiencer ∀ EGO ('anyone', 'all')	0/1
Temporal Entity	TYPE TE	text
Additional comments	TYPE COMMENT	text

			ME	MT	TE=calendric	TE= anchored event	TE=non-anchored event	Deictic Experiencer	Shifted Experiencer	Collective Experiencer	Indexical Experiencer	TE=	comments
31	BLOG	the project, that it would be " our monument. " # When August **came**, though, Goode caught a summer cold. At first it seemed only to	0	1	1	0	0	0	0	1	0	August	

Figure 20. Example of an annotated line from COCA. The searched verb expression is in bold. Column description from left to right: indexical number of the EMT line from the source corpus, Register (only available in COCA), corpus line (EMT expression usually preceded and followed by a clause or two), Variable 1: Types of metaphor (ME and MT), Variable 2: Types of TE: calendric, anchored event, non-anchored event, Variable 3: Types of Experiencers (EXP): deictic personal, shifted, collective, and indexical, TE (column for typing the observed TE), comments.

			ME	MT	TE=calendric	TE= anchored event	TE=non-anchored event	Deictic Experiencer	Shifted Experiencer	Collective Experiencer	Indexical Experiencer	TE=	comments
90	الربيع ببهجته وإشراقه.. لنتأمل قليلا فيما حولنا من إبداع ولنسمح	وأقبل	0	1	1	0	0	0	0	1	0	الربيع	

Figure 21. Example of an annotated line from ArabiCorpus, similar description to the example from COCA. The main difference between the two is that the corpus line is divided into two or three columns where the verb expression is separated from the preceding and following words depending on what the corpus returns. The second difference relates to the register which is not provided by the ArabiCorpus.

Since the categories used for the analysis cannot be coded automatically and are based on interpretation, I annotated the corpus lines manually. Manual annotation—as opposed to automatic and semi-automated annotations—can be defined as "the task of reading a particular preselected document and providing additional information in the form of the so-called annotations" (Neves & Ševa, 2021, p. 146).

The steps of the annotation process are as follows: First, the verb forms were generated based on the derivation patterns described in Section 3.4.4 Next, they were saved onto a master sheet and color coded based on their status: *not available* (in corpus search), *not started yet*, *cleansed*, or *annotated*. Each of the available search tokens was processed on a separate Excel sheet: First, the corpus lines were retrieved and cleansed, and then coded based on the constructed annotation frame. In addition to numerical coding, this study built a corpus of TEs used in EMTs and annotated them based on their relation to the calendar by recording the TEs in a separate column. In addition to that, comments about the annotated lines were added in a separate column. The former includes notes about the grammatical composition of annotated lines, the relation between the types of TE and experiencer, in addition to specific notes on temporal and lexical meanings of verbs. Important examples were also recorded on a separate sheet and reserved for the data analysis section. This way, **the annotation process is a space for triangulating quantitative data with qualitative descriptions**.

Arguably, the most important aspect of annotation is consistency. A consistent annotation means that the generalizations made based on the frequency and other statistical analyses are solid. To ensure consistency of annotation, I first of all started with a pilot of 200 lines which I shared with my thesis advisors for review and feedback. Following this, I reviewed the categories, especially the type of TE and defined specified features for them. The (few) ambiguous cases were also recorded in a separate annotation log to ensure that I assign the same values the same entities across sheets. They have all been noted in the annotation log and coded uniformly. This, in part, helped me determine the properties of TEs and experiencers. Repetitions were eliminated with a NA mark in annotation but kept on the sheet and color coded in blue.

It is important to note that sometimes the expanded context was needed to decide the type of experiencer. In those cases, I used the index number coming from the corpus to access the line in question. The types of EMTs and TEs are generally determined using the generated lines, but the type of experiencer sometimes needs more context to be determined, especially in cases of plural subject that can indicate either a personal or a collective experiencer.

3.5.3.1 Annotation of TE types

The collected TEs are divided into three types:

1. **Calendric TEs** are the easiest to identify based on the lexical meaning of the TE. They identify any TE that includes a calendric time point or duration is tagged as calendric. This includes[34] for instance:

    - **Periods of time:** *January, August, the' 80s*
    - **Specific dates or period markers:** *his 25th year of coaching, her tenth day, four decades (!) of music, the end of the Mayan calendar on December 21, a new year*
    - **Unbounded periods of time:** *days, nights, months, years, decades*
    - **Conventional holidays/ seasons:** *the holiday period, The back to school season*
    - **Specific days, dates, or time points:** *Decision day, election day, His release date, the deadline*
    - **Age:** *80 [years old], her fifties*

2. **Anchored events:** An anchored event is understood as a TE that is not purely composed of time but is rather related to a happening or an occurrence. What makes this occurrence anchored is its relation to a calendric system, more specifically in that the event is metonymic of the time of its happening on the calendar. This category includes:

a hurricane, this incident, an Obama victory, a flu epidemic, WWII, Holocaust, the end of oil, elections, my birthday, vote, The first permanent settlement, his chance, The group's defining victory, Jail, my son's birthday, a district switch, National Teen Reading Week

[34] The examples are presented in English, utilizing English data for the purpose of saving space by eliminating the need for translating Arabic data into English. However, it's worth noting that examples from Arabic data can also be provided, and the illustrations remain applicable to both languages as instantiations of each TE category.

The boundary between calendric TEs and anchored events: A TE like *birthday* can be understood as a time or an event. It is annotated based on the context. In cases where it refers to the time point on the calendar, it is calendric, and in cases where it refers to an event then it is annotated as an anchored event. In a case where there are no context elements to identify which it is, it is considered to be a calendric TE considering that a birthday is a calendric time unless we decide to celebrate it. The same can be said for well-known events like the *Holocaust* or *WWII* which are sometimes used to refer to events and sometimes used to refer to the time period itself. The context here makes the difference between the two.

The boundary between anchored events and non-anchored events: What makes an event anchored? This relation is identified in one of two cases. Either:

- The event happened and is clearly related to a time on the calendar.
- The event is planned to happen and there is an indication that is planned with reference to a specific time. This includes for example unplanned events like a crisis or disaster in the speaker's past, which occurred at a specific time known to the speaker.

Overall, some anchored events are lexically defined and easy to identify as planned events irrespective of whether they took place or not. These include *weddings, elections, birthdays, meetings, conferences*, etc. others are defined by their context of occurrence. These include *death, disasters, incidents, attacks*, etc.

3. **Non-anchored events:**

Admittedly, this category is a catch-all category and includes a variety of TEs and so a variety of subcategories of TEs. A non-anchored event can be defined as any TE that seems to lack a clear estimated time location or relation to the calendar. The defining criterion of this category is no estimated of a TE relation to the calendar. Unboundedness, and indefiniteness are also properties of this classification, but they are not necessary.

> *what, time to doing things differently, the ultimate betrayal and deeds, trouble, the time, time, time to levy taxes time, the time for the American public to stand up for their rights, the demise of this country, change, etc.*

3.5.3.2 Annotation of Experiencer types

The annotation of the type of experiencer is based on the metaphor line and also on additional reference to the expanded context when needed. Annotation of experiencers is somewhat different between Moving Ego and Moving Time metaphors.

First, in the case of Moving Ego metaphors, the experiencer is in subject position and so it is overtly expressed either using a noun phrase or a pronoun. Here the annotation is usually straightforward especially in the case of a shifted experiencer which is the easiest to identify thanks to specific pronoun reference or to a specific person or party that is different from the speaker.

As for Moving Ego metaphors that use the pronoun *We*, there are three possibilities:

1. a **collective experiencer** which is the most used,
2. a small, shared experience tagged as **deictic experiencer** and
3. an **indexical/ virtual** experiencer.

The type of the temporal entity usually helps distinguish between the collective experiencer and the deictic experiencer. Note for instance the difference between *We are approaching the elections* and *We are approaching our wedding*. The first example is tagged as a collective experiencer that is identified by the type of the temporal entity which is usually experienced at a national or communal level, while the second example identifies a small-scale shared experience based on the temporal entity *wedding* which is usually a private event. Usually, the preceding and following clauses in the EMT line or in the expanded context are also used to identify or validate the shared experience. If no indicators allow for the identification of a deictic or shared experience, then the default experiencer for a Moving Ego metaphor that uses the pronoun *We* is the collective experiencer.

Regarding the difference between a collective experiencer and a virtual experiencer: In Moving Ego metaphors that also use the pronoun *we*, virtual experiencers are usually identified in a motion scenario that is described with reference to a non-specified persona or an unspecified experiencer. E.g. *When we go through things in life or the daily things that make us mad or hurt us, and we don't know how to' pull the switch' with scriptures, then it does us NO good.* [COCA, BLOG, 2012]. The experiencer in this example is virtual mainly because it identifies a non-specified generic experience using the simple present, the imperfective aspect, and non-anchored TE. The pronoun *We* is not specified. The *we* refers to anyone and everyone at any point in time.

Second, for verb expressions that are expected to turn into MT metaphors, there are two possibilities:

Either the EMT line verifies the presumption and is an MT line, which is the majority of the returned lines using these verb expressions or the EMT deviates from the expected pattern and returns a ME metaphor. If the case is the latter, then again Ego is in the Figure position and is explicitly encoded. The annotation is straightforward (no inferences are needed).

In the case where the EMT returns a MT, however, the experiencer takes the Ground position and can be either explicit or implicit depending on the verb expression. In this case the type of experiencer is subject to interpretation. The register here plays an important role: narratives, personal blogs, and anecdotes typically narrate personal experiences while news can either correlate with a collective experiencer if the text is general or a shifted experiencer if the 'storyline' is about another person i.e. a politician, a football player, an artist, etc. In any case, a personal experiencer (shifted or deictic) is tagged in a MT if the corpus line is part of a narrative (Expanded context is checked in many cases), e.g. *Then the next semester came and my class schedule was different* [COCA, BLOG, 2012] or if it is stated explicitly as the Ground of motion as in *Then came another BIG play* ***for the Raiders offense*** [COCA, BLOG, 2012] or in the TE itself as in *Lori quickly realizes* ***her*** *time has come* [COCA, BLOG, 2012].

3.5.3.3 Other corpus tags

This section introduces the tags used in the corpus sheets to mark the verb expressions for some categorical features.

3.5.3.3.1 Verb Lemma

Each verb form is tagged for the lemma it is derived from. In English, this variable is the bare infinitive form while in SA it takes the basic root form. This way, the tested dataset is typologically clustered by basic verbs. Verb lemmas are used in R script to load verb sets for testing. The verb lemmas included in this study are as follows:

English: "come", "approach", "go", "pass", "arrive"

Standard Arabic: "ataa" (come), "ja'a" (come), "qadima" (come), "aqbala" (come), "Halla" (arrive), "iqtaraba" (approach), "qaaraba" (approach), "marra" (pass), "dahaba" (go), and "maDa" (go/pass).

3.5.3.3.2 Verb form

This simply refers to the variable that encompasses the variable names of each verb form. The dataset includes a total of 44 verb forms: 20 in Standard Arabic, and 24 in English. Prior to sharing the verb tags, there are a couple of notes to make:

- The perfective forms are differentiated from the verb lemmas which are also marked in the perfective form of the verb by eliminating the last vowel of the verb so "aqbala" becomes a notation for the verb lemma and

"aqbal" becomes the notation for the verb form in R. This is only done for practical coding reasons.

- All apostrophes are removed. For instance, *'ata* is tagged as "ata"

The tags given to the verb expressions in R script are in Appendix F.

3.5.3.3.3 Language

This variable annotated the corpus for language: ARA tag is used to mark the SA lines and ENG for English. This tag is used later in modeling to either create language-blind models or tailor the analysis to a specific language. In terms of predicting verb selection, the model 'knows' the language of prediction following a native speaker selection. That is, a speaker of Arabic does not choose among Arabic and English forms while an English speaker does the same for English verb forms, avoiding any cross-language confusion. Nonetheless, language-blind prediction remains valuable in identifying both the similarities and distinctions among verb forms, potentially uncovering underlying patterns shared by the two languages.

3.5.3.3.4 Form_or_Tense

This annotation paradigm is made up of eight levels:

1. **Past:** marking the simple past forms (regular or irregular) in English such as *arrived, came, etc*, noted in corpus data as "past".
2. **Present perfect** marking the verb expressions in the present perfect. The specific tag used in annotation is "present_perfect".
3. **Simple Present:** marking the simple present verbs, noted in corpus data as "simple present".
4. **Present progressive:** marking the verbs in the present progressive, noted in corpus data as "present progressive".
5. **Future:** marking the free morpheme *will* in English; e.g. *will come*, noted in corpus data as "future".
6. **Imperfective:** marking all imperfective forms in SA, noted in corpus data as "imperfective".
7. **Perfective:** marking all perfective forms in SA, noted in corpus data as "perfective".
8. ***Sa*_imperfective**: marking all imperfective forms that are inflected by the future marking morpheme *sa-*, noted in corpus data as "sa_imperfective".

4 Findings and Discussion

The present analysis is purely empirical and pairs quantitative evidence with qualitative interpretations. Qualitative evidence, in particular, can be considered as an important outcome of manual annotation in that the process allows the annotator to observe how different linguistic elements are used, and in turn, results in the development of some annotator intuition. In fact, the annotation of each corpus sheet results not just in numbered sheets or quantified distributions, it also results in a generic understanding of the usage profile of that verb expression. This intuition, although not a part of the actual statistical analysis, is a by-product of the latter and is, in turn, critical to a more comprehensive description of the studied phenomenon.

This chapter is divided into three main sections that follow the same structure indicated in the research questions section (Section 3.1). First, I will present the overall results obtained from the querying processes (Section 4.1). Second, I will present the properties of EMTs based on corpus annotations (Section 4.2). Next, I will go through the deictic and grammatical properties of the verb expression (Section 4.3). Then, through the application of the models of Moore (2014, 2016) and Huumo (2017), I will examine the interaction of the veridical and metaphorical elements of the metaphor based on the verb expressions (Section 4.4). Lastly, I will explore further applications of the analysis and annotation paradigms and propose a language-independent representation of EMTs (Section 4.5).

4.1 Evaluating the derivation and querying processes

Examining the results of the derivation and querying processes serves several purposes: First, to evaluate the derivation paradigm used in this study, and second, to highlight the most used verb expressions to assist future corpus-based research that investigates the same metaphor.

4.1.1 Derivation outcomes

Overall, based on the results of the derivation procedures and the frequency of the tested lines, it can be confirmed that there are certain expressions which are

conventionally used in the expression of EMT usage in both languages (judgement based on the number of cleansed lines) and that different motion stages map onto a several verb expressions that share similar construals. Overall, including a verb expression in the tested corpus data depends on three conditions, stated in the following questions:

1. Is the verb expression resulting from the combination of a given verb lemma with the subject and tense/aspect agreements meaningful? In the case of Arabic, some verb forms especially are restricted for morphological or graphological reasons.
2. Does the verb expression return enough corpus lines for cleansing? (general frequency of use). The minimum and average numbers of cleansed corpus lines will be provided in the analysis.
3. Does the verb expression return enough EMT lines? (frequency of use with EMTs)

Subsequently, there are three types of derivation outcomes:

1. Verb expressions that are used and tested and annotated: the verb expression is meaningful and is used in more than 50 EMTs.
2. Verb expressions that are used (in language) but restricted in EMTs: the verb expression is meaningful but is used in under 50 EMTs.
3. Verb expressions that are not used in general: either the verb expression is not meaningful, or it is meaningful, but it does not return sufficient corpus lines.

The questions that arise from the derivation outcomes are as follows: *Why are some verb expressions not used in EMTs? Are there any selection preferences for motion scenarios in general and for metaphorical temporal motion in particular?*

Admittedly, a separate study should be conducted to give a comprehensive answer to these questions because the verb expressions are at the intersection of many systems. What can be highlighted at this point is a tentative explanation based on some lexical aspects of the verb lemmas and grammatical properties of tense and aspect.

In Arabic, the derivation paradigm is assumed to generate 10 x 6 verb forms, just by a (dummy) multiplication of the number of verb lemmas by the number of derivation patterns. In English, 40 verb forms were expected to be tested. Among the 60 expected verb forms in Arabic, only one third returned a minimum of 50 EMT lines (N= 20 verb forms) while in English, two thirds of the verb forms returned a minimum of 50 EMT expressions (24 out of 40). In other words, in Arabic, the language system allocates a reserved portion of the possible verb form derivations

for EMT usage. In a way, the comparison of the derived verb form frequencies to the tested frequencies indicates that the frequency gap in derivation between SA and English does not continue on to the testing phase. This, in turn, suggests that, although the two languages vary in the number of COME and GO verbs, **they are far more proportional in the number of COME and GO verb forms used in EMT expressions**.

4.1.2 Typological preferences of the Arabic verbs

Typologically, it is possible that although SA uses a higher number of COME and GO verbs, the latter are not all involved in the expression of ego-centered temporal motion. This can be explained, at least in part, by the verb lexical preferences for a specific subject semantic category. Unfortunately, the literature on the COME and GO verbs in both languages is somewhat limited in that not all verbs have been described using a Behavioral Profile constructionist approach; this would help identify the typical usage profiles of the verbs, and in part, help explain their usage restrictions within EMTs. Nonetheless, I will use the available literature to explain some of the verbs that were studied. To complement the analysis, an overview of the number of cleansed lines for each are presented in Figures 22 and 23.

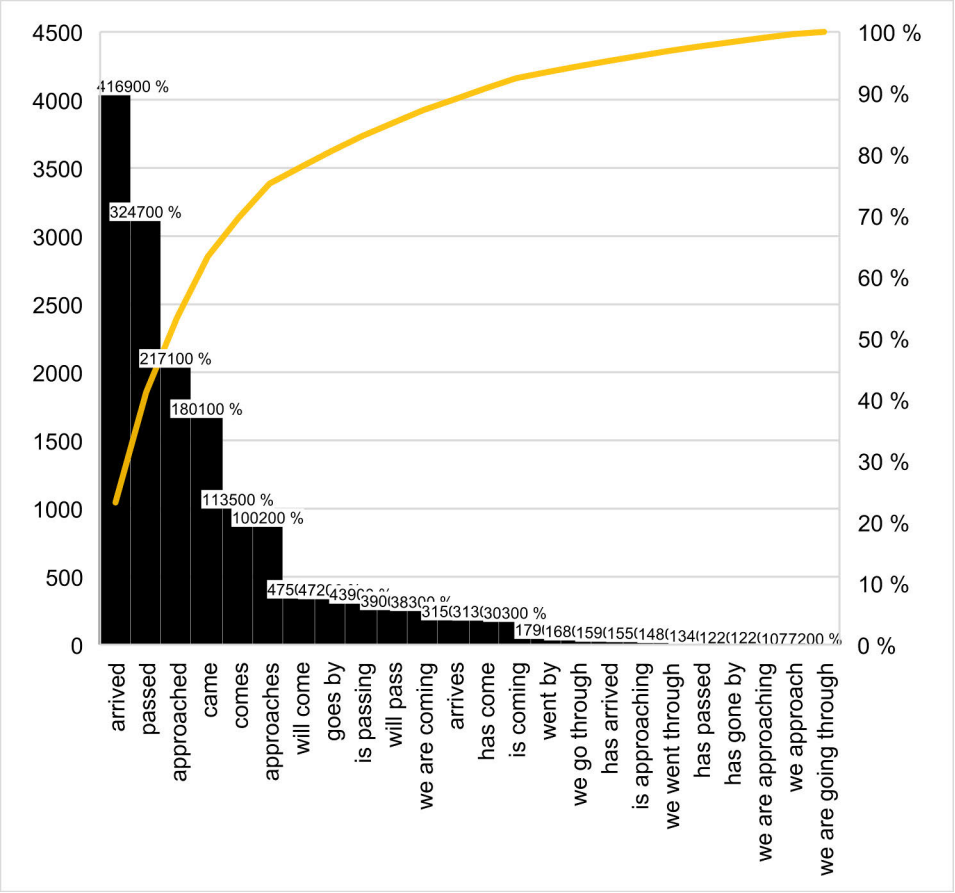

Figure 22. Number of cleansed lines per verb expression (English).

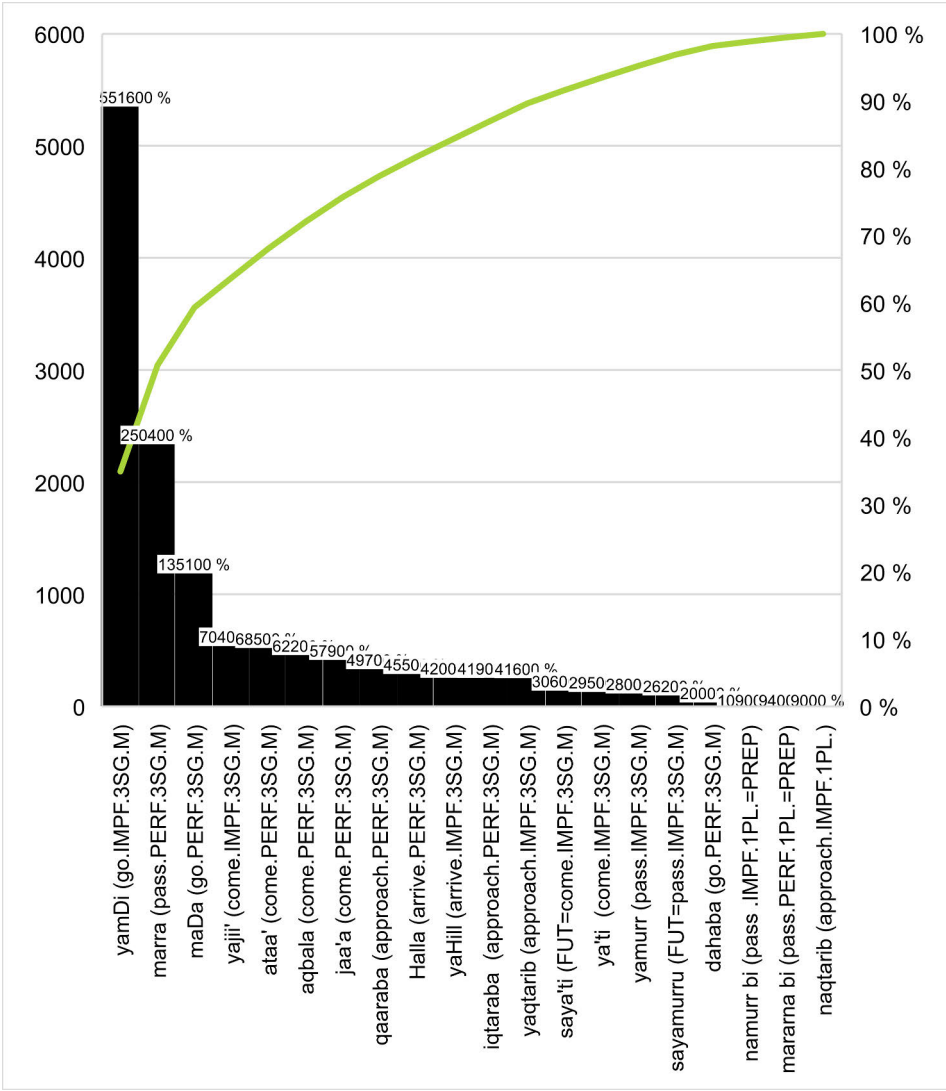

Figure 23. Number of cleansed lines per verb expression (Arabic).

Of the studied verbs, the GO verbs *ḏahaba* and *maDaa* and the COME verbs *ataa, jaa'a,* and *qadima* are described in Abdulrahim's (2013) account. Three types of descriptions are needed here: verb preference towards tense, subject inflection, especially person and number, and subject semantic category. These variables will be presented based on Abdulrahim's (2013) account using proportional frequencies that range from 0 to 1. A brief description of each verb together with the results of the derivations are as follows:

Table 24. Proportional frequencies of the different levels of Tense and Subject Semantic Category (*ḏahaba, maDaa, ataa, jaa'a,* and *qadima*)- adapted from Abdulrahim (2013, p. 62, p.140, p.142). The score is from 0 to 1 and is based on a manual annotation of 500 lines per verb lemma.

Tense	***ḏahaba***	***maDaa***	***ataa***	***jaa'a***	***qadima***
FUTURE	Unavailable	Unavailable	0.03	0.00	0.00
IRREALIS	Unavailable	Unavailable	0.19	0.02	0.02
PAST	Unavailable	Unavailable	0.16	0.97	0.97
PRESENT	Unavailable	Unavailable	0.62	0.01	0.01
Subject Semantic Category	*ḏahaba*	*maDaa*	*ataa*	*jaa'a*	*qadima*
ACTIVITY	0.03	0.04	0.17	0.19	0.01
EVENT	0.00	0.01	0.08	0.04	0.00
TIME	0.01	0.49	0.03	0.02	0.00
GROUP	0.05	0.07	0.06	0.04	0.06
HUMAN	0.68	0.31	0.22	0.19	0.91

To begin with, the verb *ḏahaba* is strongly associated with human-related subjects. In terms of derivations, only the verb form *ḏahaba* (go.PERF.3SG) was found to be used in EMTs, but with a very low frequency. In fact, over 5516 lines were cleansed for the verb form *ḏahaba* to obtain 50 distinct EMT lines, all of which are MT metaphors. We can infer from this that the verb *ḏahaba* typically indicates human motion that does not involve time as a goal. The other verb forms were found to instantiate other types of motion.

The verb *maDaa* is an interesting case. While the verb is easy to use with 3SG, its use is constrained with a 1PL. In addition to this, the EMTs that use *maDaa* (go) in 3SG.M are 100% MT metaphors. This could be explained first, by a preference to occur with TIME-related subjects and, second, by a low general frequency of use with a HUMAN subject. This is indicated in Abdulrahim (2013, p.68) and confirmed by the corpus query.

The verb *ataa* is used with different types of temporal[35] categories (Table 24). This observation is confirmed empirically as the verb *ataa* was found to be used in

[35] Abulrahim (2013) uses the variable TENSE as an annotation variable with four sub-levels: PAST, PRESENT, FUTURE, and IRREALIS. Judging from the appendix that she shares in the monograph (Appendix D), the PAST seems to be coded based on the perfective form of the verb, the PRESENT based on the bare imperfective, and FUTURE on the imperfective preceded by the future-indicating particles *sawfa* and *sa-*. The variable IRREALIS codes non-finite forms including the accusative and genitive imperfectives. I am using the sub-levels in the capital letters to indicate that they are levels of an annotation variable.

all three forms: perfective, imperfective, and imperfective with future particle *sa-*. The same verb also shows a strong preference to 3SG (Abdulrahim, 2013, p. 151) together with an association with the subject categories ACTIVITY, EVENT, NOTION, COMMUNICATION, and OBJECT at the expense of human-related subjects. The corpus search shows that the three queried 3SG verb expressions derived from *ataa* returned 50 EMT lines each with a strong preference for/to MT metaphors (149 MT lines and 1 ME line).

The verb *jaa'a* was previously found to strongly prefer the PAST (0.97) at the expense of the IRREALIS, the PRESENT, and the FUTURE classifications (0.02, 0.01, and 0.00, respectively). *jaa'a* also seems to prefer 3SG derivations (Abdulrahim, 2013, p. 151). Again, the corpus search partially confirms this as the future form of the verb *sa-yajee'* returned only 57 lines. In terms of the subject semantic category, *jaa'a* is classified as follows: ACTIVITY: 0.19, EVENT: 0.04, TIME: 0.02, and HUMAN: 0.19. This makes the verb a good candidate for indicating EMTs, mostly in the past tense. The corpus search shows that the verb returns EMTs in both the past and the present forms, and all the corpus returns are MT lines.

The verb *qadima* is another interesting case. Temporally, it shares the same composition as *jaa'a* (PAST: 0.97, PRESENT: 002, IRREALIS: 0.01, and FUTURE: 0.00). In terms of subject semantic category, *qadima* is also generally strongly associated with human-related subjects. *Qadima* is also found to be strongly associated with 3rd person plural, dual, and singular. Thus, to a certain extent, we are looking at a verb that prefers 3PL, DUAL, and 3SG (Abdulrahim, 2013, p. 151). This explains the limited usage of the verb with 1st person. As for the 3SG paradigm, the latter was also found not to be used in ME expressions despite its strong association with human-related subjects (Abdulrahim, 2013, 2019a). This could be explained by the verb typically indicates "HUMANs coming from a certain SOURCE (in most cases a GEOGRAPHICAL LOCATION)" (Abdulrahim, 2019b, p. 194, *punctuation follows the original source)*.

When looking at the frequency number of cleansed lines per verb form: 75% of the tested verb expressions in English, corresponding to 18 out of 24 tested verb expressions, require the cleansing of a range of 72-475 corpus lines. Subsequently, the minimum of corpus returns that can result in 50 distinct EMT observations in English is 72 and the average taking into account 75% of the tested verb expressions is 247 lines. This average is calculated without taking the six verb forms with the highest frequency of cleansed lines into account to give a minimum average range of the number of cleansed lines.

In SA, around 75% of the tested verb expressions corresponding to 16 out of 20 tested verb expressions required the cleansing of a range of 90-685 corpus lines. Following the same logic, the minimum number of corpus lines that can result in 50

distinct EMT observations in Arabic is 90 and the average taking into account 75% of the tested verb expressions is 358 lines.

In terms of corpus returns, two types of constraints are attested:

1. **The general frequency constraint (the usage of a verb form within the language):** This constraint concerns cases where the corpus search (ArabiCorpus or COCA) returns a limited number of corpus lines in such a way that 50 EMTs cannot be collected. In other words, this is the case where the corpus search does not return enough observations to cleanse. Many of the eliminated forms have a relatively low general frequency of use. Presuming that **each corpus is a proxy for its respective language system, the usage frequency of a verb form within the corpus data could be an indicator of its general frequency of use within the language system**. This presumption is more confident for COCA since it is a balanced mega corpus. For the ArabiCorpus, however, due to the smaller data size, this observation is less confident; that is to say, it is possible that a verb form is low in its corpus frequency of usage while it is higher in usage within SA. On the other hand, the opposite assumption is more confident for both corpora: High usage frequency in the corpus is a strong indicator of high frequency of usage within the language.
2. **Frequency constraint within EMTs:** where the derived form is used for other motion scenarios but is particularly restricted in the use of EMTs—presuming that 50 EMT lines are a good indicator of the usage of the verb form for ego-centered motion metaphors of time. However, within the tested verb forms, there is a large discrepancy between the forms that are 'specialized' for EMT usage and the ones that are used to indicate a large(r) variety of motion scenarios.

Another important observation to consider when analyzing frequency indices is polysemy—for English and Arabic—and graphological/ morphological ambiguity (cf. Parkinson, 2019)—for Arabic. An example of polysemy is the verb form *comes* which is used to indicate motion and also used with the preposition *up* synonymously to the verb *to create* (*to come up*). An example of graphological ambiguity in SA is the verb form *Halla* which can be read as a verb and a noun at the same time, for example, *Halla* (*verb1*. 'to arrive', verb2. 'to become lawful' (or *Halal*), *noun*. 'solution', *adj*. 'not forbidden'/ 'allowed' (pronounced as *Hilla*). In these cases, the number of retrieved lines is no longer a good usage frequency indicator. Nevertheless, the latter are valuable as a primary indicator of distinctive usage profiles—that is to say, they make a difference among similar verb forms.

4.1.3 Restrictive patterns for both languages

To extend the discussion beyond the 44 tested verb expressions, this section explores the patterns emerging from the non-tested or restrained verb forms which are arguably as valuable as the annotated verbs. It is important to note that the following associations are observed based on the derivation outcomes and the frequency of corpus returns. Further empirical tests and analyses are needed to quantitatively validate the associations between the annotation variables. These brief observations are nonetheless worthy of mention here and can be considered a part of the empirical outcomes of the study paradigm that add to our understanding of the motion scenarios used in EMTs. I especially highlight the cross-linguistic associations.

- The combination of future tense x APPROACH verb is restricted; that is to say 'will be approaching' and 'will approach' are restricted in both languages.
- The combination of future x ME: all the verb combinations with the 1PL and the simple future in English, and the 1PL and the *sa-* imperfective in Arabic are restricted.
- ME/MT x Motion Stage: Judging from the derivation outcomes of both languages, it is evident that EMTs are highly selective of the motion scenarios they describe, especially ME expressions, noting that the arrival phase 'prefers' MT to ME in both languages.

Interestingly, for each eliminated verb form, there is at least one alternative in the form of either **a synonym or another interchangeable form** with the same metaphorical, temporal, and spatial profiles. E.g. *mararna bi* (pass.PERF.1PL) can be an alternative to *maDayna bi* (pass.PERF.1PL), and *will come* is an alternative to *will arrive.* Evidently, these are slightly different alternatives. Moreover, while in Arabic, the verbs *marra* and *maDaa* are lexical synonyms with similar lexical aspects, *arrive* and *come* in English highlight different segments of the motion event. Ultimately, metaphorical alternatives are usually available and express similar meanings to varying degrees.

4.2 Ego(s)-centered motion metaphors of time(s)

The heading of this section is not an alternative to Ego-centered motion metaphors of time, nor is it recommended to be used as such, for evident stylistic reasons. Instead, it is used in this context to pinpoint the usage variability of the metaphor with a focus on the different types of Ego experiencers and the different types of Temporal Entities. Taking a comprehensive view, the corpus data suggest the following:

We experience certain times together, some alone, and some only in the imagination. Different motion scenarios associate with different types of times and different experiencers. The types of times *coming* are generally different from the types of times that we are concurrently experiencing. Moving Ego metaphor scenarios use different types of Temporal Entities from Moving Time scenarios. Additionally, Ego's arrival at a time is rarely expressed while arrival of a time (at Ego's metaphorical location) appears frequently in the data.

In what follows, I will elaborate on the brief summary given in the previous paragraph by presenting usage-based descriptions of the different annotation variables: type of metaphor (Section 4.2.1), type of TE (Section 4.2.2), and type of EXP (Section 4.2.3).

4.2.1 Types of Metaphors

The selection of a Moving Ego metaphor or a Moving Time metaphor has been a curious point of investigation in the past few decades. Studies focus mainly on the association of the Mover in an EMT with psychological and priming factors like affective valence (Margolies & Crawford, 2008; Piata & Soriano, 2022; Richmond et al., 2012), resilience (Qin, 2023), power (Duffy & Feist, 2016), as well as personality (Duffy et al., 2014). Overall, the scholarship reports that Moving Ego metaphors are related to anticipation of positive events and are generally used to indicate more resilient and active attitudes while Moving Time metaphors are associated with the opposite cases. The corpus data analyzed in this study reveals a few Mover-related patterns. They are as follows:

1. The results of the verb form derivations in both languages are constrained, indicating a preference for MT forms.

In Arabic, three out of six verb conjugation patterns target MT metaphors, and three patterns target ME metaphors. In English, four out of eight patterns target MT metaphors, and four patterns target ME metaphors. The derivation outcomes are as follows:

Table 25. Comparing the numbers of derived vs. tested EMT verb forms based on expected metaphor types: ME/MT.

		ME forms (associated metaphors)	MT forms (associated metaphors)
SA	Total number of the derived verb expressions	17[36]	30
	Total number of the tested verb expressions	3	17
	% of tested/derived	17%	56%
English	Total number of the derived verb forms	25	25
	Total number of the tested verb forms	6	18
	% of tested/derived	24%	72%

The range of constrained vs. tested forms validates the presumed connection between verb form and metaphor type. Table 25 presents the numbers of derived and tested forms in each language together with a percentage of usage based on the division of the tested frequency by the derived frequency. These derivation outcomes are subdivided into ME/MT forms depending on the expected metaphor type. As explained in Section 3.3.4.1, expected metaphor types are based on subject-verb agreement and are tested through corpus annotations. The testing of 1PL verb forms ranges from 17% (SA) to 24% (English) while the percentage of tested 3SG and uninflected verb forms, or verb forms expected to return a majority of MT metaphors, is 56% for SA and 72% for English. Additionally, although some of the (presumably) MT verb forms were found to be used more within ME expressions, over 90% of the annotated forms return a majority of metaphor lines that match the expected type. This, in turn, indicates that the evidence shown in Table 25 is—to a large extent—reliable, despite it being based on expected metaphor type only.

2. The observed percentages of ME/MT lines confirm the anticipated frequencies of ME/MT in the derivation procedures.

Evidently, the ME patterns made up of verb forms inflected for a 1PL and using the pronoun *we* in English and its equivalents in Arabic are expected to return 100% ME expressions. However, the MT forms show some discrepancies between the expected and observed frequencies. MT forms are verb expressions that either agree with the singular 3rd person subject or show no subject agreement (cf. Section

[36] This value excludes meaningless verb derivations: not all verb derivations in Arabic are meaningful. In other words, the verbs are limited in terms of the forms that they can take.

3.4.4.1). Table 26 compares the expected EMT frequencies by multiplying the number of expected MT/ME verb expressions by 50 (the number of annotated lines per verb expression) to the observed frequencies, that is the frequencies of ME/MT lines based on annotations.

Table 26. Expected vs. observed ME/MT distributions in both languages.

	Expected frequencies	Observed frequencies	Deviation
ME (English & SA)	450	611	+161
MT (English & SA)	1750	1589	-161
ME (English)	300	347	+47
MT (English)	900	853	-47
ME (SA)	150	264	+114
MT (SA)	850	736	-114

The derivation outcomes and the observed EMT type frequencies make it possible to conclude that MT metaphors are more prevalent in both English and Standard Arabic. This, in part, validates the findings of Feist & Duffy (2020b) who also conducted a comparative corpus-based study of EMTs, and found "no difference in frequency" in Spanish while in "English Moving Time expressions are more prevalent than are Moving Ego expressions" (p.2). Here, we have two points of analysis:

1. Explaining the **speaker-based psychological preference** of a ME or a MT metaphor: this could be due to priming and emotional factors like the speaker's state of motion or stationariness (Gentner et al., 2002). It is also influenced by the type of TE: positive or negative, expected or not, etc. (cf. Margolies & Crawford, 2008; Piata & Soriano, 2022; Richmond et al., 2012, Qin, 2023, Duffy & Feist, 2016, Duffy et al., 2014).
2. Explaining a **language-based typological preference** towards one of these metaphors: Whether we give agency to a TE or to an Ego experiencer can also be explained by lexicalization factors of the verbs of motion: whether the verbs opt for a subject semantic category of HUMAN and GROUP over TIME or ACTIVITY.

The typological preferences of Arabic verbs have already been indicated in Section 4.1.1.2, so there is little need to repeat them here. However, regarding the English data, based on the annotation of Mover types in motion metaphors of time, Feist & Duffy (2020a) report a language typological preference for Time Movers over Human Movers with a 70% vs. 30% division. The study also reports on specific verb preferences based on corpus annotations. Among the relevant verbs to this study

are *come*, *pass* and *arrive* which have been shown to occur more with temporal movers (p.20), while *go* appears to be more used with Human Movers. The present analysis confirms that the verb expressions derived from *come*, *pass*, and *arrive* which are uninflected for subject agreement or are inflected for third person prefer a MT metaphor over a ME metaphor. These results confirm Feist & Duffy's (2020a) results. Interestingly, however, the verb expressions derived from *go* (*went by*, *goes by*, and *has gone by*) also prefer a temporal Mover. This, in turn, contradicts Feist & Duffy's (2020a) suggestions that *go* prefers a Human Mover. This could be explained, in part, by the different study paradigms, namely that the present study looks at specific iterations of the different verb lemmas, while Feist & Duffy (2020a) is based on a lemmatized search. I expect that the lexical preference of a verb and the typological preference of a language to impact the preferences of a specific conjugated verb, not vice versa. **This means that the usage preferences indicated by a verb expression is not representative of the preferences of the verb lemma but can be indicative of the latter.**

4.2.2 Types of TEs

> At this moment, I am writing my thesis monograph knowing that **time** is passing while I am personally approaching a submission **deadline,** and I also share a collective experience of an approaching **holiday**. I look forward to an upcoming **graduation** and, as is the case with anyone who does a Ph.D., I hope for **better times** to come following this academic milestone.
>
> [*December, 2023*]

This brief personal anecdote shows an interplay of temporal experiences based on a variety of types of temporal entities. In the first EMT expression used in the first sentence, *time* refers to the infinite and transient conceptual domain that is compared to space (Section 2.14). The *submission deadline*, on the other hand, is a calendric time that is specified, the 'arrival' of which puts constraints on my research activity. *The holiday* is a collective time that is also calendric and shared by everyone in my community and everyone in the world. *My graduation* is an anchored event that will (hopefully) have a specified time in the future while *better times* are unbounded temporal entities with no prospective calendric reference. They are also subject to my personal evaluation. Although I am the only protagonist in this small narrative, each of the different types of times creates a different experience.

In collecting a corpus on EMTs, this study has also collected a corpus of temporal entities, a variable used to describe the element Time in Ego-centered Motion Metaphors of Time. By 'Time' here, I refer to time as the "object of conception" or

"Conceived Time" (cf. Langacker, 2008; Huumo, 2017). This category of annotation was developed during the annotation phase and was, in part, guided by the examples offered in Moore (2016, pp.12–13).

Below is a reminder of the definitions of each of the TE category (cf. 3.5.2.5.2):

- **Calendric references:** times from the calendar.
- **Anchored events:** personal or collective events, planned with a specified calendric reference
- **Non-anchored events:** other types of times

Table 27. Distribution temporal entities (frequencies and percentages) in the two languages.

	Calendric references	Anchored Events	Non-Anchored Events
Percentages (Eng & SA)	41%	17%	42%
Percentages (Eng)	39%	16%	46%
Percentages (SA)	42%	19%	39%

EMTs use a range of times that differ in terms of their **reference to the calendar,** their **levels of boundedness,** their **duration,** and their **reality**. Some of the times are also repetitive or **cyclical** while some are **non-anchored** like *the future, the past, better times, etc*. Some are **planned** and **metonymic** like *weddings*, *meetings*, and *elections, etc.* which refer to specified times on the calendar, while others are **purely calendric** and **collective** like *seasons*, *holidays*, etc. These differences are found to be closely related to 1) the type of verb form used to include not just properties of motion but also temporal properties with reference to viewpoint aspect[37], 2) the type of the experiencer and 3) the type of motion construal that is created by the association of the TE with the other elements of an EMT expression. Furthermore, in terms of keyness[38] and repetitions, some TEs are found to be highly represented in both languages especially those related to collective celebrations and religious events. For instance, the English corpus includes many repetitions of the TE *Christmas* and *fall*, while the Arabic corpus shows many instances of *RamaDaan*, and *Eid*. Both corpora also show repetitions of other calendric units like *the night, next month, next year*, etc.

37 Viewpoint aspect will be defined in Section 4.3. For now, to avoid repetition, viewpoint aspect can be defined as the overall aspect resulting from the combination of tense and/ aspect systems used with the conjugated verb.

38 Here, I am not performing a keyness analysis as it is known in corpus linguistics, but I use a lower-key definition of the term to refer to the most used TEs with a single verb, in comparison to other verbs.

Overall, the distributions of TE in English and SA (Table 27) shows that both languages exhibit comparable usage frequencies to one another and to the overall frequency of use in terms of the TE type. Calendric references and non-anchored events are the most used at the expense of anchored events. The next subsections will provide a description of the defining characteristics of each type. Two important properties are signaled here: specificity (and schematicity) and metonymy.

4.2.2.1 Specificity vs. schematicity

Langacker (2009, p. 7) defines specificity as "the level of precision and detail at which a situation is characterized". To exemplify this definition, Langacker (ibid) gives the following example:

thing → object → vehicle → truck → pick-up truck → battered old pick-up truck.

Following Langacker's example above, this is a temporal application of the notion of specificity showing a spectrum of TEs going from the most **schematic** to the most **specific**:

A long time (went by). → Years (went by). → A year (went by).

Specificity and semanticity here are with reference to 1) the period of time a given TE indicates; for instance, *a year* is known to refer to 365 days while *years* are more schematic since they do not refer to a precise period of time as indicated by the bare plural form which corresponds to a vague, unbounded quantity, and 2) the specific reference of the TE to the calendar. The TE *years* is also more schematic than the TE *year* because it represents a calendric unit of time while *year* typically refers to the year that has passed prior to a given moment of speech.

Calendric times and anchored events are typically specific, while non-anchored events are typically schematic. I use the adverb *typically* here to refer to prototypical descriptions, not generalizable ones. For instance, TEs classified as calendric times can refer to schematic calendric units of time like *years,* or *decades,* etc. Alternatively, they could be identified as non-anchored events for this same reason. However, they are tagged as calendric times because they instantiate times from the calendric system.

4.2.2.2 Metonymy

In general, "[l]inguistic structures that are used to talk about time abstracted from events may also be used to talk about time not abstracted from events" (Moore, 2014,

p. 13). At a basic level, humans conceive of time as an abstract domain that is difficult to identify on its own. Metonymy here allows access from a given event to a time: whenever we map an event onto a time, we can say that the time is the general background and the event is the profiled relative experience. A defining feature of metonymic TEs is that—from a prospective point of view—the latter can be subject to manipulation and planning like meetings, parties, conferences, etc. (Huumo, 2017, pp. 14–15).

An *event* refers to a specific occurrence usually related to a causal relationship with epistemic reality and experience. An event can be defined as an occurrence that is either a planned occasion or an accidental incident. Planning and anticipation or foresight are related, but not necessary, properties of events. An event can also be defined—in relation to other events—as an outcome; that is, if **we perceive different events in terms of causality where one event can lead to the other.**

A *time* is a more abstract point in time (as a domain) at which a certain event or even more than one event can take place. A time can be mapped onto an infinity of events with different experiencers: July 9th may be the birthday of my friend, the anniversary of my parents, the starting date of the 10th annual conference at University of X, the anniversary of the death of my neighbor, etc.

Consider the following TEs: *1990, the 90s, the Gulf War.*

- 1990 is classified as a specific calendric time. No event is associated with this TE, only an instantiation of a time.
- The 90s are also a time period classified as a calendric time, but they are more schematic than 1990 and they can be used to refer not just to a time period. In fact, the 90s could be used metonymically to refer to a state of the world at that time or to certain events that marked that time period.
- The Gulf War is an anchored event that took place in 1990. This TE refers to the occurrence itself and stands metonymically for the time period of Aug 2, 1990 – Feb 28, 1991 (Wikipedia).

Non-anchored times can, but do not always relate metonymically to some calendric period of time. This particular category of TEs is really important for our general conception of time for the following reasons:

First, non-anchored events represent time as a conceptual domain, used frequently in passing motion construals as in *As time goes by, you develop an understanding of what you might strive for when you go* [COCA, BLOG, 2012]. In principle, without non-anchored times, we *cannot hope for better times, long for past times, etc*. Hypothetically, if we were limited, in our conception of time, to the conventional calendar and to planned events, assuming that it is possible, our understanding of time would be largely reduced.

Non-anchored events also encompass instances that indicate some level of metonymy as in the example *The day will arrive where the United States faces an enemy of equal or greater strength and capability.* [COCA, MAG, 2019]. However, this type of time-event metonymy remains vague. As such, non-anchored events include a universe of TEs beyond the calendric-related times and anchored events. They include TEs that articulate the unknown of the past and the future together with the TE *time, alwaqt,* and *az-zaman. Alwaqt,* and *az-zaman* refer to 'time' in Arabic; the first is more related to clock-time and the second to the conceptual domain: time.

4.2.3 Types of experiencers

In line with the anecdote in the previous section:

> While **I** am going through an academic milestone, **other people** in different parts of the world are going through **war**. At the time **I** am expecting **graduation**, **they** expect **death**. The sharp contrasts between the two experiences underscore completely different conceptions of '**the next chapter in life**'.

Obviously, this is not new as **the types of times that each of us lives make up the type of life that each of us has**. This is at the heart of human experience. What we ultimately share at the most basic level is the bare domain *time*, and each of us is involved in different levels of shared and personal experiences of time(s).

Defining the identity of Ego in Ego-centered Motion Metaphors of Time is found to be central to the empirical exploration of the aspects of EMTs. The types of experiencers were added to the annotation paradigm to capture the specific frequencies of each experiencer type. Although one of the original aims of the present study was to explore the variability of experiencers, the identification of the latter as a quantitative variable emerged early in the annotation phase which makes this property qualified beyond an aspect of EMTs. In the second phase of the analysis, EXP type will also be analyzed as a statistically significant predictor of interchangeable verb expressions (Cf. Sections 4.4.2 and 4.4.4).

> From the Moving Ego perspective, **we** regard **ourselves** as moving downstream through stationary time; **we** approach future events and leave them behind... From the complementary Moving Time perspective, **we** regard **ourselves** as stationary and time as moving towards **us**; future events approach **us** and pass by.
>
> Bender & Beller (2014, pp. 346–347, *emphasis added*)

Above is the definition of ME and MT by Bender and Beller (2014). In the definition, ME and MT are identified as Ego-based motion metaphors of time, the

grounding scenario for which is describing using the inclusive collective pronouns *we*, *us*, and *ourselves* which are presented in bold. This type of loose definition of Ego in EMTs is, however, not exclusive to Bender and Beller (2014). In fact, a review of the literature shows that there are no specific descriptions of the Ego entity in the context of EMTs where Ego was defined either as an observer (Boroditsky, 2000), a persona (Moore, 2011), or a collective deictic entity (Huumo, 2017).

Just as with the types of metaphors the distribution of the types of experiencers are also restricted by the inflection paradigm used in the study. This is especially the case for Moving Ego metaphors: Concerning the verb expressions inflected for a 1PL, only three possible experiencers can be observed: either a collective experiencer as in *We are approaching summer* or a shared deictic experiencer which would be coded as personal deictic as is in the case of *We are approaching our wedding* or a virtual/ indexical experiencer like in the example *Most of the time, when we are going through a crisis, just speaking it aloud helps to clear our minds* [COCA, BLOG, 2012].

If the verb is uninflected for person and number; e.g. *went by, came, will come, etc*.: the experiencer type can be any of the four categories (personal deictic, shifted, collective, or virtual), since there are restrictions.

With regard to the expressions that are inflected for a 3rd person singular, the type of experiencer is not restricted if the verb is used in a MT metaphor, but it is constrained in case the verb expression is used in a ME metaphor. In this case, the experiencer taking the subject position can either be shifted as in *He is approaching his birthday* or virtual as in *There are certain symptoms that will tell a woman she is approaching a crisis*. Either way, a verb expression in the 3rd person cannot be deictic nor a collective experiencer as both are expected to agree with a first-person subject.

Table 28. Distributions of experiencer types in Arabic and English.

	Deictic.	**Shifted**	**Collective**	**Virtual**
Percentages (Eng & SA)	15	25	55	5
Percentages (Eng)	20	22	53	5
Percentages (SA)	7	29	58	6
Percentages (ME)	10	0	89	2
Percentages (MT)	17	26	51	6

The frequency distributions indicate that most EMT metaphors in both languages are deictically centered with an identifiable Ego experiencer while a small section of EMTs are virtual. The significant number of collective experiencers is potentially related to the register type, mainly to EMTs taken from newspapers, which naturally

record collective events, as opposed to personal events. However, if the data was collected from personal platforms like social media, then more personal EXPs would be expected. Therefore, the most important impact factor that makes a distinction between the different types of experiencers is that of register. Although this study does not focus on register-related uses of Ego-centered motion metaphors of time, it is important to make this description for anyone who wants to focus on each type of experience on its own. Notably, there is a difference between personal narratives, news and informational texts in the types of EMT experiences that they typically use. The observed associations between styles and types of experiencers can be summarized as follows:

Narrations: My reference to narrative is not to be understood as reference to fiction but rather as the practice of telling a specified story with reference to (a) given protagonist(s) irrespective of whether the story is real or not and whether that protagonist is singular or plural, identified with the speaker or different from her. Generally, **our understanding of narratives is rooted in our ability to follow the timeline of others**, **to go through their journeys, to experience time through their life experiences.** Narratives also involve stories about our (past) selves, or stories about famous people, etc. Narratives are typically related to either personal deictic or shifted experiencers.

News: News accounts usually report collective concurring times. For this reason, it was expected that Arabic data would involve more collective experiences as the corpus is mostly made up of newspapers, which often contain news reports. However, the two languages are actually comparable in the frequencies of Ego experiencer types and also in the frequencies of the types of TEs. Unfortunately, the ArabiCorpus does not identify the register type for each corpus line. As a result, it cannot be compared to the English data.

Informational texts: Informational texts are associated with virtual experience, used to define temporal passage or to identify times that we can all experience but are not necessarily experiencing at the moment of speech. An example of an illustration from informational texts which relates to a virtual experiencer is as follows: *The problem comes when we usurp someone else's rights* [COCA, BLOG, 2012]. Here, we can talk about motion of time, *the problem* in this example, or toward time without any specific **instances** of an actual motion event. This makes the conception of temporal motion independent of any specific **instantiations** of the latter.

4.3 Properties of EMT motion construals based on the properties of verb expressions

The 2200 EMT lines collected in this study can be thought of as a sample of instances, each of which can be represented individually with reference to the speaker's immediate reality and to Ego's 'now'. Evidently, the corpus lines present more cues outside the verb itself which also function as grounding elements and make it possible to relate the motion scenario succinctly to both Ego and the Speaker. However, representing specified instances of EMTs is highly restricted as it is only representative of the specific line.

Recognizing the potential for generalizability at a broader organizational level, namely the level of the verb expression, I opt for describing the motion events by taking into account the outcome of interaction of the semantic aspect of the verb (Aktionsart) and the grammatical categories of tense and or aspect, depending on the language. As such, taking the verb expression as a unit of analysis, the next sections will systematically examine the temporal and conceptual characteristics of the former based on their shared grammatical and metaphorical properties. More specifically, this section answers the questions related to the verb expressions (cf. Section 3.1).

In what follows, **I propose a cognitive linguistic representation of EMT construals starting from the lexical aspect of the verb lemma and then adding the different temporal and metaphorical properties**. As the conjugated verb expressions in Arabic and English share some characteristics and differ in others, this paradigm brings to the surface three types of distinctions: 1) among **metaphor types**, 2) between the **two languages**, and 3) among the distinct **temporal categories**, including tense, lexical aspect, and grammatical aspect (perfectivity and progressivity).

The following subsections will provide a detailed description of the analysis design employed to unveil the deictic composition of EMTs. This design constitutes a more refined iteration of Moore's (2016) insights into EMTs with Huumo's (2017) model, which incorporates an interplay of metaphorical and veridical elements. The analysis also takes into account the cross-linguistic variabilities of Arabic and English, namely that Arabic verbs are aspect-based, while English verbs encompass both aspect and tense categories.

As we progress towards the deictic and conceptual descriptions of EMT construals in Section 4.4, the following subsections will identify all the essential elements required for the descriptions starting with terminological points in 4.3.1, and theoretical principles in 4.3.2 and 4.3.3, a description of the unique deictic subsystems of EMTs in 4.3.4. Then, the subsequent sections (4.3.5–4.3.9) will provide an essential overview of the different types of temporal systems used in each

language. This includes an examination of lexical aspect, grammatical aspect, and tense, along with their anticipated roles in the study's analysis.

4.3.1 Terminology

The terminology on conceptual metaphors is technical, which aligns with the aim of the literature—including this study—to distinguish between the linguistic, cross-linguistic, and conceptual aspects. In what follows, I introduce the terms utilized in the analysis. While partially informed by the existing scholarship on EMTs, these terms are more specifically tailored to the study's framework.

Motion stage refers to a specific stage of the schematic motion event defined by Moore (2016) in Section 2.2.2.2, and reiterated here:

> Stage 1: The Mover is distal from the Location and moving towards it.
>
> Stage 2: The Mover is approaching the Location. (That is, The Mover is becoming proximal to the Location.)
>
> Stage 3: The Mover arrives at and is passing the Location. (That is, The Mover becomes transiently co-located with the Location and begins to move away; i.e., begins to not be co-located.)
>
> Stage 4: The Mover is distal from the Location and moving away from it.
>
> (Moore, 2016, p. 31)

Using Moore's (2016) schematic motion event, we can substitute Stage 1-4 with actions that pinpoint the distinct segments of the metaphorical path profiled by the verb expression, distinguishing them from the overall components of the motion event.as follows:

- **DEPARTING** refers to the "initial state" (Moore, 2016, p.37) of the motion event, i.e. the stage describing the Mover as a "distal" entity from the "Location" and starting to move towards it (Moore, 2016, p.31).
- **APPROACHING** refers to the "continuing process" (Moore, 2016, p.37), i.e. the stage where "[t]he Mover is approaching the Location. (That is, The Mover is becoming proximal to the Location.)" (Moore, 2016, p.31).
- **ARRIVAL** refers to the "culminating event" (Moore, 2016, p.37), i.e. the stage where "[T]he Mover arrives at and is passing the Location. (That is, the Mover becomes transiently co-located with the Location and begins to move away; i.e., begins to not be co-located.)" (Moore, 2016, p.31).

- **PASSING** refers to the "post state" (Moore, 2016, p.37), i.e. the stage where "[t]he Mover is distal from the Location and moving away from it." (Moore, 2016, p.31).
- **Motion Scenario and motion construal:** I use the term Motion Scenario (MS) to the motion narrative which relates to Ego as the experiencer and which could be in the present, past, or future of the speaker. Motion construal refers to the overall motion event as conceived of or 'seen' by a Conceptualizer. Motion scenario is used interchangeably with the motion construal. More information on motion construals are provided in the following section.

4.3.2 Conceptual content, motion construals, and conceptual models

In general, "a meaning consists of both **conceptual content** and a particular way of construing that content. The term **construal** refers to our manifest ability to conceive and portray the same situation in alternate ways" (Langacker, 2008, p. 43). Following this, conceptual models can be used to visualize the conceptual content and then be mapped into different ways of construing a given situation. For instance, in a particular situation when we experience a metaphorical co-location with a specific time, the English speaker has a choice between (at least) four expressions:

(11) Summer has arrived. (Ego-centered Motion metaphor of Time, Moving Time)

(12) Summer has come. (Ego-centered Motion metaphor of Time, Moving Time)

(13) Summer is (finally) here. (TIMES ARE LOCATIONS metaphor)

(14) We are (finally) in summer. (TIMES ARE LOCATIONS metaphor)

The examples above are different ways of construing the same conceptual content. This is analogous with the example of *the glass is half-full*, *the glass is half-empty* etc. used to indicate the same notion of conceptual content and the different ways of construing it by designating different aspects of the conceptual content (Langacker, 2008, pp.43–44). Similarly, here, the beginning of *summer* can be expressed using an arrival frame (examples 11 and 12) or a co-location frame (examples 13 and 14), all of which are different metaphors that map onto the same situation.

In Standard Arabic[39], indicating metaphorical co-location with a time uses other spatial metaphors. An interesting one is the metaphorical conception of time as a moving entity that enters an Ego-centered dominion, e.g. *Dakhala assaifu* lit. 'Summer has entered' meaning 'Summer has come'. In this example, the metaphorical 'area' that **the TE *enters/ exists* is not clear, but it could possibly refer to Ego's 'now'.** If this is the case, then **Ego's 'now' is not viewed as a specific point, but rather as a broader metaphorical area** similar to what Langacker (2008) calls a **dominion**.[40] The notion of dominion refers to an abstract area within the "sphere of control" of the Trajector Ego (p.242). Evidently, a separate analysis needs to be allocated for this type of construal and a specified grounding scenario needs to be identified. Again here, the example shows the diversity of construals available for the expression of the same situation or conceptual content.

It is also important to acknowledge the "semantic contrast" among different construals which "lies in what the expressions designate (or refer to) within the conceived situation" (Langacker, 2008, p.43). That is to say, identifying different expressions for a given situation does not undermine the meaningful nuances of each expression type; whether it pertains to different lexico-grammatical configurations of the same metaphor or different metaphor types. **Similar to synonymous words sharing a portion of their context of use, with individual variations in meaning, metaphorical construals are different ways to express the same situation with differing degrees of variation**.

4.3.3 Cognitive-based selection principle

In line with Slobin's (1987) paradigm which foregrounds the connection between language and conception, this principle presumes that **native speakers select among expressions that serve the same meaning or share similar conceptual content**. Following this, it is assumed that a native speaker is more likely to select from the verb forms *is approaching* and *is coming* than they are to select from *is coming* and *came*, for instance. This is based on the grounds of **conceptual similarity**: The first two forms share a conceptual scheme of an APPROACHING motion stage (Stage 2 of the schematic motion event) with an immediate scope implied by the progressive aspect in addition to a present tense reference, although they do not share the same verb lemma. The second set of verbs do share the same verb lemma *to come* but are different in terms of conceptual content: while *is coming* highlights the scenario just described (APPROACHING motion phase x immediate scope x Present tense), *came*

[39] This metaphor is also used in some dialects, like Tunisian Arabic.

[40] Credits to Tuomas Huumo for pointing out the analogy between Ego's 'now' and the concept of dominion.

refers to an ARRIVAL phase (Stage 3 of the schematic motion event) where the Figure and Ground of motion are co-located and the motion scenario is in the past of the speaker.

The present analysis will rely on the notion of construals to create a cognitive-linguistic classification of similar verb expressions and to also identify cognitive-based representations of each individual verb expression. Viewed this way, the verb expression is at the intersection of many systems, including metaphorical motion and grammatical criteria. The following sections will present a unified framework that takes into account these criteria and uses them to define a classification of metaphorical motion construals based on the conjugated verb expressions in each language.

4.3.4 Deictic properties

The relationship of the Temporal Entity and the Speaker could arguably be the most important deictic relation in the processing of EMTs. This is because identifying whether a TE is in the future, past, or present of the moment of speech and indicating whether it is proximal or distal pinpoint the main reason why a speaker would use[41] an EMT expression in the first place. Ultimately, EMTs are expressions used in a discourse situation for the purpose of serving a specific function, e.g. making plans in the case of future TEs or eliciting memories or indicating passed deadlines in the case of past TEs, etc. All these implications depend on understanding the Speaker-TE relation. When processing an EMT, the human mind—be it with reference to the speaker or hearer(s)—calculates through different deictic subsystems and attributes **a summative value for the position of the TE vis-à-vis the speaker** almost effortlessly. The problem is, if the human mind is skilled in making all necessary calculations to determine the Speaker-TE value, then tracing back these intricate deictic relations embedded in this implicit mental activity goes counter-to this 'gestalt-like' evaluation, hence its difficulty. Nonetheless, it is important to go against the 'presumed' and make these distinctions mainly because these deictic properties pinpoint the differences among the verb expressions, the temporal categories of tense and aspect, and eventually the two languages.

In the following subsections, I will identify the deictic aspects of EMTs starting with the deictic properties of the COME and GO verbs of motion (Section 4.3.4.1) then

[41] This is true whether the Speaker = Ego or if they are different persons. The idea here that the TE is always relevant to the speaker by virtue of bringing it up in the **Current Discourse Space** or the "mental space comprising everything presumed to be shared by the speaker and hearer as the basis for discourse at a given moment." (Langacker, 2008, p.59).

moving the properties of person and spatio-temporal deixis (Sections 4.3.4.2 and 4.3.4.3, respectively). Next, I will present the deictic anchors, subsystems, and position types informed by the specific structure of EMTs (Sections 4.3.4.4, 4.3.4.5, and 4.3.4.6, respectively).

4.3.4.1 To what extent are COME and GO verbs deictic?

In the context of EMTs, deixis is expressed by metaphorical and non-metaphorical systems. Metaphorically, it can be embedded in the direction of the COME and GO verb which are typically in "deictic opposition: 'come' is typically viewed as motion towards the speaker (or the deictic centre) and 'go' is associated with motion away from or typically not towards the deictic centre" (McEnery et al., 2018: 171).

A closer look at the uses of COME and GO verbs, however, shows that this generalization is far from perfect. Consider the following:

(15) *He came to Bahrain three years ago.* (said by a person who used to live in Bahrain, but was in Bahrain when they made this statement)

(16) *The package will come tomorrow.* (to the location or estimated location of an addressee)

(17) *I will come to the party later.* (Neither the speaker nor the addressee are at the party)

The examples above show special uses of the verb *come*. Each time, the direction of motion is not towards the speaker's spatial location; instead, it is either towards the location of the addressee or a shifted location at which the addressee and the speaker will be at a later time.

In the present analysis, any verb with the meaning of 'come' or 'go' is presumed to canonically designate deictic translational motion on a path, that is, COME typically refers to motion of a Figure toward a viewpoint location and GO refers to motion of a Figure away from or past a Ground location. The COME or GO verbs in this study do not refer to the verb lemmas *to come* and *to go* (only), but instead include verbs like *to approach* or *to arrive* as COME verbs and *to pass* as a GO verb together with their equivalents in Arabic, namely *jaa'a* ('come'), *ataa* ('come'), *iqtaraba* ('approach'), *qaaraba* ('approach'), *aqbala* ('approach), and *Halla* ('arrive') as COME verbs, *ḏahaba* ('go'), *maDaa* ('go'), *and marra* ('pass'), as GO verbs.

The verb lemmas and the verb expressions (which use conjugated forms of the verb lemmas) play a central role in the analysis, especially in the definition of the deictic location of the Figure and Ground entities, namely Ego and the TE. The rest

of the analysis will define the role of the verb form in the motion scenario in general and with specific reference to the speaker and Ego.

4.3.4.2 Person deixis

The metaphorical motion scenario can be identified based on two different deictic perspectives generated by two different personas: **Ego**, the experiencer of metaphorical temporal motion, and **the speaker** who is the narrator of that experience. This distinction is grounded in the scholarly exploration of the concept of SELF in narratology. For instance, Triki (1991) makes the distinction between "the perceptual centre", identified in the present analysis as Ego, and "the speaking voice" identified as the speaker (Genette (1980) and Toolan (1988) as cited in Triki, 1991, p. 78). The purpose of this distinction is to make the difference between "the consciousness mediating the scene" and "the consciousness giving it expression" (Triki, 1991, p. 78) where the "scene" or the "story" in the case of EMTs represents the metaphorical motion scenario.

Ego and the speaker each provide a unique deictic anchorage, and based on whether they agree or disagree in deictic references, "the … I/here/now of the narrating self stands as an explicit or implicit axis with respect to … all I/here/now(s) in the story" (Triki, 1991, p. 80). Subsequently, distinguishing between Ego and the speaker is not always evident. That is to say, in the case where the I/here/ now of Ego identifies with that of the speaker, the two personas identify. However, on the occasions where they are diverging in one or more of their deictic reference points, the distinction comes to the surface. Put differently, **the distinction Ego/speaker emerges only when they do not share the same deictic reference.** Consider the following example:

(18) *I was coming to Qatar at the time*.

This is an authentic example uttered by a person who was in Qatar at the time of speech and who was talking about the time he was in Tunisia and travelling to Qatar. This statement marks an interesting deviation: Should the speaker use the verb *come* or *go* to accurately describe this motion scenario?

The speaker in this illustration identified with his current deictic center (Qatar) hence the verb: *come*. If, however, the speaker uses a decompression of identity (Speaker vs. Ego) to go back in time and refer to the location of Ego which is Tunisia, then he would use the verb: *go*. **Ego, in this scenario, refers to the persona experiencing the physical motion from Tunisia to Qatar** while **the speaker is the persona describing or narrating it while he is in Qatar.** Although both refer to the same physical person, they differ in terms of spatio-temporal reference. In fact, following the tense of the statement, it is structurally more accurate to use the

reference motion verb *go* which correctly allocates the spatial reference of Ego in the past and hence the motion away from Tunisia and towards Qatar. However, by using **the verb *come*, the speaker combines an Ego-centered past temporal reference with a Speaker-centered present spatial reference.**

This illustration instantiates a difference between Ego, the experiencer, and the speaker, the narrator of that experience. The distinction here is not made based on whether they refer to the same person or not, but rather on whether they have the same role or not and on how the distinction of their roles implies a distinction in how they map onto the elements of the utterance.

4.3.4.3 Spatio-temporal deixis

Ego and the speaker are positioned onto the different axes: MP, VT, and PT, and in so doing, they serve as an anchor to spatio-temporal deictic centers. In total, Ego is shown in two different positions while the speaker provides a single type of deictic anchorage: Ego's position on MP is referred to as Ego's 'here' while its position on VT is the temporal counterpart of the latter and is thereof called Ego's 'now'. The speaker's position on PT refers to the speaker's present which is marked by the moment of speech. Overall, this results in three deictic centers: one spatial-like in the form of Ego's 'here', and two temporal: Ego's 'now' and the speaker's present (see Figure 24)

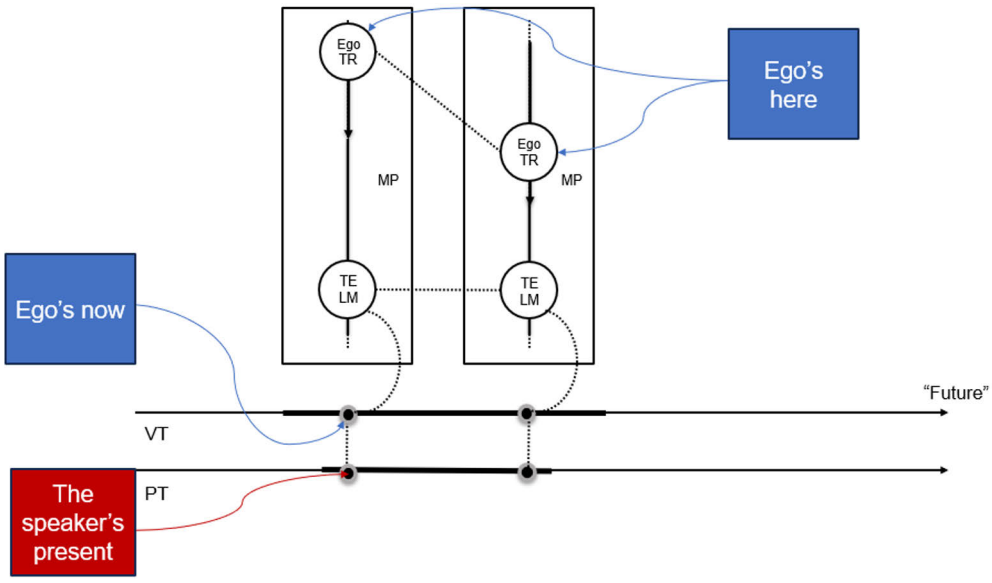

Figure 24. Ego approaching a time, e.g. *We are approaching RamaDaan*. Three deictic centers are illustrated here: Ego's 'here', Ego's 'now', and the speaker's present (taking a ME metaphor illustration and a mapping of Ego's 'now' to the speaker's present).

Although the descriptions try to be as generic as possible, the exposition of Ego's 'here' and Ego's 'now' together with the speaker's present relies on the specification of them all. As shown in Figure 24, Ego, the experiencer of temporal motion, is mapped onto the MP and the VT to represent the two frames of the metaphorical scenario. First Ego's 'here' is mapped onto the MP to present Ego's role in the motion frame. Then, Ego's 'here' on MP is mapped onto Ego's 'now' on VT following the primary metaphor mapping NOW IS HERE from the MOTION frame to the TIME frame (Moore, 2016). This mapping on VT has two meanings: First, the whole MP scenario with all its elements is situated at Ego's 'now' on VT. Second, the position of TE is also inferred with reference to Ego's 'now' although it is not presented in the model. That is to say, two different inferences are relevant with regard to Ego's 'now': the motion scenario depicted by the verb expression and the TE involved in the motion scenario. The speaker, on the other hand, is mapped onto the PT only as they take the role of the narrator of the motion scenario and so, their role is not active in the metaphor scenario.

The identification of Ego's 'here' reveals the Spatial-like deictic axis of EMTs, namely in that the metaphorical position of the TE on the MP maps onto a temporal position vis-à-vis Ego's 'now' on VT. Earlier and later positions are then mapped onto future and past times (Huumo, 2017; Moore, 2016). The temporal deictic axis is also evident in that the position of the TE on VT, or VT-TE can be identified according to two temporal reference points: the time of the speech and Ego's 'now'.

4.3.4.4 Deictic anchors

Although the ultimate aim of this analysis is to identify the motion scenario and the Temporal Entity in relation to the speaker, given the unique and intricate nature of EMTs, the speaker, however, is not the only persona involved in the metaphor. Despite the fact that the speaker has access to all deictic cues, and is thus the one to make the most accurate evaluation on the position of the TE, at this (impoverished) level of analysis, it is still possible to make some evaluation of the temporal reference of each verb expression just based on the interaction of the lexical aspect indicated by the verb lemma with the viewpoint aspect indicated by the level of perfectivity (completeness), progressive aspect, and tense. This section will provide an elaborate description of the personas involved in the EMT expression while the following section will locate these personas into specific deictic subsystems using Huumo's (2017) model.

Three different personas are identified here.

- **Ego** is the "on stage" or implicit experiencer of the motion scenario, "on stage" if explicitly coded as in ***We*** *are approaching the football season* and implicit if not coded as in *The football season is approaching (**us**).*

Ego is "trapped" in the motion event and as such cannot provide a summative evaluation of her changing location vis-à-vis the TE on MP, nor on her positions in V[eridical] T[time]. It is important to note here that Ego is not a participant in the linguistic usage event. Ego is rather a referent of the linguistic expression: something conceptualized and talked about by the speaker (who is also a conceptualizer).

- **The speaker** is the narrator of the motion event and the person related to the **Current Discourse Space**, or the "mental space comprising everything presumed to be shared by the speaker and hearer as the basis for discourse at a given moment" (Langacker, 2008, p.59). The speaker ultimately chooses the profiling at all levels because she has access to all contextual, situational, and co-textual cues and she is the one who creates the linguistic expression. The speaker also relates the motion construal to their immediate reality. The determination of speaker anchorage relies on the "dual reference [of PT], serving as both speech time and conception time" (Langacker, 2023, p.206). In particular, PT is considered as a conceptual axis because of its dual function in "[t]he coordination of speech and conception" (Langacker, 2023, p. 207).
- **The conceptualizer** is an additional persona who takes the role of an evaluator of Ego's deictic positions using the categorical systems in the verb expressions explicitly in English and implicitly in Arabic. The conceptualizer **observes the event as it reaches its final phase, performs a sequential scanning by going through the phases of the event, and observes that the endpoint is reached**. The conceptualizer is theorized to evaluate events at an intermediate level, where we can indicate whether an event is in the past or future without reference to immediate reality, which, in the paradigm of this study, is reserved for the Speaker. In many if not most cases, the conceptualizer can be identified with the speaker. It is, however, possible to have imaginary conceptualizers as well, for example in selecting perspectives on a situation not actually experienced by the speaker.

It is important here to make a distinction among the three personas: The Ego and the speaker are core personas essential for the description (and conceptualization) of EMTs as complex metaphors that involve multiple conceptualizations of time. Additionally, Huumo's (2017) model depends for its functionality on this dual anchorage: Ego is mapped onto MP and VT, and the speaker is mapped onto PT (cf. Section 2.2.3). However, the identification of the conceptualizer is tailored to the purposes of the present inquiry, specifically to describe the deictic subsystems of

EMTs in case the temporal reference of the expression cannot be related directly to the speaker.

4.3.4.5 Deictic subsystems

A multi-level conceptualization of time is particularly useful for disentangling the deictic composition of EMTs. By appointing separate spatial-like and temporal deictic connections, I answer the following question:

> How do the systems of tense and aspect interact with the different motion verbs to indicate a dual temporal reference; i.e. involving time as the "medium" and an "object of conception" (Langacker, 2008, p.79) with a dual person reference that involves Ego the experiencer and the speaker?

These properties are unified across the ME and MT frames because they are independent of the Mover type, and they are, instead, based on the motion stage in the schematic motion event. In what follows, I will identify the different deictic points with their properties.

In total, five deictic relations can be identified; they are as follows:

1. The (spatial-like) reference of the TE vis-à-vis Ego's 'here' on the Metaphorical Path (MP) axis: **Ego-MP-TE**, or Ego's relationship to TE on the MP. It is important to point out that the TE in this relationship is not the veridical-time temporal entity but its counterpart in the metaphorical scenario; it could alternatively be noted as TE', but I am using the notation TE to simplify. Ego-MP-TE connects the persona Ego, the spatial-like axis MP, and the temporal entity TE. Ego-MP-TE relies in its identification on the location identified by the motion verb expression. Since the expressions profile motion, the classifications will use two arrangements, each indicating the position of the Ego-MP-TE at each stage of motion. This goes in line with the model representations and makes it possible to connect this classification to the motion phases.
2. The (temporal) reference of the VT-TE (i.e., the veridical-time temporal entity itself, as opposed to its counterpart MP-TE in the motion scenario) vis-à-vis Ego's 'now' on the axis of Veridical Time: This relationship is called **Ego-VT-TE** since Ego's 'now' is located on the VT axis. Ego-VT-TE relates to the experiencer Ego, the temporal axis VT which identifies time as an object of non-metaphorical conceptualization, the temporal entity TE, and the temporal reference of the TE vis-à-vis Ego's 'now'. It is important to note here that on the model, only the position of Ego is shown

on VT, more specifically Ego's 'now', while the veridical TE is not shown, yet its position in VT vis-à-vis Ego's 'now' can be inferred from the metaphorical expression as either in the present, in the past, or future of Ego's 'now'. The position shown is based on the second stage of the motion scenario which is the outcome of the motion scenario. Ego-VT-TE is independent of the speaker's position. It is indicated by the inference of the motion frame on a temporal frame and is independent of the time of speech. This distinction is pivotal to the analysis.

3. The relation of the motion scenario vis-à-vis the speaker. This relation will be called **Speaker-MS** and looks at whether the motion scenario profiled by the verb expression is in the present, past, or future of the speech event. This relation is identified categorically through tense in the English model while it is subject to context in the Arabic model.
4. The relation of the motion event vis-à-vis the **Conceptualizer-MS** is reserved for certain Arabic verb expressions (to be specified in 4.3.9). The **Conceptualizer-MS** property identifies the relative temporal reference of the motion expression vis-à-vis the Conceptualizer since situational time vis-à-vis the speaker cannot be categorically identified. As will be detailed in Section 4.3.9, the **Conceptualizer-MS** captures the pastness of the perfective and the future reference of the *sa-* imperfective in relation to Ego.
5. The (temporal) reference of the veridical **TE** vis-à-vis the **Speaker's present**. This variable is referred to as **Speaker-TE**. By Speaker-TE, I refer to the temporal position of the TE vis-à-vis the moment of speech, or the speaker's present. This variable is not represented on an axis since it is not part of the metaphorical motion scenario; it is rather **inferred** from the scenario, and this inference is more indirect than the inference concerning the veridical-TE's position with respect to Ego's 'now'. The Processing Time axis (PT) is also not included in the notation of this variable because it is an axis that represents the neurological activity at the time of processing of the motion scenario.

4.3.4.6 Deictic positions

The presentation of the models and the contrast between the different motion construals is based on an interplay of the following deictic positions:

To begin with, the spatial-like configurations on MP will be presented based on the TR-LM relations. These are spatial-like positions indicated by the motion verb, designating the metaphorical spatial relations of Ego and the TE using the

metaphorical spatial reference: **Ego-MP-TE** identified in the previous sections. Here, three deictic positions are identified:

1. **Pre-location:** refers to a TR in a preceding position vis-à-vis the LM, in motion towards the LM.
2. **Co-location:** refers to a TR at the position of the LM.
3. **Post-location:** refers to a TR in post-position vis-à-vis the LM, in motion away from the LM.

Since the EMT construals considered in this analysis are motion construals, the presentation of the Ego-MP-TE (or the position of Ego vis-à-vis the TE on MP) will be in the form of two, and for some construals three, points that mark the transition indicated by the verb of motion. This way the spatial-like shift or change indicated by the verb expression is translated in the deictic subsystem which takes the following notation:

> **Ego-MP-TE:** pre-location to co-location, e.g. *Summer came*. This means that, irrespective of whether the Mover is Ego or the TE, the position of Ego vis-à-vis the TE shifted from a prior location to a state of co-location.

Concerning the **Ego-VT-TE**, the analysis will adopt temporal positions based on the radial conception of time which make the distinction among three cases with Ego's 'now' at the center: **Ego-Past**, **Ego's 'now'** equivalent of the present of Ego, and **Ego-Future**. It is important to note here that these are imagined temporal positions vis-à-vis Ego, hence the hybrid notation. This, in turn, serves the purpose of making the distinction between the temporal anchorage of Ego and that of the speaker.

Finally, regarding the **Speaker-MS**, the **Speaker-TE**, and the **Conceptualizer-MS**, the positions of the TE or of the Motion Scenario (MS) are also indicated using the same temporal positions as **Ego-VT-TE.** That is to say: past, present, and future. The analysis acknowledges the difference of temporal positions vis-à-vis the speaker, the Conceptualizer, and Ego, given the fact that Ego is not part of the linguistic system, and therefore their past, present, and future are imagined at a different level of conceptualization and inferred from the metaphorical scenario. However, the temporal positions are nonetheless unified in terms of notations first to simplify the model representations, and second to highlight the distinction between Ego's imagined timeline and the speaker's timeline, albeit at different conceptual levels.

4.3.4.7 Transposition

The verb forms under study are typically used with a real deictic anchorage with reference to a specified Ego experiencer. However, this is not always the case. The verb expression can also sometimes be used in what is referred to as instances of "decentering", "transposition" (Hanks (1990) as cited in Moore (2014)) or a "shifted deictic center" (Fillmore 1982b as cited in Moore (2014)). Consider the following example:

(19) *Whatever Tomi writes about the future cannot be tested until that future has arrived.* [COCA, BLOG, 2012]

Example (19) shows that 'the arrival of the future' is not relevant to the present moment of speech. Instead, it is imaginary and conditional, thus making it an instance of transposition. More generally, a "transposed" or "shifted" deictic center is one where the deictic anchorage is moved away from the moment of speech and the speaker (Moore, 2014, p.21). That is to say, this is the case where the EMT expression "is anchored in an imaginary setting" (Moore, 2014, p.21). In this case, the "Event Time" (Reichenbach, 1947), or the time at which the metaphorical motion takes place, is interpreted at a conceptual level which is 1) imagined and 2) different from "Speech Time" (Reichenbach, 1947) or the moment of speaking. Here, the notion of the **independent Conceptualizer** is useful in evaluating the motion construal without making reference to the moment of speech. Evidently, transposed instances mark the interplay of mood as these imagined experiences of temporal passage serve the purpose of communicating other speech acts different from descriptions of real temporal passage using an indicative mood. With this in mind, the conceptual representations of the verb forms are limited to cases where the verbs are used in a real setting as opposed to imaginary ones. Alternatively, the PT marking the Speaker's neurological conception of the motion event could be replaced by a CT or Conceptualization Time to refer to any given conceptualizer, real or imagined.

4.3.5 Interim summary

The English EMT lines are finite clauses which can be related to the time of speech following Langacker's definition identifying a finite clause as one which "profiles a grounded instance of a process type." (Langacker, 2008, p. 360). Arabic clauses using the imperfective can be finite or infinite. For this reason, they are not always related to the time of speech. Although Arabic does express tense as the reference of a "Event Time" to a "Speech Time" (Reichenbach, 1947), it does not do so categorically. Instead, the aspectual categories perfective and imperfective combine with different cues to give different tense/mood/aspect extensions. With this

variability in mind, the English and Arabic verbs simply cannot be analyzed using the same paradigm.

Huumo's (2017) model is designed for tensed language systems. More specifically, the model relies on the categorical representation of tense in determining the relationship between the speaker and the motion event. Subsequently, there are expected limitations to applying a tense-aspect based model to an aspect-based systems. In the analysis of the Arabic verb expressions, I follow the paradigm of Stutterheim et al. (2017, p.216) who point out that "[t]he actual interpretation of **aspectually marked sentences** … depends on the interaction between **the grammatical aspectual category** and **properties at the level of semantic aspect**". In so doing, I take the Arabic verb expressions as semantic units with differentiated temporal criteria: the perfectives and the *sa-* imperfective verbs are presented with reference to the Conceptualizer while the imperfective forms are only represented based on their lexical aspect. For each verb description, I refer to the corpus data to see the different temporal construals created by the verb form and give a description of the latter.

4.3.6 Clausal Grounding

Unraveling the deictic complexity of EMTs is halfway accomplished now by presenting their deictic properties. The next step involves exploring how these properties interplay to generate diverse motion construals, and examining how this interaction is the outcome of metaphorical and grammatical variables. In this section and the following sections, I will introduce a synthesis of these variables and integrate them with Huumo's (2017) model to finally present the distinct motion construals for each language.

Part of the description of motion construals resides in their temporal grounding. Temporal grounding refers to connecting the elements of a clause and the speech event following the principle that "a finite clause profiles a grounded instance of a …process type." Langacker (2008, p. 264). A more elaborate definition of the latter is as follows:

> The term ground is used in CG to indicate the speech event, its participants (speaker and hearer), their interaction, and the immediate circumstances (notably, **the time** and place **of speaking**). A **grounding element** specifies the status vis-à-vis the ground of the thing profiled by a nominal or the process profiled by a finite clause. … **Clausal grounding (e.g. *-s*, *-ed*, *may*, *will*, *should*) situates the profiled relationship with respect to the speaker's current conception of reality.** In this way grounding establishes a **basic connection between the interlocutors and the content evoked by a nominal or a finite**

> **clause.** If left ungrounded, this content has no discernible position in their mental universe and cannot be brought to bear on their situation. It simply floats unattached as an object of idle contemplation.
>
> Langacker (2008, p. 259)

This analysis is concerned with clausal processual grounding. As indicated in the definition above, this type of grounding is temporal and epistemic.

Langacker (2008, pp. 306–309) connects temporal and epistemic under the concept of an epistemic model (Figure 25). In short, the model divides reality into three types: **Conceived Reality (Rc)** refers to what the Conceptualizer conceives of as "established knowledge" (ibid, p. 301) or "history of occurrences" (ibid). **Projected** and **Potential** realities, on the other hand, are related to the future. Potential Reality includes all the possible future occurrences—whether anticipated or not. Within the universe of all future possibilities, there are some events or "paths [that] seem especially likely to be followed" (ibid, p. 306). These paths belong to a specific subpart of potential reality which Langacker calls **Projected Reality**. Finally, **Current Reality** refers to the Conceptualizer's ongoing experience of present times (ibid, 301).

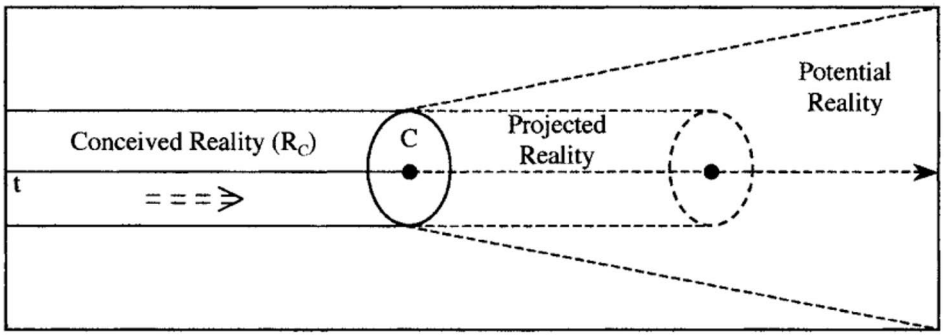

Figure 25. Illustration of Langacker's system of epistemic modality (Langacker, 2008, p. 306). Grounding, as used in this study, is informed by this mapping of epistemic and temporal conceptions and is employed as the framework that underlies the relationship between the event and the speaker.

Grounding elements differ across verb expressions but are generally related to deictic temporal elements. Each time, the verb expression will be mapped onto a grounded process taking into account the organizational hierarchy defined below:

> The grounded structure consists of the lexical verb augmented, at successively higher levels of organization, by the passive, progressive, and perfect. Each of

> these latter elements **imposes its own processual profile** on the structure already assembled…The **grounded process** is the one profiled by the composite structure at **the highest level of organization**.
>
> (Langacker, 2008, p.300)

This approach is especially important to provide a unified analysis that acknowledges the different temporal systems of Standard Arabic and English, and to also **cater to the representations of the different temporal construals within each language**, i.e. the different tense x aspect combinations in English and the aspectual dichotomy in Arabic. As such, the present approach is not just clarified by this understudied deictic composition of EMTs, which will be explored using the temporal and metaphorical subsystems, but is also motivated, using an empirical approach, by the gaps indicated in the literature of tense and aspect. This study contributes to the literature on Cognitive Grammar accounts through the semantics of tense and aspect; the main difference in the present analysis is that the tense-aspect combinations are tested within a metaphor construal. The analysis scheme can be summarized as follows:

- Each verb expression highlights a motion construal with defined conceptual content.
- The conceptual content of the verb expression will be described with defined deictic subsystems (Section 4.3.4) integrated with Huumo's (2017) cognitive linguistic model.
- Temporal Grounding relies on the temporal systems of tense and aspect: tense is inherently deictic and typically defines the relationship between the Motion Scenario and the speaker. Aspect is not deictic but still contributes to the subsystems of each construal, as a result of its interaction with other elements.

The following subsections will present each of the following elements: lexical aspect (Section 4.3.6), grammatical aspect, including perfective, imperfective and progressive aspects (Section 4.3.7), an overview of the semantics of the English tenses used to derive the English verb expressions in this study (Section 4.3.8), and an overview of the semantics of Arabic aspects used to derive the Arabic verb expressions (Section 4.3.9).

4.3.7 Lexical aspect: Aktionsart

The analysis moves from the **properties of a verb** to the **properties of the verb expression** and then **the EMT motion construal**. In general, a verb, specifically a

verb of motion, invokes a temporal construal of motion by profiling a process that is scanned through time (Langacker, 2008, p.117). The first step to define the complex composition of the verb expressions is by looking at the verb lemmas. Lexical aspect or Aktionsart relates a verb to "time schemata" (Vendler, 1957) based on the meaning of verbs. That is to say, Aktionsart relates the verb meaning to temporal information by referring to "aspectual information present in … verbs" (Boogaart & Janssen, 2010, p. 814). In the specific case of COME and GO motion verbs, **Aktionsart indicates the maximal motion path profiled by each verb lemma which can later be specified by other temporal categories of tense and the viewpoint aspect**.

The classical theory of Vendler (1957) divides verbs into four classes: states, activities, accomplishments, and achievements. Vendler's (1957) classification is based on three main verb properties: 1) duration: whether the action takes time and can thus be expanded in duration; 2) telicity: whether the action results in an outcome or not; and 3) change: whether the end of the action implies change (Vendler, 1957).

Of the four verb classes, three are relevant[42] to the motion verbs under study: accomplishments, activities, and achievements. They are defined as follows:

> … the concept of activities calls for periods of time that are not unique or definite. Accomplishments, on the other hand, imply the notion of unique and definite time periods. …while achievements involve unique and definite time instants…
>
> (Vendler, 1957, p. 149)

In other words, activities are durative and atelic. Accomplishments are also durative, but telic, while achievements are typically telic and non-durative.

The selected verb lemmas in both languages are related to these processes or actions, each of which refers to a distinct Vendlerian class of action types: COME, APPROACH, ARRIVE, GO or PASS. In what follows, I will use the verbs in small caps to make language-neutral, meaning-based descriptions which are expressed by different verbs in Arabic and English, and I use italicized verbs to indicate either verb lemmas or conjugated verb expressions.

Before delving into the properties of each verb based on the Vendlerian classification, it is important to note that the mapping of English verb lemmas to the action types is straightforward since the identification of actions is based on English

[42] State verbs such as *be* or *lie* can also be used in EMTs, if the sense of motion is created by a preposition, e.g. *Winter is ahead*. However, these expressions fall out of the scope of the present study.

(Vendler, 1957). However, mapping the Arabic verbs is more complex, namely in the distinction between COME and ARRIVE for the verb *jaa'a* which has been identified in the Frequency Dictionary (Buckwalter & Parkinson, 2011) as an equivalent of both of the verbs *to come* and *to arrive*. The same holds for the verb lemmas *marra* and *maDaa* which map onto *to go* and *to pass* simultaneously.

With this cross-linguistic distinction in view, the present description is thus based on types of actions or Aktionsart. More specifically, I will also use the classical Vendlerian classification of accomplishments, achievements, and activities, the meaning of each classification type is identified with the corresponding actions.

First of all, COME is typically classified as an accomplishment which combines a process that extends over a given duration together with a culmination stage that indicates co-location of the Mover with the goal of motion. In principle, depending on whether the verb is used in a tense/aspect combination that shows completeness or not, different stages of the motion from pre-location to co-location of a Mover with a Ground Location are profiled.

ARRIVE can be classified as an achievement, typically with no duration indicating proximal pre-location of the Mover and a culmination of co-location with its Goal. Broadly speaking, achievements are "instantaneous changes of state" (Smith, 1991, p.181) Achievements typically allow the progressive aspect "focusing preliminary, detachable stages of the event" (Sith, 1991, p.181). An achievement profiles the culmination phase of the event. This classification is further supported by the description in Langacker (2008, p.68), namely that both *come* and *arrive* "invoke[…] a relationship in which the mover, through time, successively occupies all the positions defining the path. The difference in their meanings is that *come* profiles the full motion event, in which the mover traverses the entire path, whereas *arrive* designates only the segment in which the mover finally reaches the goal."

APPROACH does not include in its profile a culmination phase and can thus be classified as an activity because it indicates an "atelic durative event" (Smith, 1991, p. 177). In this sense, APPROACH conveys a process that has duration but lacks a change-of-stage of the Mover as a result of the culmination phase, for instance from pre-location to co-location. Instead, the outcome of an approaching Mover to a Location is the increased proximity of the former to the latter.

PASS can be classified either as an achievement or an activity depending on whether it is telic or not. The telicity of a passing action is, in turn, related to whether the passing action is bounded or not. The evaluation is dependent on the completeness of the action and the nominal aspect of the TE which takes the role of the Figure in a Subject position, or the role of the Ground in an object position.

First, a completed PASS event indicated by the Arabic perfective or by English tenses like the simple past and the present perfect invite a telic evaluation of the verb,

and hence it would be classified as an accomplishment. This includes for example the verb expressions *passed, has passed, marra* (pass.PERF.3SG.M), etc.

If the conjugated verb maps onto an incomplete event e.g. *is passing, yamDee* (pass.IMPF.3SG.M), then PASS can be either telic or atelic depending on the nominal aspect of the TE. The nominal aspect is a new element that comes into play to help us define the lexical aspect of PASS and later on, the deictic properties of its related EMT construals. The nominal aspect relates to the boundedness of the nominals which, in turn, contributes to the overall evaluation of the telicity of a sentence, following this principle: "an incremental NP that indicates a closed quantity makes the overall aspect of the sentence telic and thus bounded, whereas one indicating an open quantity results in unbounded aspect" (Huumo, 2010, [abstract]). Applied to this case, the nominal aspect of the TE allows for two readings, if the TE is bounded (e.g. *winter, the deadline, the recession*, etc.), then the motion is expected to have an endpoint and is thus classified as an accomplishment. If the TE is unbounded (e.g. *time*) then the motion is not expected to have an endpoint, which in turn invites an atelic evaluation and the action is classified as an activity. Compare, for instance, *Winter is passing fast* to *Time is passing fast*. This comparison highlights the impact of the nominal aspect of the TE: *Winter* is expected to pass in a few months or weeks while the passing of *time* is infinite. The first example thus invites a telic reading of the action PASS while the second example invites an atelic reading of the same action, although both examples use the same verb lemma *pass* and an imperfect present progressive aspect.

Generally, GO can be classified as an atelic activity that indicates motion away. Most importantly, in the case of EMTs, GO verbs, as used in this study, are combined with *by* and *through* which alter the Aktionsart-meaning of the verb into the clause-level aspectual meaning. More specifications of the satellite indications for each verb for each language will be introduced in the analysis sections.

4.3.8 Grammatical aspect

The idea here is that there is interplay of the lexical aspect and the viewpoint aspect of the finite verb in such a way that the lexical Aktionsart class of verbs indicates the possible stages of the Motion Scenario which can be profiled by a given verb lemma. Aktionsart or the lexical aspect mandates maximal profiling of the designated event by that verb. In contrast, the viewpoint aspect that results from the tense and grammatical aspect narrows down a verb's profile to a more specified segment of the schematic motion event.

The notion of viewpoint aspect, as used in this analysis scheme, comes from Smith (1991, pp. 61–62) who first introduces the term using a perceptual metaphor in as follows:

> [a]spectual viewpoints function like the lens of a camera, making objects visible to the receiver. Situations are the objects on which viewpoint lenses are trained. And just as the camera lens is necessary to make the object available for a picture, so viewpoints are necessary to make visible the situation talked about in a sentence…The main semantic difference among aspectual viewpoints is in how much of a situation they make visible. **Perfective viewpoints** focus a situation in its entirety, including endpoints; **Imperfective viewpoints** focus an interval that excludes endpoints; **Neutral viewpoints** include the initial point and at least one stage of a situation

Three viewpoint aspects are to be retained here: perfective, imperfective, and neutral. They are expected to interact with the lexical aspect of the verb lemma to identify (a) given motion stage(s) of the overall schematic motion event. This point marks the first grammatical mechanism behind the metaphorical mappings.

4.3.8.1 The connection between viewpoint aspect and the progressive aspect

The perfective, imperfective, and neutral viewpoints result from the interaction of the grammatical perfective and imperfective aspects with the progressive and simple aspects. Moreover, theoretical descriptions of aspect indicate that "aspectual distinctions (imperfective, progressive) lead to decomposition of the event into phases (this can be the inceptive, intermediate, or terminative phase)" (Stutterheim et al., 2017, p. 210). The progressive[43] aspect, in particular, indicates an imperfective viewpoint aspect of a given verb because it "takes an 'internal perspective'" (Langacker, 2008, p. 155) of the event and "imposes an immediate temporal scope delimiting some internal portion of the overall relationship and selecting it for focused viewing. Hence only this portion is profiled" (ibid). This, in turn, means that the progressive profiles a part of an event, which is characteristic of an imperfective viewpoint, defined above. The progressive aspect is thus an "**imperfectivizing device**" (Boogaart & Janssen, 2010, p. 816).

A closely related concept to the progressive is scope. More precisely, two types of scope are related to the conceptualization of a conjugated verb: a maximal scope and an immediate scope (Langacker, 2008). The maximal scope is a viewing arrangement that looks at an activity holistically, while an immediate scope focuses

[43] It is important to note here that the present analysis looks at the progressive as an aspect from a cross-linguistic cognitive perspective and extends its meaning irrespective of whether it is marked by a specific construction like *-ing* in English or not.

on a particular part of the activity. The progressive aspect is correlated with the immediate scope.

The notion of scope in general is very important for the present analysis since the metaphorical motion construals are divided into different stages using experiential grounds and since some conjugated verb expressions highlight a part of the motion event that can be described by a given verb lemma. The combination of scope type and aspect types result in a variety of temporal configurations and in turn a variability of viewing arrangements of the same metaphor type. Such variability has, until now, been largely overlooked in the Cognitive Linguistics literature on EMTs.

4.3.8.2 The connection between perfective / imperfective viewpoints and perfective / imperfective aspects

An important point of analysis is needed before we proceed with the rest of the analysis scheme: The terms **perfective** and **imperfective** are not reserved to viewpoint aspect categories. Rather, they are marked by a terminological ambiguity in the literature which makes them polysemous: In addition to viewpoint aspect types, the terms perfective / imperfective are also used as 1) category names for verb classification i.e., like Aktionsart classes, but more schematic than in Vendler's division., 2) aspectual properties of tenses and events in English, and 3) a morphologically marked aspectual category in Arabic. As viewpoint aspect types, the perfective and imperfective are viewing arrangements which construe the situation either as a whole or partially. As aspectual classes of verbs, they are used to make a lexical-based classification of verbs where perfective verbs are "bounded in time" whereas imperfective verbs are "not specifically bounded" (Langacker, 2008, p.147). In English, the perfective / imperfective aspects are characteristics of tenses. In Arabic, the perfective / imperfective is an aspectual dichotomy that morphologically marks the verb. That is to say, the conjugated verb in Arabic takes one of these two forms with possible additions of particles like the *sa-* future particle used in the paradigm of this study.

The following sections (Sections 4.3.8 and 4.3.9) will present a much-needed overview on the anticipated roles of English tenses and Arabic aspects in contributing to the composition of EMT construals.

4.3.9 English Tenses: Temporal construals of the tensed verbs

Tense is a grounding system that typically "relates an occurrence to the moment of speaking" (Langacker, 2008, p.157). Of the five English tenses used in this study,

the simple past, the simple[44] future, the present progressive are viewed as grounding elements; meaning categories that define a relationship to the moment of speech and are inherently deictic. The simple present, however, does not conform to this identification and will thus be described separately in Section 4.3.8.3.

Tense is considered in this study paradigm as a dependent variable that combines with other grammatical and metaphorical features to define precise deictic properties in the EMT construal. Tense, in these respects, fulfills the role of "mark[ing] the temporal position of the designated event with respect to the speaker's present, while aspectual oppositions between perfective and imperfective processes relate to the internal temporal structure of the event, such as boundedness (in VT) and duration" (Huumo, 2017, p. 38). Subsequently, a precise description of the reference of each of the studied tenses is needed to identify the role of each tense in each motion construal.

4.3.9.1 Tense as a complex category

Before looking at the descriptions of each tense, it is important to go briefly over the ontology of tense as a complex category, to showcase the variability of references of each of the tenses under examination. Overall, a tense category can be envisioned in the following way:

[44] 'Simple' here means not progressive.

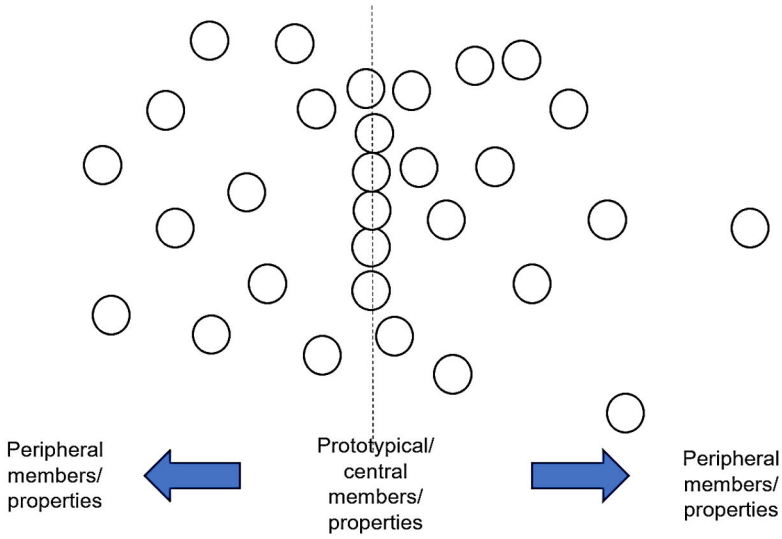

Figure 26. Representation of the structure of a complex radial category, e.g. tense.

Tense is a prototype-based radial category, in line with Janda's (2018) paradigm of a radial category. More precisely, tense can be identified in relation to a prototypical definition in that speakers (and even linguists) usually select one (or maybe more than one) grounding reference of a tense for its description. This makes this reference salient, albeit not unique. Just as when we identify an apple as a prototypical member of the category 'fruit', an ongoing event could for instance be a prototypical description of a present progressive, and many language textbooks carry this identification. In this sense, temporal references can be viewed as 'members' of a tense category. With prototypical members come prototypical properties or features. For instance, if description of ongoing events is prototypical of the present progressive, then an imperfective aspect is prototypical of the latter since an ongoing event is by nature an unfinished event.

With this in mind, the present analysis can take one of two routes: Either I provide a pluralistic description of each tense, taking into perspective the complex reference of each category. That is to say, for each of these tenses, I would acknowledge a plurality of temporal references, and I would make several representations of EMT construals based on the different extensions of each tense, making a separate conceptual model for each, and repeating this process for all the verb expressions under study. Or, alternatively, I could focus on the prototypical center of each tense category and take it as a starting point for the analysis then give an overview of the corpus-based extensions later in the description. If done this way, the EMT construals will be based on a central description of each tense, and then the corpus descriptions based on the annotated data can complement this 'idealized' description or add to it.

For evident reasons, I opt for the second choice. While tempting, delving into the complex semantics of each of the five English tenses under study is too extensive for the present inquiry. Instead, to simplify the analysis and save space, I will share a prototypical description for each tense and then describe the usage extensions of each verb expression in situ.

4.3.9.2 The simple past, the simple future, the present progressive, and the present perfect

At this point, I have to identify the prototypical central references for each tense selected in the paradigm of this study, which will serve as the basis for the upcoming descriptions. These descriptions could also be thought of as hypotheses to validate the corpus data. As such, I state each of the following theory-based descriptions in the form of an anticipation presuming that these idealized descriptions will eventually be empirically tested by the corpus data. The following descriptions are based on the works of Langacker (2008), Brisard (2013), and by De Wit & Brisard (2014).

1. The simple past is expected to refer to a perfective aspect and a past motion scenario that is completed prior to the moment of speech following Langacker's (2008) description that "[t]he past tense indicates that an instance of the process occurs prior to the time of speaking" (p.157).
2. The simple future is expected refer to a motion scenario that is in the future of the speaker and which has not yet occurred at the moment of speech.
3. The present perfect is anticipated to refer to a past motion scenario with some form of extension to the moment of speech (Brisard, 2013).

4. The present progressive is expected to refer to an ongoing motion scenario that evolves synchronically with the moment of speech (De Wit & Brisard, 2014).
5. The simple present is vague and pluralistic, so it is not considered as a grounding element. The description of the simple present is shared in the next subsection.

4.3.9.3 The simple present

The simple present is neither simple nor present, or to put it in Langacker' s (2001) words "the present tense can be used for *anything but the present time*" (p.250). This is to say, verbs, particularly activities, accomplishments, and achievements[45], that take the simple present tense in English are problematic. By *problematic* here, I assume the perspective of a someone who tries to describe the temporal profile of the simple present[46] and I particularly refer to two types of vagueness: 1) **definitional** i.e. considering its properties as a temporal category and 2) **referential** i.e. with reference to its usage extensions. It is particularly not clear to what extent the simple present actually refers to the present moment of speech.

Interestingly, in contrast to what it is called, "the present tense is often used for nonpresent occurrence" (Langacker, 2001, p. 250). Overall, Langacker (2001, 2008) relates the simple present to the speaker's immediate reality, but empirical descriptions of the simple present particularly with reference to the nonpresent uses of the English simple present tense (Brisard, 2013; Langacker, 2001, 2008; Wit, 2016, among others). The literature also shows that the simple present can map onto different temporal meanings and two levels of actuality: actual and non-actual references (Wit, 2016). With this complexity in mind, this study takes the simple present as a decentralized tense category with a vague reference. In this sense, the simple present tense is not viewed as a grounding element, and its reference to the moment of speech is subject to context specification.

[45] The problem here mainly pertains to accomplishments, achievements, and activities that are used in the simple present while states are typically not ambiguous in reference when used in the simple present; e.g. *He knows his students,* or *She loves salads*, etc.

[46] As opposed to the speaker or user. I anticipate that vague temporal categories like the simple present tense are easier to use because, they are more versatile and are, thus, less likely to result in error the way more defined temporal categories do.

4.3.10 Arabic aspects: Temporal construals of aspectualized verbs

At the beginning of this section, I would like to re-emphasize two points. First, the starting point of the present analysis is not the temporal system of each language; it is rather the metaphor used as a case study to prompt the similarities and distinctions of the language systems. The metaphor is in this sense a point of intersection where the two languages, each with their organizational structure, meet. Second, the Arabic temporal system cannot be assimilated into an English or Indo-European system (Section 3.3.4.2.2). With this in mind, the temporal reference of the Arabic temporal paradigms used in this study, i.e. **the perfective, the imperfective,** and **the *sa*-imperfective** need to be identified to determine the deictic properties of the conjugated Arabic verb expressions used in the corpus query. More specifically, the present overview is guided by two main questions:

> Can the three aspect-based categories used in the derivation paradigm be used as deictic clausal grounding elements?
>
> What are the implications of the Arabic temporal system on the paradigm of this study, mainly in terms of the comparison of SA verb expressions to the English verb expressions?

The Arabic verb has been traditionally defined as "'al-fi?l kalimah tadullu ?alaa Hadath muqtaran bi zaman 'the verb is a word that indicates an event associated with a time'" (Ouali, 2018, p. 89, *transcription assimilated to the code used in this study*). The finite verb in SA has also been identified for being "obligatorily marked for aspect, thereby leading to the selection of specific phases of a situation for assertion." (Stutterheim et al., 2017, p. 217). Overall, the literature concerning the Arabic temporal system poses the question of whether and to what extent does the perfective / imperfective Arabic verb indicate a specific location in time. The concise answer to these questions is encapsulated in the following key points. The subsequent analysis will provide evidence from the literature to substantiate these findings:

1. The system of SA is not centered on tense. By tense here, I refer to the grammatical category that uses a particular form or pattern to represent a given temporal location (Comrie, 1985, p. 9).
2. SA, instead, denotes temporal references by utilizing a combination of the perfective and imperfective forms along with other clause-level particles, and co-textual and contextual cues. These two aspectual forms are thus not categories of time; they are indicators of time.

Noting that the perfective and imperfective are not categories of tense, and are instead aspectual categories, it is important to determine whether aspect can be considered as a deictic grounding element. The answer is provided in the following excerpt:

> The aspectual information in a clause provides information on how the language user conceives of the internal temporal constituency of the situation described in that clause (Comrie 1976). In using aspect, the language user indicates whether this situation is construed as either bounded or unbounded. Since aspect does not serve to link the situation externally to the evaluative situation, aspect is not considered a deictic or grounding category. **In the absence of tense marking, however, aspect can have a deictic effect**.
>
> (Boogaart & Janssen, 2010, p. 804, *emphasis added*)

The first few sentences of the quote above define aspect as a property of the internal construal of a situation. From this perspective, aspect cannot function as a deictic grounding element that relates a situation to an external point of view. However, as indicated in the last sentence (in bold), in the absence of a tense, aspect compensates for the lack of temporal grounding, and it can thus have a "deictic effect" (ibid). In light of this observation, aspect can serve as a grounding element and can as such be included in the empirical description of the deictic subsystems of EMT construals. However, what this "deictic effect" is, and whether it works for all aspectual categories remains unknown and needs further elaboration.

The following subsections will present the temporal construals of each of the aspectual categories: the perfective (Section 4.3.9.1), the imperfective (Section 4.3.9.2), and the *sa-* imperfective (Section 4.3.9.3).

4.3.10.1 Temporal construals of the perfective verbs: What is past about the perfective?

The perfective aspect, known as *al-maDi* is also the term used to denote the past in Arabic. This lexical convergence is usually understood as a similarity in temporal reference; namely denoting that the perfective expresses the *past*. By past here, I refer to actions that map onto the speaker's Conceived Reality (Langacker, 2008). The perfective-past association is highlighted in many works in the literature. For instance, in an evaluation of a translation of two Arabic novels to English, Gadalla (2017, p.4) offers a "comparative account of the translation aspects of SA tenses". The study provides an overview of the perfective / imperfective usages identified through a contrastive translation-based analysis of Standard Arabic into English

texts. Tense-equivalents of the Arabic imperfective will be provided in the next section while tense-equivalents of the perfective are provided below:

1. Simple Past, expressed by the **perfect** form of the verb,

2. Near Past, formed by /*qad, laqad*/ + **perfect**,

3. Distant Past, formed by /*kaana*/, /*kaana qad*/ or /*qad kaana*/ + **perfect**,

(Gadalla, 2017, p. 12,
transcription adapted to the transcription code of this study)

The Arabic perfective, according to this analysis, maps onto three types of past: *simple past*, *near past*, and *distant past*. These notations serve to make a semantic distinction among the different uses resulting from three different patterns. This account strengthens the mapping between the perfective and the past tense, but this remains an association, not a generalization since the study serves to highlight the variability of extensions of the Arabic perfective / imperfective but may not be relied on for exhaustive coverage. This limitation evidently results from the bottom-up approach of the study, namely that the tense equivalents provided above are derived from the translated novels, which in turn represent a small sample of language use based on a single genre. As such, it is anticipated that this approach may not systematically capture all the usage equivalents of the perfective present in the language system. Nonetheless, what is identified by this approach is noteworthy.

To showcase the variability of the perfective and prove that it is not limited to the past tense, consider Example 20:

(20)
إذا **اقترب** موعد الامتحان، وأصبح أمامه وهو لم **يذاكر؛ ندم**

iḏa	***iqtaraba***	*maw?idu*	*al=imtiHaan*	*wa*
COND	approach.PERF.3SG.M	date	ART=test	CONJ
if	approached	date	the exam	and

aSbaHa	*'amaama-hu*	*wa*	*huwa*
become. PERF.3SG.M	front- CL.3SG.M	CONJ	he
it became	in front of him	and	he

lam	*yuḏaakir*	***nadima***
NEG	study.JUSS.3SG.M	regret.PERF.3SG.M
didn't	study	he regretted

'Once **the exam approaches** and gets in front of him while he has not studied; he **will regret** it'

The translation of the perfective forms into equivalent forms in English helps verify their non-past reference. In this example, the perfective maps onto two English tenses: the simple present (*iqtaraba = approaches*) and the simple future (*nadima = will regret*). The verb *iqtaraba* is in the perfective form and indicates a completed action at some level of conceptualization. This is further confirmed by the fact that the next clause in the example indicates an outcome of the completion of the action of approaching conveyed in the first clause. As a result, the process of 'approaching' needs to be completed for the exam to be in front of the person in question. In terms of translation, I opted for the simple present equivalent of the perfective verb *iqtaraba* because it indicates a counterfactual scenario where the approaching of the exam would be completed and followed by the presence of the exam and the action of regretting as outcomes. That is to say, the events of an approaching exam, its arrival, and the outcome of regret cannot be mapped with reference to the speaker's present, past, nor future since they belong to a conditional non-real mood. However, they can be mapped in the counterfactual scenario to Ego's timeline where Ego is the experiencer who is described to go through the three events, the completion of each event is indicated using the perfective form, to result in the beginning of the next event. **The perfective in this case expresses a completed action, but in a counterfactual scenario.**

This example serves as an illustration to show that the perfective can be employed in contexts where **it carries a non-past meaning**. Recent accounts of the Arabic temporal system provide more evidence for the plurality of the Arabic perfectives and imperfectives; e.g. Saleh & Fatah (2022). With this in mind, the

question that remains is whether the Arabic perfective can be used as a grounding element in the representation of EMT construals.

In general, the perfective aspect is "usually interpreted as referring to the past if tense marking is lacking" (Boogaart & Janssen, 2010, p. 813). This is the case because the perfective aspect indicates a completed action. The completion of the action, whether real or counterfactual, is evidently evaluated at some external level of conceptualization. In order to take into account the different uses of the perfective, I suggest grounding the reference to a Conceptualizer, not to the speaker. The Conceptualizer's deictic anchor is a way to capture the 'pastness' of the perfective without necessarily mapping it to the Conceived Reality of the Speaker. This, in turn, takes into consideration conditional uses of the perfective where the action is complete for the Conceptualizer and counterfactual to the Speaker. However, in cases where the perfective verb is used in the speaker's Conceived Reality, then the 'pastness' is translated from the level of the Conceptualizer to the level of the Speaker and in this case the Conceptualizer and the Speaker are in agreement.

In what follows, the perfective is interpreted as an indicator of a completed motion scenario at some level of conceptualization, not necessarily equated with the Speaker's.

Verbs in the perfective will be represented based on the lexical aspect of the verb lemma and a past reference mapped onto the Conceptualizer. The Conceptualizer is, in this case, the implicit evaluator of Ego's position while the speaker is the ultimate evaluator with access to all deictic cues in the context of the utterance. Ego-MP-TE and Ego-VT-TE are determined based on the lexical aspect of the verb while the Conceptualizer position is based on the perfective aspect.

4.3.10.2 Temporal construals of the imperfective verbs

The imperfective is defined in the literature as a reference "in a general way to incomplete, ongoing actions or ongoing states. It corresponds to both the English present and present continuous tenses" (Ryding, 2014, p. 442). In educational contexts, the bare imperfective form or *al-muDari* is often defined with reference to the present or *al-HaaDir*. However, looking at the usage data of the imperfective reveals a much more complex temporal configuration of the imperfective form.

To start with, there is converging evidence in the literature that the imperfective does not refer to a specific tense (Benmamoun, 1999). Instead, it serves as "the default form that is resorted to whenever the verb does not carry temporal features" (Benmamoun, 1999, [Abstract]). In this sense, the imperfective is a form with multiple tense references ranging from the past to the future, from the indicative to other moods. In other sources, the imperfective is said to refer to a relative non-past. This observation is also evidenced in Comrie (1985):

> Arabic has morphologically an opposition between two verb tense-aspects, conventionally called imperfect and perfect. In addition to aspectual values, the imperfect has the time reference meaning component of relative non-past, while the perfect has the time reference meaning component of relative past. In neutral contexts, i.e. where no reference point is given explicitly by the context, the reference point is taken to be the present moment, thus giving the impression of absolute non-past meaning for the imperfect but past meaning for the perfect. However, if the context indicates some other point as reference point, then the basic relative time reference meaning of the verb forms surfaces.
>
> Comrie (1985, p. 63)

Comrie's definition clearly associates the past with the perfective and the present with the imperfective. This definition occurs in the circumstance of a neutral context; that is to say a context that does not provide any reference point. Although theoretically tempting, identifying what a 'neutral context' is based on empirical data remains subject to deliberation as it raises so many questions: Does a neutral context refer to one where the verb is not preceded by any particles that impact its mood and temporal reference? Or to contexts where no adverbs of time are used? In other words, how are reference points defined? And how is a neutral context 'neutral'? The examples provided in the construal-based analysis by Saleh & Fatah (2022, pp.66–70) further problematize the impact of context on the semantic interpretation of the Arabic perfective / imperfectives showing that the context gives reference points, but not necessarily by employing specific particles. Rather the situation itself acts as a temporal indicator such as a prayer indicating a future reference. As such, this definition remains subject to further testing.

Empirically, for the translation-based equivalents of the imperfective, Gadalla (2017) proposes the following patterns:

1. Progressive Past, formed by /*Dalla*/ or /*kaana*/ + **imperfect**,
2. Approaching Past, formed by /*kaada*/ or /*awshaka*/ + (an) + **imperfect**,
3. Futuristic Past, formed by /*kaana*/ + /*sa-*/ + **imperfect**,
4. Simple Present, expressed by the **imperfect** form of the verb,
5. Progressive Present, formed by /*ya-Dall-u*/ + **imperfect**,
6. Approaching Present, by /*ya-kaad-u*/ or /*yuushik-u*/ + (an) + **imperfect**,
7. Commencing Present, formed by /*akhad-a*/, /*shara?-a*/, /*ja?al-a*/ or /*ansha'-a*/ + **imperfect**,
8. Progressive Composite, formed by /*maa zaal-a*/ or /*laa ya-zaal-u*/ + **imperfect**,

9. Near Future, formed by /*sa-*/ + **imperfect**,
10. Distant Future, formed by /*sawfa*/ + **imperfect**, and
11. Progressive Future, formed by /*sa-, sawfa*/ + /*ya-Dall-u*/ + **imperfect**. (Gadalla, 2017, p. 12, *transcription adapted to the transcription code of this study*)

The imperfective combines with different particles to exhibit a wide range of temporal meanings. The latter range from the past, present, and future, and also include the future-past combinations or what the author calls *futuristic past*. The imperfective in Arabic thus refers to a universe of tenses and temporal construals, and as such it resists any simplistic description or representation that maps it onto the present tense.

The present analysis agrees with the stance that the imperfective is not an independent temporal category. Broadly, the imperfective can be defined as the non-perfective, and so it can map onto to every temporal reference that is not perfective, presuming that the two aspects do not overlap. In the case of English, the imperfective is an aspectual property of certain tenses like the simple present. In Arabic, it is an aspect that identifies an incomplete action and extends to a variety of tenses. Consequently, the motion construal in the imperfective cannot be represented with reference to any conceptual level that implies its level of progression nor its duration. As a result, at this level of analysis, using the lexical aspect of the verb lemma, only Ego's position can be determined using two (or more) stages of motion on MP with no inference about the relation of this motion event to a time of speech nor to any other conceptual level. In this case, the verb itself is responsible for the temporal grounding, presenting an instance where "the lexical verb and the grounded verb coincide" (Langacker, 2008, p.300).

4.3.10.3 Temporal construals of the *sa-* future inflected imperfective verbs

The morphological marker *sa-* is a future marker, meaning that once attached to any verb, it indicates a future conception of that event. However, what makes this marker unable to relate directly to the speaker is the possibility of being preceded by other temporal markers, mainly the semi-auxiliary *kaana* which marks the past (see pattern 6 from Gadalla's results, shared in the previous section). As such a *sa-* future inflected verb expression preceded by *kaana* indicates a future to the Conceptualizer and a past of that future scenario at the level of the speaker, similar to the English construction *was going to* where *was* indicates the past and *going to* indicates the future.

Nonetheless, the future inflection *sa-* specifies the imperfective aspect to an extent, namely in that the *sa-* future inflected verbs can be represented with reference to the Conceptualizer as a future scenario while reference to PT remains open to context evaluation.

That said, whether a three-level metaphor representation using Ego, the experiencer, the conceptualizer, and the speaker is psychologically real or not remains an open subject for inquiry. However, this is a theoretical representation that captures the past and future references of the perfective and the *sa-* imperfective verbs, respectively, while it also allows for further context specifications at the moment of speech.

4.4 Model representations of EMT construals

The description of motion event construals is an attractive subject of inquiry (Liao et al., 2020; Stutterheim et al., 2017; Von Stutterheim et al., 2020; Zhang, 2022) which describe the conception of motion based on a combination of lexico-grammatical aspects. This study aligns with this theoretical framework by examining EMT construals, and, from this perspective, it can be situated within this body of literature. What sets the current paradigm apart, however, is that its focus on the description of EMT construals is driven by a specific problem, namely the framing of EMTs as a deictic problem (cf. the introductory chapter).

The identification of the deictic properties of EMTs (cf. Section 4.3.4) addresses a part of the question at hand. However, relying solely on the deictic subsystems cannot fully resolve the deictic composition of EMTs. Instead, temporal grounding and multi-levelled conceptualization of time are necessary to map the distinct deictic positions and subsequently identify the overall EMT construal of each verb expression. This follows the fact that the various deictic anchors (Ego-MP-TE, Ego-VT-TE, etc.) pertain to different axes, and the positions with reference to each axis result from distinct veridical and metaphorical systems. Furthermore, the mapping of the deictic positions onto the axes defined by Huumo (2017) are governed elements of the structure of the metaphor, namely the primary metaphors as well as the different stages of the schematic motion event defined by Moore (2014, 2016). For this reason, I propose a systematic description of each verb expression by highlighting the interplay of the metaphorical and the grammatical elements, and in turn, providing a more holistic depiction of each verb expression and the EMT construal that maps onto it. This systematic representation is a way to effectively resolve the intricate deictic composition of EMTs using a combination of written and visual illustrations.

Given the considerable number of verb expressions (N= 44 verb expressions), the latter are first of all classified under four types of EMT clusters and then

subdivided into sub-clusters based on shared deictic and conceptual properties. The four identified clusters are as follows:

- **Prospective EMTs** refer to Moving Ego or Moving Time metaphors indicating that a future temporal entity (Stages 1 and 2 of the schematic motion event). Further specifications will come in Sections 4.4.1.1.
- **Concurrent EMTs** refer to moving Ego or moving Time metaphors expressing A temporal entity is at Ego's now. (Stage 3 of the schematic motion event)
- **Retrospective EMTs** refer Moving Ego or Moving Time metaphors indicating the temporal entity is in the past of the experiencer Ego. (Stage 4 of the schematic motion event)
- **Transitionary EMTs** refer to Moving Ego or Moving Time metaphors where the position of the TE vis-à-vis Ego's now is not specific. (unspecified stage of the schematic motion event)

Following this first classification, each verb expression is presented based on their:

1. Deictic properties, namely based on the following deictic sub-systems:
    a. **Ego-MP-TE:** qualifying the motion segment traversed on MP. This is based on a description of the transition of the Mover from the first stage of motion to the last stage of motion.
    b. **Ego-VT-TE:** based on the translation of Ego's positions on MP. That is to say, the positions are deduced by mapping Ego's 'here' on MP to Ego's 'now' on VT and following the metaphor mappings offered in Moore (2016) and presented in Section 2.2.2. For instance, co-location of the TE vis-à-vis Ego on MP is mapped onto Ego's 'now' on VT (cf. Section 4.3.4.6).
    c. **Speaker-MS:** considering the temporal grounding of the finite verb expression
    d. **Speaker-TE:** based on an inference from the interaction of the lexical aspect of the verb with the viewpoint aspect.
2. Conceptual properties using Huumo's (2017) model, and
3. Usage properties with reference to the annotation variables.

It is important to note here that the deictic properties are not equally identifiable for all verb expressions as some are more dependent on contextual properties than

others. The conceptual and the usage properties are also expected to vary according to the verb's temporal and deictic profiles.

4.4.1 Cognitive linguistic models: Conceptual and deictic representations of the English EMTs based on the tensed verb expressions

In the following sub-sections, I will present verb expressions in clusters. Each cluster is presented along with its associated verb expressions. Subsequently, I will go through each verb expression and describe its temporal and deictic properties based on Langacker's (2001, 2008) grounding paradigm and using the deictic subsystems identified in Section 4.3.4. I will then present an illustration of the verb expression using Huumo's (2017) model of multiple conceptualizations of time. In principle, I group ME/MT verb expressions[47] that share the similar deictic properties together, e.g. *is coming* and *we are coming*, irrespective of the type of Mover. This is built on Moore's (2016) **generic aspectual structure** centered around the schematic motion event (cf. Section 2.2.2.5).

4.4.1.1 Cluster 1: Prospective EMTs

Verb expressions: is approaching, we are approaching, is coming, we are coming, will come, approaches, we approach, approached

These verb expressions are grouped together thanks to a unique shared property: Each can indicate a future TE either with reference to Ego's 'now' on VT or with reference to the speaker's present or with reference to both. More specifically, this cluster groups three types of verb expressions:

1. **Verb expressions that profile a prospective TE vis-à-vis Ego only,** using the subsystem Ego-VT-TE. These include *approaches, we approach,* and *approached.* The evaluating factor in this case is the lexical aspect of the verb which designates an 'approaching' motion scenario, the outcome of which an increased metaphorical proximity of the TE on MP and an increased imminence of a TE vis-à-vis Ego on VT. The fact that the perspective nature of this sub-cluster is evaluated vis-à-vis Ego does not mean that the motion scenarios cannot be found prospective vis-à-vis the speaker, especially considering the verb expressions in the simple present (to be explored in Section 4.4.1.1.4). Rather, the verb expressions here are categorically prospective vis-à-vis Ego thanks to the lexical aspect of the

[47] Based on expected metaphor types

verb expression, and potentially prospective vis-à-vis the speaker. However, the latter cannot be determined at this level of analysis, and so it is not considered as a defining feature of these verb expressions.

2. **Verb expressions that profile a prospective TE vis-à-vis the speaker only.** This subcluster includes *is coming, we are coming,* and *will come.* As will be explained in the upcoming subsections (4.4.1.1.2 and 4.4.1.1.3), these verb expressions are mapped onto Ego's 'now' on VT because the lexical aspect of the COME verb profiles the ARRIVAL phase or Stage 3 of the schematic motion scenario. As a result, Ego-MP-TE metaphorically shifts from pre-location to co-location and Ego-VT-TE (shifts) from Ego's future to Ego's 'now'. From this perspective, these verb expressions can be categorized under the concurrent verb cluster, taking Ego's deictic anchorage as the decisive factor, in line with the rest of the clusters. However, I chose to classify the verbs as prospective considering the speaker's deictic anchorage. In essence, the speaker-TE in this case is indicated by the interaction of tense with the lexical aspect of the verb expressions: The simple future and the present progressive combined with a COME motion verb indicate a future TE vis-à-vis the speaker. In fact, we intuitively know that a time that *is coming* or that *will come* etc. is a future time. Sections 4.4.1.1.2 and 4.4.1.1.3 will present the deictic and conceptual illustrations that inform this intuitive judgement.
3. **Verb expressions that profile a prospective TE vis-à-vis Ego and the speaker**. This is the only case where the deictic anchorage of the speaker categorically identifies with that of Ego. This sub-cluster includes *is approaching* and *we are approaching*. In this particular case, the lexical aspect of the verb maps the TE onto Ego's future on VT, and the present progressive maps the TE onto the speaker's future. More details will be presented in the next subsection (Section 4.4.1.1.1).

In light of these deictic distinctions, additional sub-clusters are needed to consolidate the descriptions. While each verb expression can be presented individually, I have grouped the most similar verbs to streamline the presentation. The reasoning behind the pairing of verbs is presented in the descriptions. The following subsections are below:

1. ***is approaching*, *we are approaching*** (Section 4.4.1.1.1)
2. ***is coming*, *we are coming*** (Section 4.4.1.1.2)
3. ***will come*** (Section 4.4.1.1.3)
4. ***approaches*, *we approach*** (Section 4.4.1.1.4)

5. ***approached*** (Section 4.4.1.1.5)

Each of these subsections will identify the deictic and the conceptual properties of the designated verb expressions, building on the description presented above. Additional insights from the corpus data are also provided, whenever suitable, to illustrate the theoretical illustrations.

4.4.1.1.1 is approaching, we are approaching

is approaching, we are approaching combine a present motion scenario with a future TE reference vis-à-vis Ego on VT as well as the speaker. Generally, these verb expressions profile a Mover that is proximal to the Ground Location. In the context of an EMT, this translates to 1) the proximity of Ego and the TE on MP and 2) the imminence of Ego and TE on VT.

The Motion scenario itself is in the speaker's present which means it is typically concurrent with the moment of speech. The present progressive describes a defined relation vis-à-vis the speaker; namely that the action of moving is profiled using a focused view on a single stage of the motion scenario (Langacker, 2008). Nevertheless, since the lexical aspect of the verb lemma *to approach* is atelic and highlights a single stage, the impact of the progressive aspect is somewhat limited in that it profiles a smaller segment of a single-staged atelic action (Figure 27).

Conceptual illustration:

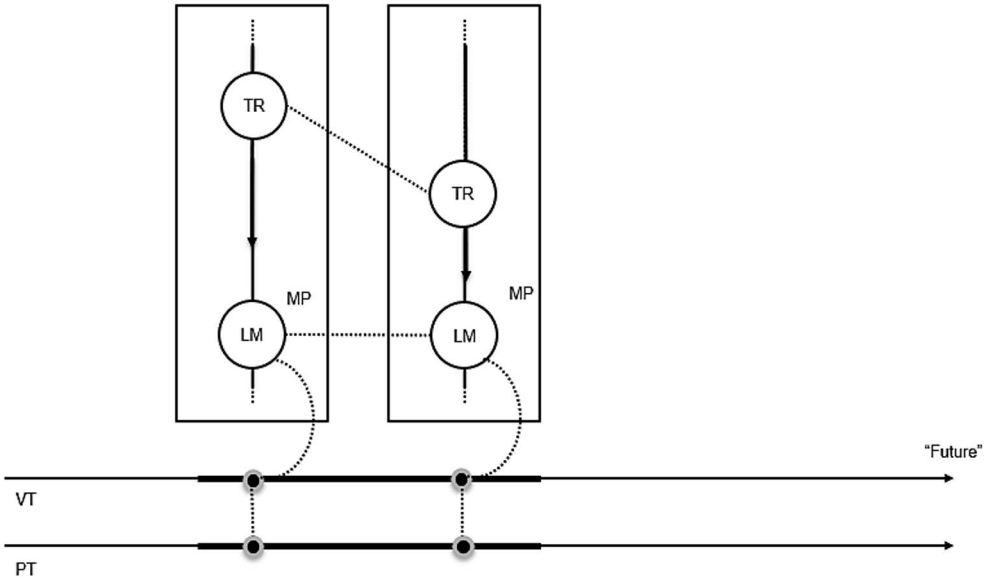

Figure 27. Illustration of the verb expressions *is approaching, we are approaching.*

The **deictic subsystems** of *is approaching* and *we are approaching* are as follows:

- **Ego-MP-TE:** pre-location to a more proximal pre-location without attaining co-location. The position of Ego and the TE on MP is illustrated in the conceptual illustration in Figure 27 using the Trajector (TR) and Landmark (LM) defined in Section 2.2.2. As elaborated in the same section, the TR and LM notations allow us to create conceptual illustrations that are representative of both ME and MT metaphors, using a generic conception (cf. Moore, 2016 for the generic aspectual structure). The mapping is simple: since Ego-MP-TE shifts from pre-location to a more proximal pre-location. Then, either Ego metaphorically moves from pre-location to a more proximal pre-location vis-à-vis the TE within a ME metaphor or the TE metaphorically moves towards Ego within a MT metaphor. This shift is represented in Figure 27 by showing a TR in pre-location vis-à-vis the LM in the first (left-side) illustration of the MP and then by moving the TR closer to the LM in the second (right-side) illustration of the MP. The same principle of conceptual illustration will be used with the other verb expressions, evidently depending on the deictic values of Ego-MP-TE.
- **Ego-VT-TE:** Ego-Future to a 'more imminent' position within Ego-Future. This mapping is defined by the primary metaphor change in immediacy (of Ego-MP-TE) is change in proximity (of Ego-VT-TE) (cf. Moore, 2016).
- **Speaker-MS:** the motion scenario is in the speaker's present. The progressive construction indicates an immediate scope that highlights a segment of the motion scenario.
- **Speaker-TE:** future. This is the outcome of an APPROACH verb and a concurrent present motion scenario. Since the lexical aspect of the verb does not include arrival in its profiling, it suffices to know that the motion scenario maps onto the speaker's immediate reality to define the Speaker-TE. In the case of other verb expressions in the present progressive, I use the imperfective aspect created by the progressive in determining the Speaker-TE reference (cf. Section 4.3.7). The next subsection is a good example of this latter case.

While most of the corpus lines are represented by the model presented above, the example below stands out for its unique deictic properties:

(21) *We are approaching 8,000 years ago on our timeline.* [COCA, WEB, 2012]

Without further context, the interpretation of Example (21) poses a challenge: On the one hand, the verb expression indicates motion towards a distant Location which is mapped onto metaphorical motion towards a future TE. This is consolidated by the experiential Grounding Scenario of Moving Ego metaphors which indicates that Ego's "Locations ahead of her correlate in her experience with her expectations of Future arrival at those Locations" (Moore, 2016, p. 15). Additionally, the motion scenario is in the speaker's present which suggests that the motion is concurrent with the moment of speech and the TE should thus necessarily be in the speaker's future.

On the other hand, *8,000 years ago*, which in this case is the TE in the position of the Goal of motion, is clearly in the past of the speaker, and *ago* is a deictic particle that further emphasizes this past reference.

As such, there is an incongruency between the metaphorical direction of motion indicated by the motion verb and the motion direction implied by Goal of motion. That is to say, while the motion path profiled by the verb expression is directed from past to future vis-à-vis both Ego and the speaker, the TE is positioned in both Ego's and the speaker's past. In other words, without any further context specifications, this example shows a construal where Ego is moving future-ward towards a past TE.

Evidently, the typical deictic anchorage of the motion expression *we are approaching* cannot explain the deictic subsystem profiled in this example. Rather, the latter clearly follows an atypical deictic configuration. The starting point to identifying this configuration is the expanded context which can present more deictic cues:

> *Our timeline is now nearing 10,000 years ago. The last Ice Age is ending. As the ice sheets that covered much of North America and Eurasia retreated, new plants and animals flourished. Many of the large creates of the Ice Age were replaced by smaller animals. An increased demand for food, created by a growing human population, was a major factor in the development of farming. The domestication of small animals such as dogs began in this era too. About this time humans first began to work with metal. Time Marches On!* ***We are approaching 8,000 years ago on our timeline****. It may seem like life did not change much since our timeline began. That's only because life did not change much. Why? The answer is simple. Hunting and gathering works! Hunting and gathering was a successful way of life that provided humans with everything they needed. But slowly agriculture emerged as a new way of life. Farming meant living in one place - permanently*.
>
> [COCA, WEB, 2012]

This passage explains the emergence of agriculture and how the latter marked an important shift in human history. The historical account moves from past to present,

and the specific EMT illustration (in bold) depicts an Ego Mover that changes location from *10,000 years ago* to *8,000 years ago*.

In this adjusted deictic subsystem, Ego's 'now' does not identify with the speaker's present but rather goes back *10,000 years ago*, which marks the new starting point of the motion scenario. With this adjusted anchor, Ego can metaphorically move future-ward towards *8,000 years ago* as the latter is evidently in the future of *10,000 years ago*, and so Ego moves on MP towards a distant location and on VT towards a (relatively) future TE. In terms of the speaker-related anchors, the TE is neither in the speaker's future, nor their past. Rather, as the whole event is an imagined motion scenario, the speaker-TE relation is irrelevant.

More generally, historical accounts can use an adjusted deictic anchorage on the timeline to move over the span of events. In this new timeline, Ego's 'now' obtains a different 'relative' anchorage that disintegrates from the speaker's present, and instead, chooses a different starting point. The example in this case is not about Ego's actual experience of time but about examining history by scanning the timeline, and this scanning can proceed in both directions (future-wards, or past-wards). As such, *We are approaching 8000 years ago* would also be felicitous from a retrospective past-ward point of view.

4.4.1.1.2 is coming, we are coming

In line with *is approaching* and *we are approaching,* the verb expressions ***is coming*** and ***we are coming*** combine a present motion scenario with a future TE reference vis-à-vis the speaker.

Conceptual illustration:

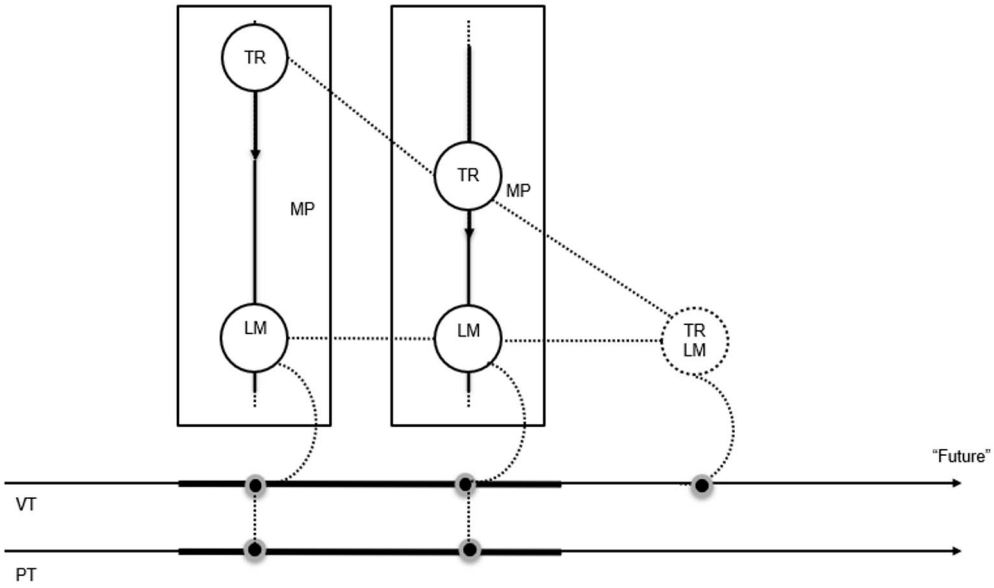

Figure 28. Illustration of the verb expressions *is coming*, *we are coming*.

Figure 28 shows a co-location which is expected but not profiled by the progressive construction as it highlights an immediate scope. On the one hand, the lexical aspect of the verb *to come* in *is coming* and *we are coming* mandates maximal profiling of the coming motion: from Pre-location to Co-location. On the other hand, the viewpoint aspect of the verb expression using the present progressive highlights a small segment of the overall motion scenario; namely that of Mover approaching a Location. The rest of the scenario is represented in the figure with dotted lines as it is not within the immediate scope of the progressive aspect.

Deictic subsystems:

- **Ego-MP-TE:** pre-location to more proximal pre-location
- **Ego-VT-TE:** Ego-future to a more imminent time in Ego-future
- **Speaker-MS:** the motion scenario is in the speaker's present. The progressive construction indicates an immediate scope that highlights a segment of the motion scenario.
- **Speaker-TE:** future because the progressive construction takes away the possibility of co-location for Ego-MP-TE. More specifically, as

> previously indicated, whether the lexical aspect of the verb includes a single motion stage like the case of *approach* or multiple stages, i.e. *come*, the progressive aspect imposes the profiling of a single stage of motion. An important question here: Which motion stage is profiled by the verb expressions ***is coming*** and ***we are coming***? Using the division of the action into "the inceptive, intermediate, or terminative" phases (Stutterheim et al., 2017) or using the stages of the schematic motion event (from stage 1 to Stage 3), it is not clear which phase or stage is actually highlighted by the progressive, but it is possible to identify the latter as some phase where the Mover has started the motion event but has not yet arrived at the Ground Location; that is to say the Mover is placed post-departure and pre-arrival. This, in turn, means that the outcome of motion has not yet been attained at the moment of speech. As a result, the TE is in the future of both Ego and the speaker

A related question to this motion construal is what the expression profiles and what it excludes from its scope, more specifically whether the verb expressions *is coming* and *we are coming* include the first stage of the schematic motion event in their scope. First of all, at any moment, there is an infinity of times coming, but speakers are very selective in what they profile as *coming* or *approaching* in language use. Also, time with a reference on the calendar is identified as a salient location, but when does a TE become an **object of awareness** in the conceptualization and when does the **imminence** of a time emerge for a given Conceptualizer?

It is not clear when we conceptually indicate when the speaker identifies the "proximity" of an event necessary for the PROXIMITY IS IMMINENCE primary metaphor (Moore, 2016). The answer to this particular question provides the evidence for the mapping of the verb forms under the different stages of motion that they profile. I attempted this with physical motion: I stood waiting for a train and I found that the first stage of the motion event is most relevant based on the information I see on the screen display at the station; e.g. *The train is coming in 1 hour.* I felt that the train *is approaching* when I heard its sound and saw it coming (sensical information) although one might still use the phrase *is coming* in this situation, but it evidently refers to a different conceptual content from the first stage.

The question above is not a metaphysical question because TIME as a conceptual domain is constantly passing and so future times are constantly becoming more imminent. Therefore, the question about whether and when and if a time conceptually shifts from a metaphorically distant stage to a more imminent stage and the answer are subject to individual differences. Take for instance, a prominent event like the World Cup. For the people who are involved in hosting or playing in the World Cup, the event starts *approaching* considerably earlier or sooner than for the

rest of the world. This is because highlighting the anticipation of a time and its prominence is potentially subject to so many psychological and practical factors. A host country celebrates the approaching of the World Cup to showcase the preparations it has put in place for the event, while the participating teams make sure their training is finished before they play the first game.

Using Huumo's (2017) model, we can then say that the 'approaching' event situated in the speaker's present (*The World Cup is approaching*) may start earlier (in VT) for experts than for uninterested persons. Thus, a speaker who is an expert will be aware of the "motion" earlier in VT than a layperson. Therefore, the distance being traversed on the MP will also be longer in the expert's conceptualization. Importantly, the TE is not stationary before entering the motion scenario, the way it is for an object prior to entering a state of physical motion, but is altogether missing from the scenario (MP) before ('before' in terms of VT) a conceptualizer makes the conceptualization that situates the TE on an MP.

4.4.1.1.3 will come

The verb expression ***will come*** indicates an expected co-location with a Ground of motion indicated by the maximal profiling of the *come* verb. S1: pre-location, S2: co-location. The maximal profiling is an outcome of the simple aspect (as opposed to the immediate scope mandated by the progressive aspect). A future reference is indicated by the future tense which, in turn, places the motion scenario with its two stages in the future of the speaker. Overall, ***will come*** designates a scenario where the Mover arrives at the Ground Location in the future. So, Ego-MP-TE moves from pre-location in the first phase of the motion event to co-location in the second phase. As the COME motion event is in the speaker's future, the TE is evidently in the speaker's future as well.

Conceptual illustration:

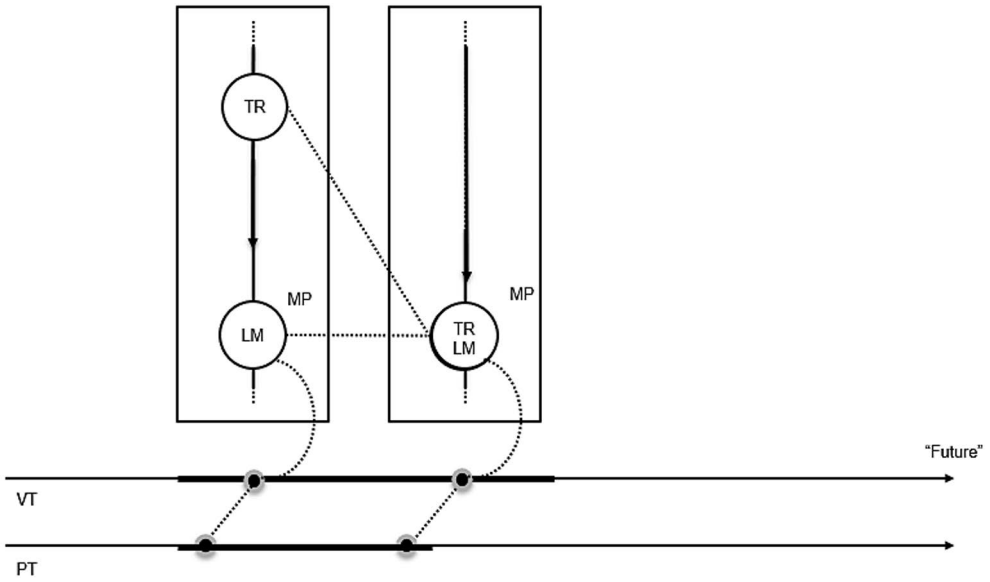

Figure 29. Illustration of the verb expression *will come*. The future tense is represented with respect to the PT axis by sliding the motion scenario slightly to the right. This indicates that the moment of speech precedes the motion event.

Deictic subsystems:

- **Ego-MP-TE:** pre-location to co-location.
- **Ego-VT-TE:** Ego-future to Ego's 'now'
- **Speaker-MS:** the motion scenario is in the speaker's future (future tense)
- **Speaker-TE:** the TE is in the speaker's future since the stage profiled by the motion scenario (Stage 2) is in the speaker's future which means that co-location has not taken place yet and so the final stage of the motion scenario has not yet been achieved at the time of speech.

Will come indicates a **postponed motion scenario**, one that is not yet concurrent with the moment of speech, due to the future tense. Based on the corpus data, this verb is predominantly used in MT metaphors with **non-anchored** events which are for the most part hypothetical, where the speaker articulates a belief or anticipation regarding future occurrences, rather than describing an actual situation in progress. Consider this: to express the future occurrence of a known anchored event or calendric time, the speaker can alternatively use a COME verb in the present progressive e.g. *is coming, is approaching, we are coming,* etc. Interestingly, most

of the times associated with *will come* in the corpus data are not necessarily times that will come or occur inevitably; they are rather hypothetical anticipations which are not grounded in conceptual reality. A few examples of these TEs are as follows:

> *the time when they will not endure sound doctrine; perilous times; good things; what; a day of reckoning; that day, the day when you will meet face to face, good, these things, the time to deal with the Head of the Hydra., the biggest change in the Vermont-New York City trip, the time when the dollar collapses, this war*

will come is mostly related to the moment of speech as a future motion construal, but can also be used, albeit less frequently, within transposed scenarios in stating a generality or a principle. In the example below, it is more specifically used in a second clause which expresses a consequence in a general statement:

> (22) *Our community very much believes in the mission of the school," Skajewski said. "Any good nonprofit that effectively communicates its mission, good things will come...* [COCA, BLOG, 2012]

In this example, the coming of *good things* is not a reality, only a possible result of *effective communication*, mentioned in the clause preceding the EMT metaphor. In this sense, *will come* is evidently used in a transposed scenario.

4.4.1.1.4 approaches, we approach

Approaches and ***we approach*** share the same motion construal: the Mover transitions from a distant position vis-à-vis the Ground Location to a more proximal position. At the end of the motion scenario, the TE is still in (proximal) pre-location vis-à-vis Ego on MP and in Ego's future on VT. However, in line with the temporal references identified in the analysis paradigm of this study (Section 4.3.8.3), the simple present is not considered as a categorical grounding element. As a result, without contextual cues, the verb expressions ***approaches*** and ***we approach*** are vague in terms of how they relate to the speaker's immediate reality because of the vague temporal identity of simple present.

Conceptual illustration:

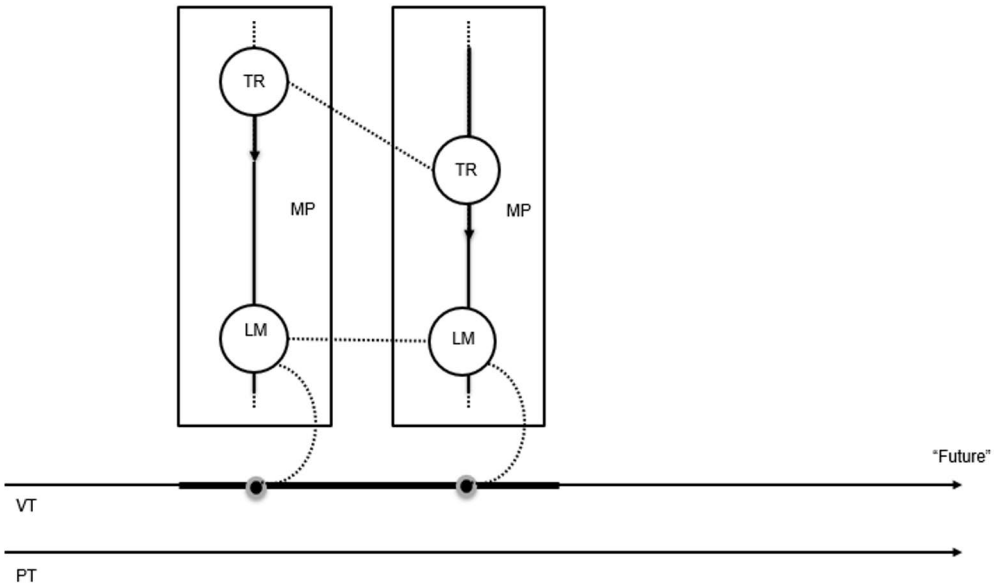

Figure 30. Illustrations of the verb expressions *approaches* and *we approach*

Deictic subsystems:

- **Ego-MP-TE:** pre-location to more proximal pre-location (increased proximity)
- **Ego-VT-TE**: Ego-future to a 'more imminent' position within Ego-future
- **Speaker-MS:** unspecified and subject to context specification
- **Speaker-TE:** unspecified.

With the absence of a Speaker-MS grounding, the inference about the Speaker-TE cannot be made since it results from the summative value of the tense, grammatical aspect, and lexical aspect. It is possible that the TE is in the future of the speaker if the simple present maps onto an indicative present where the motion scenario is actual and concurrent with the speaker; for instance:

(23) *I'm one of a number of rabbis and others blogging together as we approach the High Holy Days this year* [COCA, BLOG, 2012].

In this example, the conjunction *as* specifies the reference of the verb *approach* which is synchronous with the *blogging* and with the time of speech. However, in

the event that the simple present is used in a counterfactual scenario, the speaker-TE relationship becomes irrelevant. Consider, for instance, the following example:

(24) *The mammal brain releases dopamine when we approach a reward, and serotonin when we get respect*. [COCA, BLOG, 2012].

The action of approaching a reward here is occurring in a virtual timeframe which is conceived as a condition. This is indicated by the preceding adverb *when* which specifies this condition and the preceding clause which specifies the end result. It is easy to determine the virtual reference of this expression because it is an instance of generic informational descriptions. A possible reconstruction of this expression is as follows: [*In instances where*] *we approach a reward…the mammal brain releases dopamine* [COCA, BLOG, 2012, *reconstructed*]. The indefinite noun *instances* used in the reconstructed example indicates the generic, non-specific character of the event, hence the transposed experience.

4.4.1.1.5 approached

Approached is another interesting case in point. The atelic verb *to approach* is in the past tense showing a COME motion scenario that has ceased before the moment of speech. The outcome of this motion is an increased proximity vis-à-vis Ego on MP and an increased imminence vis-à-vis Ego on VT. At the end of an approaching event, the TE is in Ego's future. However, although the whole motion scenario is in the speaker's past, the TE cannot be identified with reference to the speaker based on the verb expression only because it is in the VT future of a past Ego.

Conceptual illustration:

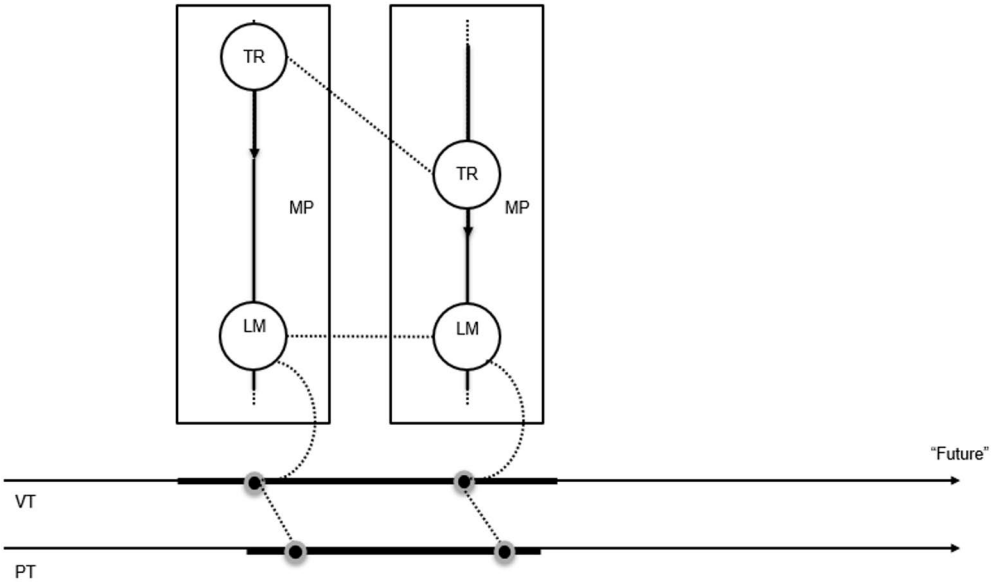

Figure 31. Illustration of the verb expression *approached*. The motion scenario is in the past of the speaker (slight left).

The **deictic sub-systems** profiled by *approached* and shown in Figure 31 are as follows:

- **Ego-MP-TE:** pre-location to more proximal pre-location
- **Ego-VT-TE:** Ego-future to a 'more imminent' position in Ego-future
- **Speaker-MS**: the motion scenario is in the speaker's past.
- **Speaker-TE:** unspecified.

In theory, the TE could be concurrently experienced by the speaker, or alternatively it can be in their past or in their future[48]. The corpus data, (shared in Appendix E), however, indicate that the TE is usually in the speaker's past based on the tenses used in the preceding and/ or following clauses. This relation is indicated by the tense used in the preceding and following clauses, for example *Naturally, as* ***Election Day approached****, I* <u>*expected*</u> *yet another scurrilous manipulation of*

[48] According to Tuomas Huumo (personal comment) the reasoning for the positioning of the TE from the conceptual model is that the 'future' (posterior) segment of VT for a past Ego covers (in principle) the period of VT coinciding with the speaker's present (and extends futurewards beyond that).

everything [COCA, BLOG, 2012]. It is clear here that the approaching event together with the TE *the elections* are in the past of the speaker.

4.4.1.2 Cluster 2: Concurrent EMTs

The verb expressions in this cluster indicate a TE located at Ego's 'here' on MP and possibly in the speaker's present. Here, two motion construals are possible:

1. a motion construal (mostly MT, according to the corpus data) where a time becomes co-located with Ego using the verb expressions ***came, has come, arrived,*** and ***has arrived***. A comparison of the construals provided by *has come* and *has arrived*, on the one hand, and *came* and *arrived*, on the other is provided in Section 4.4.1.2.2.
2. a motion construal where Ego is co-located with a time and *moving through* it in a ME metaphor using the expressions ***we are going through*** and ***we go through***. ***We are going through*** and ***we go through*** describe a 'moving' co-location with time. By 'moving' here, I mean that Ego is in metaphorical motion within the TE in co-location segment on the MP. Compare with the expressions *TE is here* or *TE has arrived* which profile a stationary co-location. Even though *TE has arrived* is a motion metaphor expression, the latter describes motion prior to co-location, but the co-location itself is viewed as a stationary outcome because of the present perfect tense. The verb expressions associated with this cluster are ***came, arrived, has come, has arrived, we go through, we are going through***.

Each of these verb expressions has its own deictic motion properties which should be sub-categorized as follows:

1. *came, arrived*
2. *has come, has arrived*
3. *we go through, we are going through*

Each of these verbs will be described in the following subsections in the same order shown above.

4.4.1.2.1 came, arrived

came and *arrived* are grouped together despite their different lexical aspect classifications (cf. Section 4.3.6). This distinction will be translated onto the segment traversed by the TR on MP, namely in that the profiled segment by the verb expression *arrived* is shorter than the segment profiled by the verb expression *came* (cf. 4.3.6). Intuitively, *came* and *arrived* are, to an extent, interchangeable e.g.

Summer came is somewhat equivalent of *Summer arrived*. This intuitive similarity is translated to the conceptual representation of the verb expressions in Figure 32 and to their deictic subsystems.

Conceptual illustrations:

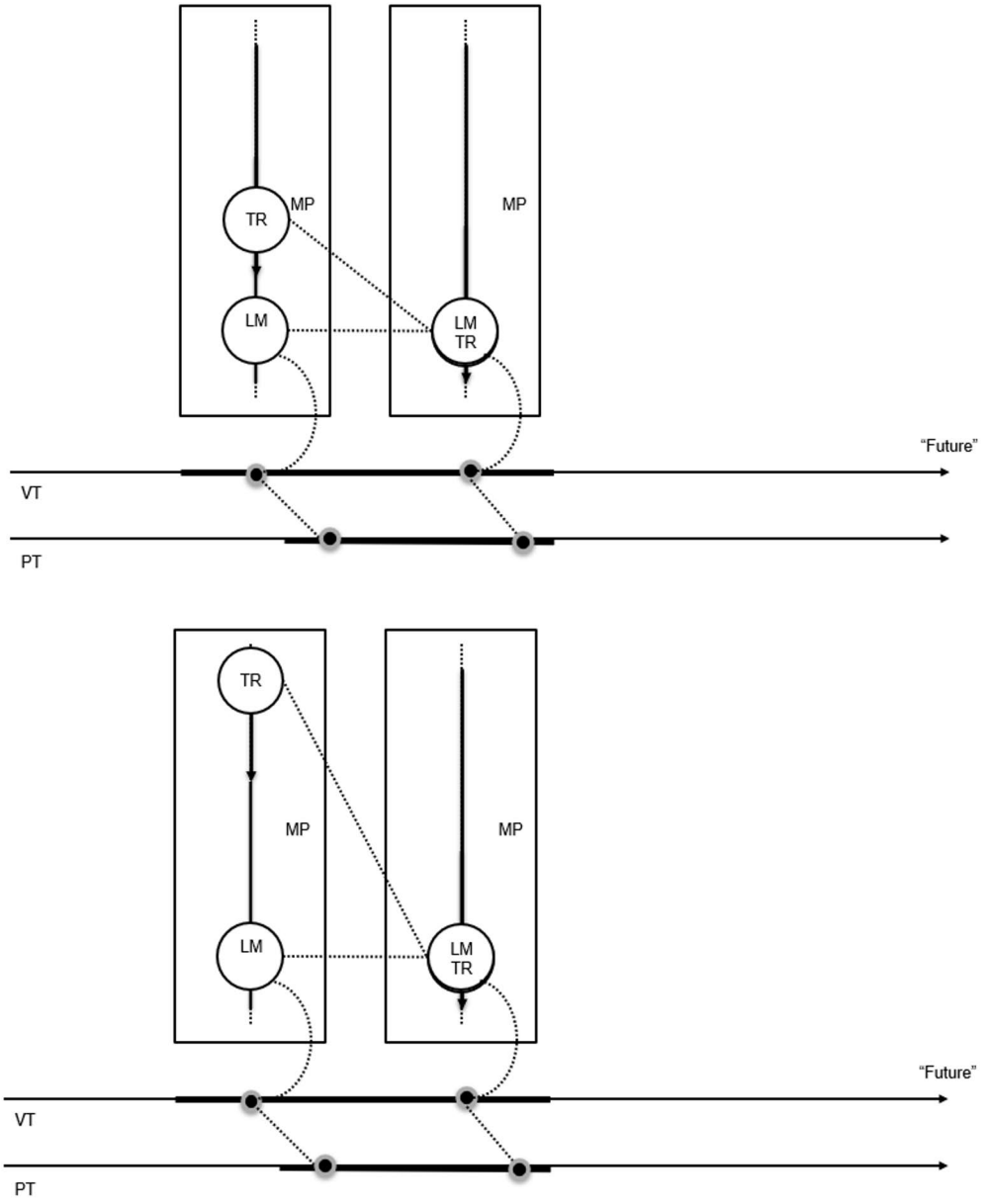

Figure 32. Illustrations of the verb expressions *arrived* (top figure) and *came* (bottom figure).

The figures above show the following deictic systems, which represent both verb expressions ***came*** and ***arrived***:

- **Ego-MP-TE:** pre-location to co-location. For the verb expression *arrived*, the Mover is expected to move from a proximal pre-location to co-location with the Ground while for *came*, the pre-location is more distal from the co-location.
- **Ego-VT-TE:** Ego-future to Ego's 'now'. For *arrived*, the Ego-VT-TE is expected to shift from a more imminent Ego-future to Ego's 'now'.
- **Speaker-MS:** the motion scenario is in the speaker's past
- **Speaker-TE:** although not inferred from the verb expression because this depends on the duration of the TE, there are in fact two cases here: Either the TE is in the past of the speaker and so, both Speaker-MS and the Speaker-TE are positioned in the past; or, the beginning of the TE is in the speaker's past while the moment of speech coincides with the (remainder of) the TE. E.g. *The 21st century arrived*. In this (constructed) example, the duration of the TE is 'long', and so as long as this statement is made in the 21st century, the TE is concurrent with the moment of speech. In this case only the Motion Scenario is in the speaker's past. The corpus data indicates that the TE is usually in the speaker's past when the simple past is used.

In terms of the Ego-related deictic criteria, *came* and *arrived* profile different motion segments on MP. This means that the illustration of Ego-MP-TE onto the left-side MP axis is different for each verb expression. However, the illustration of the final Ego-MP-TE position is identical (Figure 32). This translates on VT in the positioning of TE with Ego's 'now', as identified in the deictic subsystems. On the other hand, the speaker-related deictic points are the same for both verb expressions.

4.4.1.2.2 has come, has arrived

Just as is the case with ***came*** and ***arrived***, the verb expressions, ***has come*** and ***has arrived*** can be represented using relatively similar deictic and conceptual properties. The present subsection will go through the properties of the verb expressions ***has come*** and ***has arrived*** and will also compare them with the properties of verb expressions ***came*** and ***arrived***.

Starting with the **conceptual illustrations**, they are as follows:

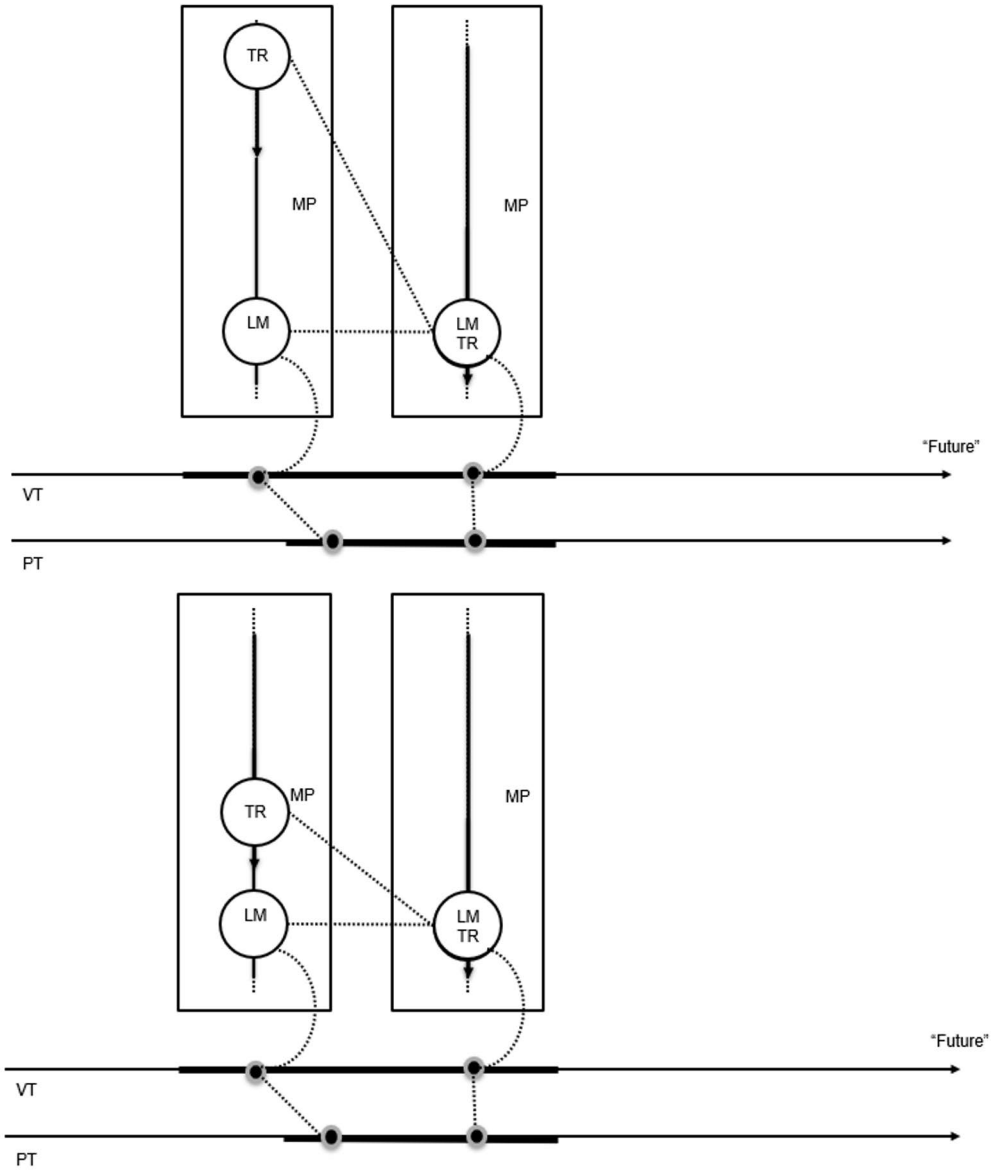

Figure 33. Illustration of the verb expressions *has arrived* (top figure) and *has come* (bottom figure).

Figure 33 depicts the distinctions made in the deictic subsystems, namely that the profiled metaphorical segment on MP is shorter in the illustration of *has arrived*, compared to *has come*.

The **deictic subsystems** are as follows:

- **Ego-MP-TE:** pre-location to co-location. Again here, the verb expression *has arrived* profiles motion from a proximal pre-location to co-location with the Ground.
- **Ego-VT-TE:** Ego-future to Ego's 'now'.
- **Speaker-MS:** where the motion scenario is in the speaker's past
- **Speaker-TE:** although not inferred from the verb expression, the corpus usage indicates that the TE is in the speaker's present.

Looking at the deictic and conceptual properties of the verb expressions in this subcluster invites the following point of analysis: what is the meaning of the present perfect in concurrent EMTs? That is, how does *arrived* compare with *has arrived,* and how does *came* compare with *has come?*

Has come can be viewed as a combination of 'came' and 'is here'. In other words, it expresses a past 'coming' action with a concurrent co-location of the Figure and Ground together with the outcome of that past motion event. The same is true for *has arrived* ('arrived' + 'is here'), only that the motion segment on MP is shorter. This is represented in the conceptual illustration using a past reference with the first stage of motion indicating that it has taken place prior to the moment of speech and a present reference with the second stage of motion marking the arrival event in the speaker's past while the TE is concurrent with the moment of speech. Obviously, these descriptions presume that the EMT corresponds to the speaker's reality excluding instances of transposed reference.

4.4.1.2.3 we are going through, we go through

Both verb expressions under examination portray a stage of schematic motion event in which the experiencer, Ego, is co-located with the TE (Stage 3). These metaphorical expressions are employed with specific types of TEs: either ones that are extended enough for the experiencer to *go through* them, such as *life*, or a collection of brief TEs, like *moments*. The deictic properties of each of the verb expressions are as follows:

We are going through and ***we go through*** show an Ego experiencer that is co-located with and moving through a TE and where the two stages of motion are co-location because both verb expression profile a motion scenario on a Metaphorical Path 'located' inside the TE entity itself. In this model, the metaphorical distance to traverse is the spatial counterpart of the duration of the TE itself, mapping DURATION onto DISTANCE (cf. 2.2.3.3). The beginning of metaphorical motion within the TE is marked by the beginning of the TE and the end of metaphorical motion with the end of duration of the TE (Figure 34). *Going through* a plural TE is also possible in examples like *We are going through tough **times**.* The plural TE can be conceived of

as an unbounded group of times or a temporal unit with the beginning of the unit referring to the beginning of the first TE. Interestingly, the bare plural in *tough times* allows a conceptualization with an unbounded quantity of 'tough times', possibly with no end in sight at the moment of speech. Going through this unit invites sequential scanning of TE1 followed by TE2, etc.

Conceptual illustrations:

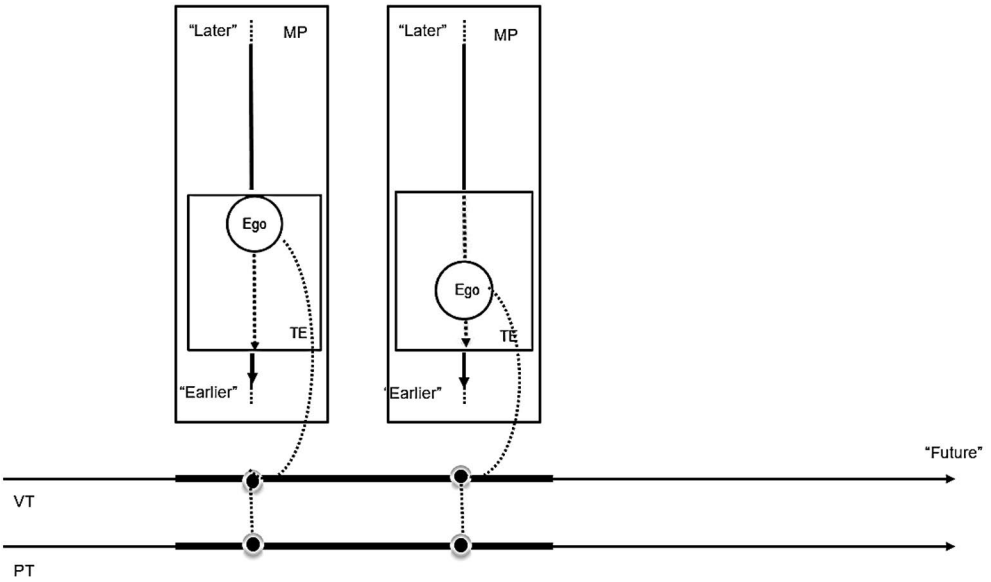

Figure 34. Illustration of the verb expression *we are going through*. The progressive construction indicates a concurrent processing of the imagined motion scenario. That is why the bold line on VT which shows Ego's temporal experience is of the same length as the Speaker's processing time on PT.

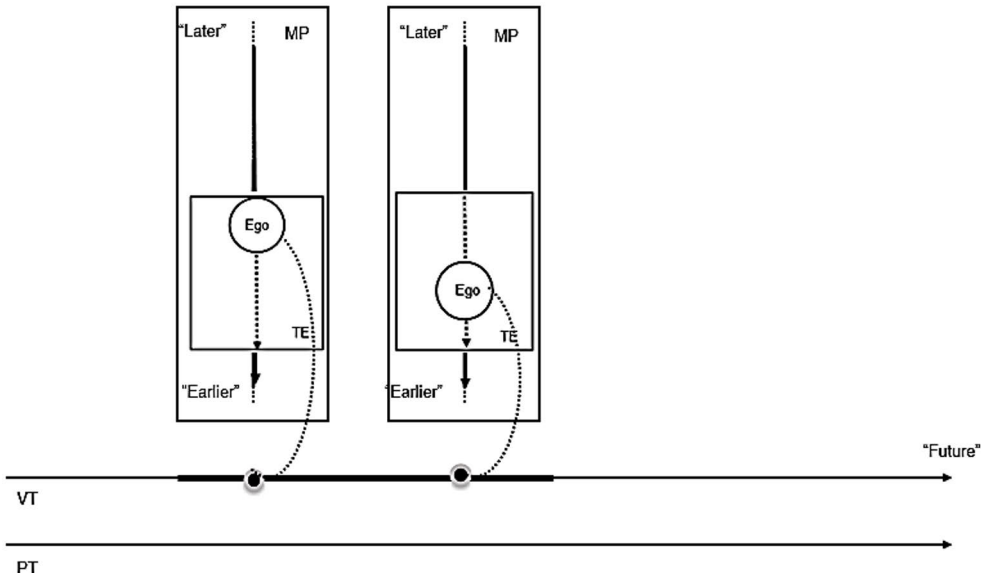

Figure 35. EMT motion construal indicated by the verb expression *we go through*.

In both figures (34 and 35), Ego is co-located with the TE on MP, and metaphorical motion is illustrated at a different level. In essence, the traversed segment on MP is replaced by a conception of the TE as a spatial-like path to illustrate Ego's motion through the TE. The main difference between the two figures arises from aspectual distinction. The progressive construction implies that Ego's metaphorical motion through the TE is concurrent with the moment of speech (Figure 34) whereas the simple present is not grounded with reference to the speech event (Figure 35). The specific deictic properties are as follows:

Deictic subsystems (*we are going through*)

- **Ego-MP-TE:** co-location to co-location, with the latter co-location being a more advanced location in Ego's direction of motion through the TE
- **Ego-VT-TE:** Ego's 'now' to later position within TE
- **Speaker-MS:** the motion scenario is in the speaker's present.
- **Speaker-TE:** present

Deictic subsystems (*we go through*)

- **Ego-MP-TE:** co-location to more advanced co-location
- **Ego-VT-TE:** Ego's 'now' to later position within TE
- **Speaker-MS:** unspecified
- **Speaker-TE:** unspecified

We go through could also be added to cluster 4 i.e. Transitionary EMTs, because it also indicates passing through a time that can take place in the future of the speech moment. However, instead, it is added to the concurrent cluster because of the preposition *through* which specifies the spatial-like motion segment somewhere within the TE while the imperfect aspect makes the time of occurrence of the motion event vague.

4.4.1.2.4 comes, arrives

For the verb forms ***comes*** and ***arrives***, Ego-MP-TE moves from a pre-location to co-location as both verbs indicate arrival. In line with the verb expressions *came* and *arrived*, and *has come* and *has arrived*, co-location indicated by a verb lemma *to arrive* is expected to be more imminent to Ego at the beginning stage of the profiled event because ARRIVE only profiles the culmination of a telic motion event. *Comes*, then, profiles a more extensive segment than *arrives*. The conceptual and deictic representations are as follows:

Conceptual illustrations:

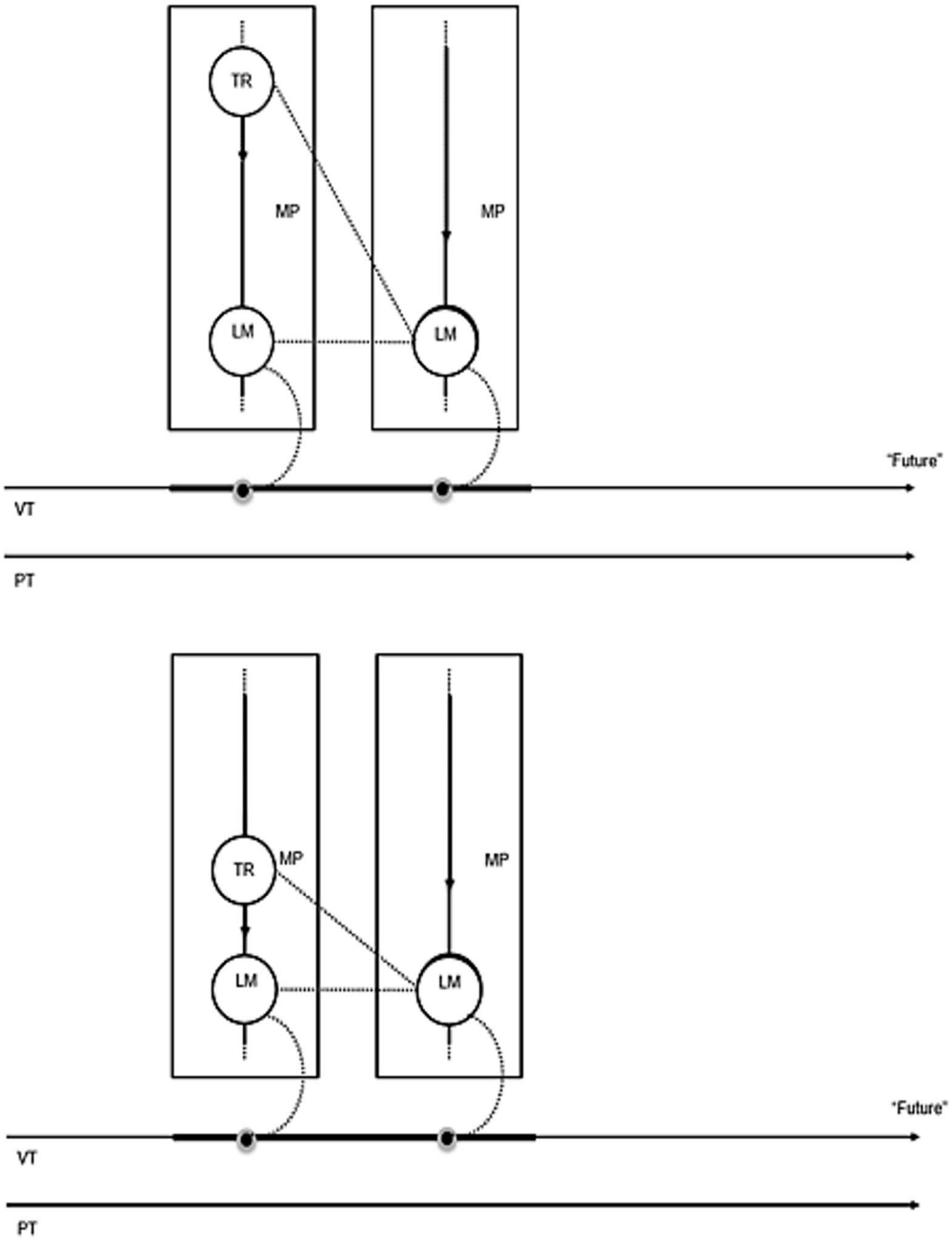

Figure 36. Illustrations of the verb expressions *comes* (top figure) and *arrives* (bottom figure).

Deictic subsystems (*comes*)

- **Ego-MP-TE:** pre-location to co-location
- **Ego-VT-TE:** Ego-future to Ego's 'now'
- **Speaker-MS:** unspecified
- **Speaker-TE:** unspecified

Deictic subsystems (*arrives*)

- **Ego-MP-TE:** (proximal) pre-location to co-location
- **Ego-VT-TE:** (nearer) Ego-future to Ego's 'now'
- **Speaker-MS:** unspecified
- **Speaker-TE:** unspecified

Although reference to Ego's location on MP and the TE's position to Ego on VT are identifiable, the references of the speaker to the Motion Scenario and to the TE are not. The simple present used here does not specify whether the motion is conceptualized as complete or not with reference to the time of speech. As previously indicated, this vague reference marks the simple present.

4.4.1.3 Cluster 3: Retrospective EMTs

This cluster is made up of verbs derived from *to go* and *to pass* using either the simple past or the present perfect. What combines these verb expressions is that they all indicate a past TE entity in relation to both the speaker and Ego. For this reason, it is hypothesized that the speaker would have a selection of any of these verb predicates for the expression of a past TE that has moved away from Ego's location. This is not to say that these expressions have the same meaning, but that they have similar deictic and conceptual profiles.

The verb expressions under this cluster describe one of two scenarios: metaphorical motion away from or out of a given Location.

- Metaphorical motion away from a given Location profiles the segment from co-location of a Mover with the Ground entity to post-location.
- Metaphorical motion past a given location profiles a more extended scenario that can start from motion towards the Ground Location to motion past it, so the traversed spatial-like segment on MP goes from a stage of pre-location to a stage of post-location.

Mapping the different verb expressions onto the different motion phases or motion scenarios is challenging namely because the addition of particles also

changes the path configuration indicated by the verb expression. Nonetheless, what holds true in both scenarios is the last stage of motion where the Mover is in a post-location vis-à-vis the Ground. This is why, irrespective of whether the verb identifies the first scenario or the second, the outcome is the same since all of these verbs indicate a completed motion scenario marked by the perfective aspect of the simple past and the present perfect. More specifically, in each of these verb expressions, the lexical aspect of the verb places the TE in Ego's past while the past tense with the lexical aspect places the TE in the speaker's past. The relation of the Motion Scenario vis-à-vis the speaker as indicated by the tense of the verb expression could be either in the past or—at least partially—concurrent with the moment of speech.

The verb expressions included in this sub-section are ***we went through, has gone by, has passed, passed, went by.*** They will be presented in the following subsections in the following order:

1. *we went through*
2. *has gone by*, *has passed*
3. *passed*, *went by*

In addition to the systematic representation of the EMT construals of each of the verb expressions, I will comment on the temporal meaning of the present perfect in retrospective EMTs: *passed* vs. *has passed,* and *went by* vs. *has gone by* using corpus data (Section 4.4.1.3.3).

4.4.1.3.1 we went through

Conceptual illustration:

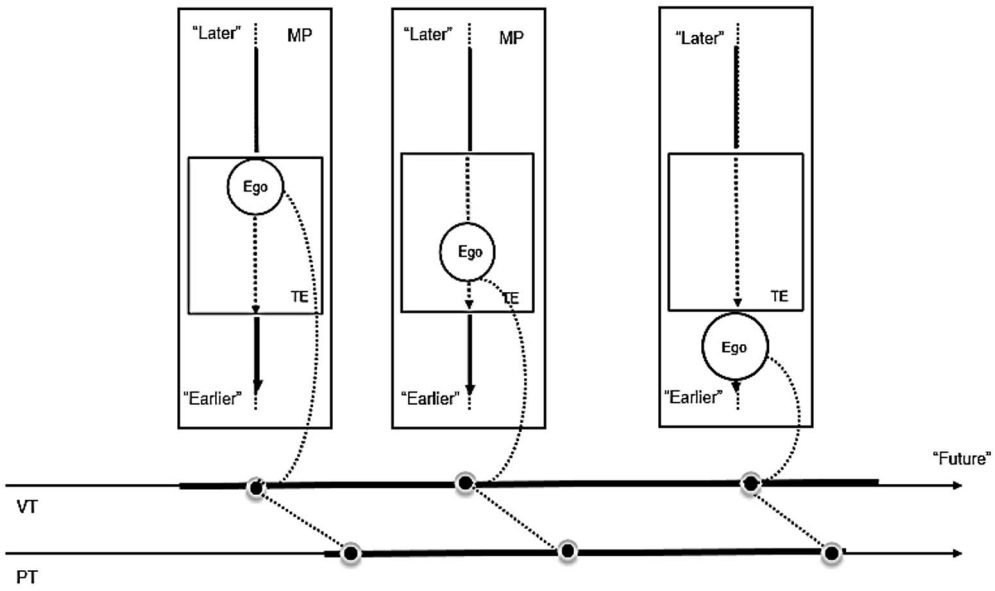

Figure 37. Illustration of the verb expression *we went through*.

Deictic subsystems:

- **Ego-MP-TE:** most likely co-location to post-location with a view of the motion scenario within the TE itself.
- **Ego-VT-TE:** Ego's 'now' to Ego-past
- **Speaker-MS:** past
- **Speaker-TE:** past

The simple past tense of the verb expression profiles a completed motion scenario, making the deictic and conceptual properties definable. The unique characteristic of *we went through* is that it describes motion within the TE giving an internal view of the construal. Evidently, as a result of positioning Ego at the end of the TE, the latter is in post-location on MP.

4.4.1.3.2 has gone by, has passed

First a comment is needed to justify the association of these two verb expressions under the same construal: The meaning of the phrase *to go by* could be thought of as

an equivalent to the meaning of the verb *to pass*. This is due to the meaning of *by* which profiles a scenario whereby "the Landmark is (metaphorically) approached, reached and left behind" (Lindstromberg, 2010, p.142). As such, the semantic profile of *by* combines with the profile of the verb *go* to denote "times and events that have 'approached' us out of the future and continued on into the past" (ibid, p.143).

Conceptual illustration:

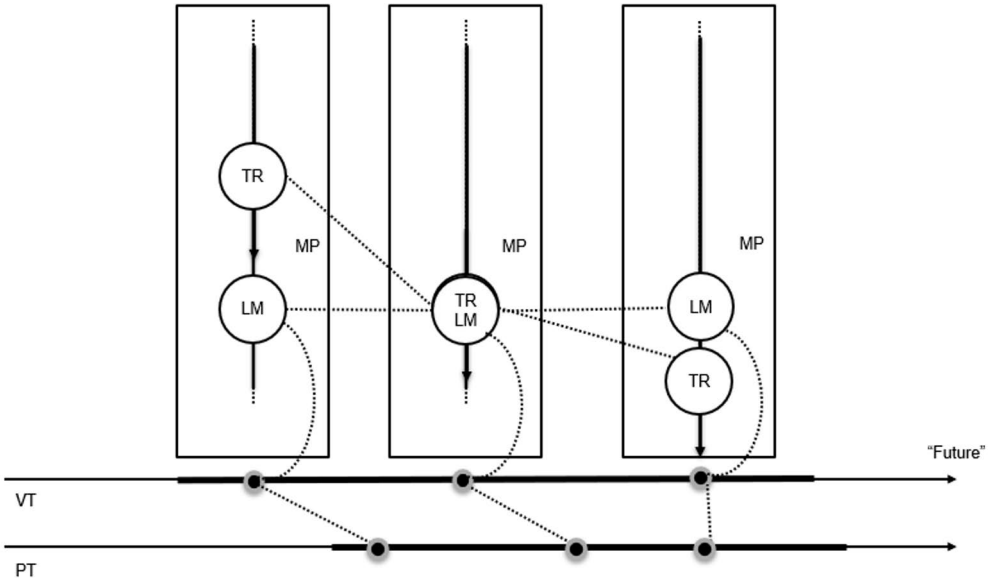

Figure 38. Illustration of the verb expressions *has gone by* and *has passed*.

The deictic subsystems of *has gone by* and *has passed* are as follows:

- **Ego-MP-TE:** pre-location to post-location
- **Ego-VT-TE:** Ego-future to Ego-past
- **Speaker-MS:** past. has gone by can be thought of as a combination of went by and is gone and has passed can be thought of as a combination of passed and is past.
- **Speaker-TE:** past. This is inferred from a combination of the meaning of the lexical verb in interaction with the present perfect. This point will be discussed in the upcoming subsection.

The temporal characteristics of *has gone by* and *has passed* will be elaborated on in more detail in the next subsection. However, a note is due regarding the motion stages included in the profiling of *has gone by* and *has passed.* As illustrated in Figure 38 and described in the deictic subsystems, *has gone* and *has passed*

instantiate three motion stages, namely the APPROACHING stage (Stage 2), the ARRIVAL (Stage 3), and the MOTION AWAY stage (Stage 4). This choice serves the purpose of showing the maximal profiling of the lexical verb PASS.

4.4.1.3.3 passed, went by

Conceptual illustration:

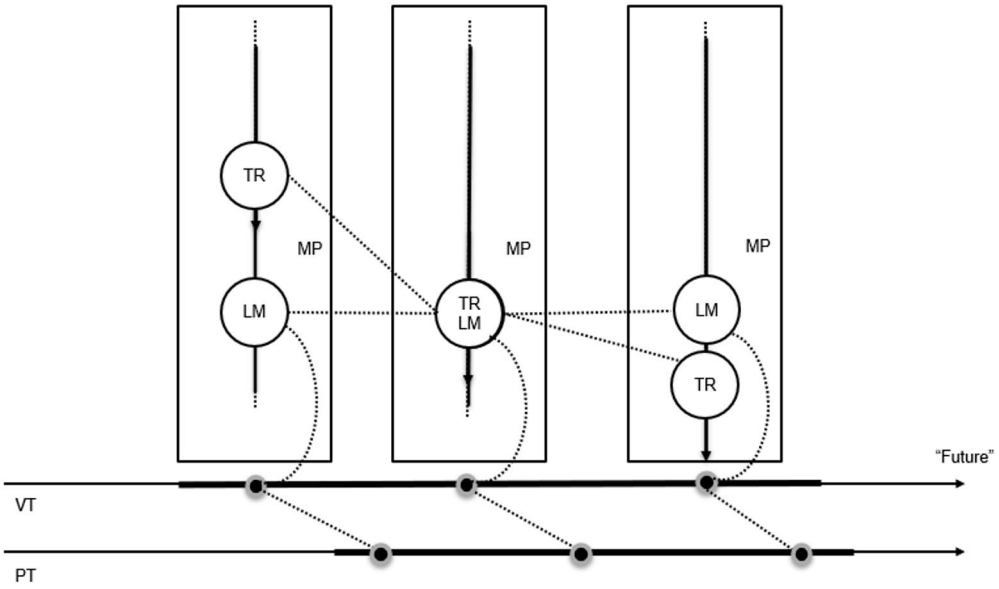

Figure 39. Illustration of the verb expressions *passed* and *went by*.

The verb expressions ***passed*** and ***went by*** can be described as follows:

- **Ego-MP-TE:** pre-location to post-location
- **Ego-VT-TE:** Ego-future to Ego-past
- **Speaker-MS:** all the stages of the motion scenario indicated by the motion scenario are in the speaker's past
- **Speaker-TE:** past

The previous section (concurrent EMTs) indicates an important tense distinction between the verb forms *has come* and *has arrived*, in contrast to, *came* and *arrived*. The analysis particularly shows that the present perfect typically indicates that the TE is not present only in the Ego's 'now', as it is also present with reference to the speaker's present. In contrast, the simple past verb forms place a TE in Ego's 'now'

and the speaker's past (cf. Comrie 1985 for an extensive analysis of the meaning of the present perfect).

When the present perfect is used with verbs that indicate post-location in a retrospective frame, an important contradiction arises: On the one hand, passing the Ground Location is the final stage of the schematic motion event for ME and MT alike (cf. Moore, 2014). On the other hand, temporal motion is conceived of as irreversible which means that no reverse changes can take place post-passing within the same metaphorical scenario. As such, while the motion event is in the past, the state of post-location which is the outcome of the motion event is static and unchangeable. If what *passed* is *past* and what *has passed* is equally *past*, then what is the meaning of the present perfect? More specifically, what is relevant to the moment of speech in a scenario where the outcome of motion is unchangeable?

The corpus data provide ample information about the usage interpretations of the present perfect, and the description of the 100 collected lines could easily extend over a few pages. However, to make this description more concise and focused, I have deliberately chosen specific analysis points as illustrated in the following examples:

(25) *I think you will agree that the time has passed, that we are not going to squeeze that toothpaste back into the tube*. [COCA, BLOG, 2012]

(26) *Five years has gone by in a flash, so I know the next 9 months will fly by*. [COCA, BLOG, 2012]

(27) *I have ended up where I needed to be. "and once time has passed and you look back, you'll notice that to be true."* [COCA, BLOG, 2012]

(28) *[E]arly refills are possible once 70% of the predicted time of use has gone by.* [COCA, [MAG], 2015]

To start with, the present perfect in Examples 25 and 26 presents evidence of cases where the post-location state of the TE is relevant to the present moment of speech due to the passing of the TE. Notably, in each of these illustrations, the passing of the TE has a defined effect relevant to the moment of speech. The passing of *the time* results in an inability to *squeeze that toothpaste back into the tube*, meaning that it is lost forever, and the passing of *five years* indicates that the *next nine months* (*next* with reference to the moment of speech) *will* also pass quickly. Viewed this way, the state of post-location with the TE that *has passed* or *has gone by* has an immediate impact on the moment of speech making the combination

present perfect x passing motion scenario a suitable choice for connecting past events with the current states of affairs.

Contrary to Examples (25) and (26), Examples (27) and (28) indicate a transposed EMT scenario, (cf. Section 4.3.4.7). That is to say, in both examples the passing of the TE is imagined with reference to a fictive Conceptualizer, and the motion scenario is not anchored with reference to the moment of speech (Moore, 2014, p.21). In example (27), the main clause *you'll notice that to be true* positions the scenario in the future of the speaker, even though the subordinate clause uses the present perfective. Within this mental space (Fauconnier & Turner, 2003), **tenses are utilized as if the present moment within the imaginary mental space coincides with the present moment of the speaker**. The fictive Conceptualizer is invoked for the specific purpose of establishing this connection. Example (28) similarly illustrates this combination of present and past, but the distinction lies in the fact that the conceptualization is applicable at any time, given the generic nature of the statement.

In many cases, the present perfect shares a certain degree of interchangeability with the simple past, but in instances that express transposed experience, the present perfect is not interchangeable with the simple past. That imagined experience resists the simple past, in turn, suggests that the simple past is more concrete or more real than the present perfect.

4.4.1.4 Cluster 4: Transitionary EMTs

Tested verb expressions: *goes by*, *is passing*, *will pass*

The verbs in this cluster may be unusual as they encompass different tenses, namely the simple present, the present progressive, and the future. However, there is a substantial reason behind this combination.

First, by transitionary, I refer to a motion scenario where the position of the TE on the MP is not easy to determine. In fact, these verbs are grouped together mainly because they all indicate a motion construal that is **vague with reference to both Ego and the speaker**.

This section will first of all give the properties of a transitionary EMT, with illustrated telic and atelic readings, and the following subsections: 4.4.1.4.1 to 4.4.1.4.3 will provide the deictic properties and the representations of the verb expressions ***goes by, is passing,*** and ***will pass*** based on Huumo's (2017) model.

The starting point for this analysis is the lexical aspect of the verb lemmas, namely, *to pass* and *to go by* which indicate a complex motion on MP with three possible phases of the schematic motion event (Moore, 2016): APPROACHING, ARRIVAL, and MOTION AWAY (Stages 2-4 of the schematic motion event). Additionally, as has been noted in Section 4.3.6, the lexical aspect of PASS could be

either telic or atelic. This, in turn, means that the verb could either have a defined phase where the metaphorical motion stops, or it can be used indefinitely, if the TE is unbounded. This is why, for this specific group, the most important indicator of the reference of the TE vis-à-vis Ego and the speaker is **the nominal aspect of the TE** (cf. Huumo, 2010). In a way, since the combination of the lexical aspect and the tense system does not identify a precise motion construal, the TE steps in as a defining reference point, which pinpoints a new veridical element to the conception of the EMTs. More specifically, the TE interacts with the lexical aspect of the verb, defining it either as an activity in an atelic interpretation or as an accomplishment in a telic version (see Huumo (2010, p.109) for specific examples that show how the nominal aspect interacts with the aspectual systems of a finite clause).

In general, then, we have two cases to consider:

First, if the TE has a defined duration marked by an expected endpoint, then the verb is used in its telic aspect and the metaphorical motion is expected to stop at some defined point marked by the end of the TE itself. That is to say, the TE here is expected to pass by Ego's 'here' on MP, and once its duration ends, it enters post-location at some point and becomes in Ego's past on VT. For instance:

(29) *I try to tell myself that it's just* ***the winter****, and that it will pass in a few months.* [COCA, BLOG, 2012]

The sentence is uttered during the ongoing winter season, which means that the moment of speech aligns with the TE which is expected to pass Ego's metaphorical location at some point. The reverse scenario is evident in cases where *will pass* is used within a ME metaphor that has a telic interpretation, namely that Ego passes through the defined TE and then reaches post-location once its duration ends.

Second. if the TE is extended without a defined duration and without a specified endpoint, e.g. *time*, then the verb is used in its atelic aspect and Ego never gets to post-location. Note the following examples:

(30) *I know its cliche to say that* ***time is passing*** *so quickly... but, it's cliche because it is so true!* [COCA, BLOG, 2012]

(31) ***Time goes by*** *quickly when you feel like you are watching a National Geographic TV.* [COCA, BLOG, 2012]

(32) *There'll be nothing else for us to do but mourn the departed day.* ***Time will pass****. Only time. And a time will come when we can no longer name what it is that binds us. Its name will gradually be erased from our memory until it vanishes completely* [COCA, MOV, 2008]

Each of these examples invokes the atelic reading of the verb, with different temporal grounding. Example (30) indicates an ongoing unbounded motion scenario while Example (31) indicates a transposed motion scenario which is not related to the speaker's conception of Immediate Reality. Example (32) indicates a future motion scenario that corresponds to the speaker's Projected Reality.

- **Point of analysis: The stillness of *passing time***

In the three examples above, *time* as a TE is conceived of as a Mover that changes its metaphorical location vis-à-vis Ego on the MP. However, this change in metaphorical location does not result in a change in position within the profiled segment of the event (from co-location to post-location on MP and from present to past on VT), nor does it result in a change of stage of motion (Stage 3 to Stage 4). Considering the absence of change on the metaphorical scenario, the passage of *time* is conceivable thanks to other changes that occur in VT which indicate its passage (cf. Evans (2004) for an analysis of the metaphorical uses of 'time'). From this perspective, even the passage of the definite and specific TEs, especially calendric TEs, serves the function of tracking this unchanged passage of time.

Evidently, the verb expressions in this cluster share a vague profile and depend on the TE for further specification, but they diverge in terms of tense. The next subsections will briefly define the deictic subsystems and the conceptual representations of each of the verb expressions *goes by*, *is passing*, and *will pass*, noting the tense distinctions.

4.4.1.4.1 goes by

Two readings are possible here, depending on the nominal aspect of the TE used with the EMT. They are as follows:

Conceptual illustration (of the telic reading):

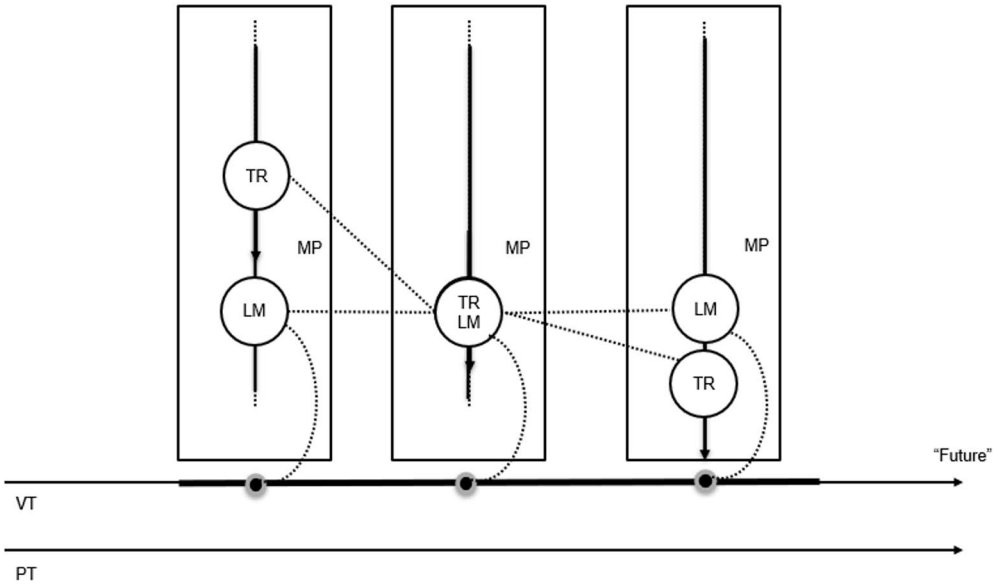

Figure 40. Illustration of the verb expression *goes by* (telic reading, i.e. The EMT uses a bounded TE).

As shown in Figure 40, the telic reading profiles the culmination of the passing motion, going from pre-location to post-location on MP and from Ego's future to Ego's past on VT. The deictic subsystems are as follows:

- **Ego-MP-TE:** pre-location to co-location, then co-location to post-location
- **Ego-VT-TE:** Ego-future to Ego's 'now', then Ego's 'now' to Ego-past
- **Speaker-MS:** unspecified because of the imperfect aspect of the simple present. The motion scenario is subject to context specifications.
- **Speaker-TE:** unspecified

The atelic reading implies metaphorical motion, but does not profile change on MP and VT. The details are below:

- **Ego-MP-TE:** co-location to co-location
- **Ego-VT-TE:** Ego's 'now' to (a later position within) Ego's 'now'
- **Speaker-MS:** unspecified because of the imperfect aspect. The motion scenario is subject to context specifications.

- **Speaker-TE:** unspecified

In terms of conceptual illustration, one way to visualize the atelic version is by envisioning the simultaneous presence of TR and LM on the MP axis, with this co-location evolving over time along the VT axis. Subsequently, the atelic version of *goes by* can alternatively be classified as a concurrent EMT since the TE is concurrent, at least to Ego on VT. This reading also maps onto the speaker's immediate reality because if the TE is permanent and has an unbounded extent, then it does not 'need' tense to indicate its position. As such, this construal would fall into the 'timeless truths', a type of epistemic conception identified by Langacker (2008). The timelessness here results from the enduring nature of the undounded TE which, in turn, establishes an epistemic stance in the immediate reality, leading to its conceptualization as a permanent truth.

4.4.1.4.2 is passing

is passing could be classified as a concurrent EMT (Cluster 2) as well because of its reference to the speaker's immediate present. The reason for including this verb expression under the transitionary cluster is the fact that it is impacted by the nominal aspect of the TE in its conception.

Conceptual illustration:

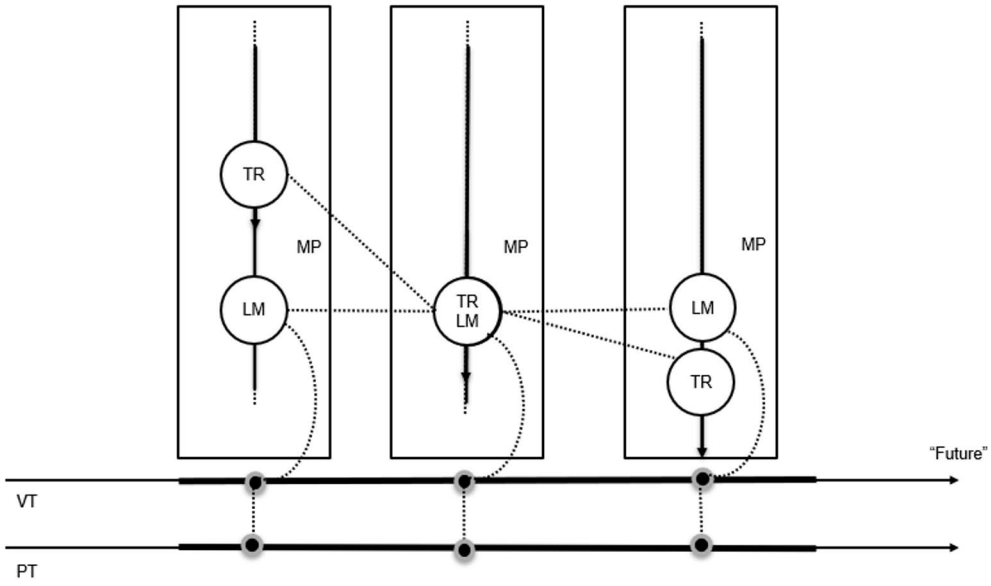

Figure 41. Illustration of the verb expression *is passing* (telic version).

The deictic subsystems are as follows:

- **Ego-MP-TE:** co-location to co-location
- **Ego-VT-TE:** Ego's 'now' to Ego's 'now'
- **Speaker-MS:** present
- **Speaker-TE:** present

In the case of this verb, the imperfective viewpoint aspect instantiated by the progressive construction invites an atelic reading of the verb. However, when used with a bounded TE, the action of passing is imagined to have an endpoint, even though it is not profiled by the verb expression, but when used with an unbounded TE, the same action remains concurrent with the moment of speech but becomes endless.

4.4.1.4.3 will pass

Again here, the properties of TEs significantly contribute to the conception of the overall motion scenario. Taking into account this usage-based observation, the deictic subsystems of *will pass* are based on bounded[49] TEs. *Will pass* is mostly used with non-anchored TEs (Appendix E), many of which indicate period of time even that is not specified.

[49] 'bounded' at least by having an endpoint, but potentially not a beginning point, if the expression only profiles co-location and post-location but not pre-location (Tuomas Huumo, personal comment).

Conceptual illustration:

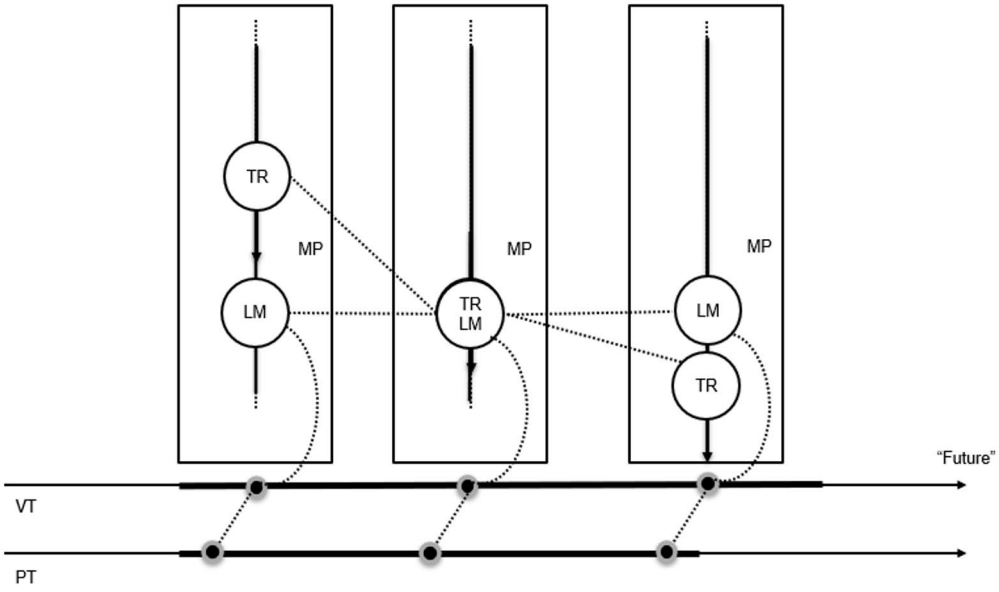

Figure 42. Telic illustration of the verb expression *will pass.*

Deictic subsystems (telic reading):

- **Ego-MP-TE:** pre-location to post-location
- **Ego-VT-TE:** Ego-future to Ego-past
- **Speaker-MS:** future
- **Speaker-TE**: unspecified depending on whether the TE is concurrent with the speaker's present or is expected to 'come' and then pass

Deictic subsystems (atelic reading):

- **Ego-MP-TE:** co-location to co-location
- **Ego-VT-TE:** Ego's 'now' to (a later position within) Ego's 'now'
- **Speaker-MS:** future
- **Speaker-TE:** unspecified

The telic reading presumes a bounded TE (e.g. *winter*, *this year*, etc.). There are two cases here: either the TE is concurrent with the moment of speech and its passing is a future event, or the TE is not the speaker's present, and it is expected to come then pass. The atelic reading, as represented in the deictic subsystems, presumes an unbounded TE (e.g. *time*) the position of which cannot be systematically inferred.

4.4.2 Computational models & usage properties of the English EMT construals

After identifying the verb expressions sharing similar motion construals, the question that remains is whether the verb expressions which are conceptually similar are used interchangeably. To answer this question, I will use the annotation variables: type of EMT, type of TE, and type of EXP to examine whether the usage characteristics of the corpus lines can serve as predictors for the verb expression.

In order to illustrate the connections between the annotation variables and the representations of motion construals resulting from the combinations of tense, aspect, and verb lemma, I employed a Random Forest[50] statistical model. The model is able to confirm whether the distribution patterns of the annotation data can actually be predicted by a selection of variables. More generally, a Random Forest Model "seek[s] to predict, given a set of predictors, which of the alternatives … is most probable." (Tagliamonte & Baayen, 2012, p. 159). Random forests are "an ensemble method, by which many individual trees are 'grown', and their predictions are averaged." (Levshina, 2020, p. 612) In the following test, I used the annotation variables together with other corpus tags to run several iterations of predictions and I take the prediction accuracy as an indicator of the connection between the prediction variables and the response variable and the variable importance to validate the association predicted-predictors and to identify the strongest predictors and their impact. This impact is measured through a process of "trial and error" by growing a large number of conditional trees which in turn "provides estimates of the likelihood of the value of the response variable … based on a series of binary questions about the values of predictor variables." (Tagliamonte & Baayen, 2012, p. 159-160). In this way, each of the selected predictors acts as a cue to the model.

The Random Forest model is particularly praised in the literature for its ability to manage small and unbalanced samples of observations and for managing large numbers of variables effectively (Tagliamonte & Baayen, 2012); however, as noted in Gries (2019) the model is particularly difficult to explain. That is to say, the model gives predictions based on a large number of decision trees which are not available to external examination, only an average of their predictions is available. The most important concern in this context pertains to the influence of each variable on the overall prediction, also known as 'Variable Importance'. In the present model, Variable Importance is measured by a process conditional permutation by means of which the model runs different iterations of the same prediction to identify the impact

[50] I am deeply indebted to Pr. Ilmari Ivaska for his invaluable contribution to crafting the initial version of the model and providing insightful guidance regarding its implementation.

of a given predictor. The logic here is simple: "The extent to which the model becomes worse is a measure of the importance of a predictor. If the model hardly becomes worse, then a predictor is not relevant. However, if the model's performance decreases dramatically, we know that we have a vital predictor." (Tagliamonte & Baayen, 2012, p. 160).

In addition to variable importance, the C-score is used to indicate the quality of binary predictions; that is, in cases where the number of predicted variables is equal to two. This is in line with the recommendations in the scholarship of Corpus Linguistics, namely (Gries, 2021). C-score is "a score in the interval [0.5, 1], which is widely used to evaluate model fit" based on a binomial logistic regression model. The higher scores indicate better predictive performance, and a score of 0.8 and above indicates an "excellent" model (ibid). In the present section, the C-score is only valid for the prediction of the type of EMT because of its binary outcome: either a ME or a MT. Otherwise, it will be used in the upcoming section for making further predictions.

In the following, the description of each prediction will be:

1. First, an identification of the rationale for choosing the given predictors and the hypothesis associated with the prediction.
2. Second, a discussion of the prediction accuracy is discussed together with the breakdown of the variable importance.

Further predictions were run to test different combinations of variables, as needed.

4.4.2.1 Selection of response variables

Admittedly, there are many ways one can go about the task of selecting predictors and response variables, especially that the corpus is tagged for verb lemma, tense, aspect, language, and expected metaphor type. Consequently, there is a range of meaningful predictions that can be derived. However, I chose to simplify the model testing because of the large number of tested verbs and the overall scope of this study.

In the following models, I will select verb expressions that share similar motion construals to be predicted based on the annotation properties. The annotation properties: type of TE, type of experiencer, and type of EMT represent usage features. In so doing, I presume that the predicted verbs are—to varying extents—theoretically and conceptually similar based on the analysis in the previous section, but they are not interchangeable in usage. The choice of a verb expression can either be accurately predicted based on the annotation properties or not; each of these scenarios are related to a separate interpretation, as follows:

If the prediction accuracy is low, then the annotation variables taking the role of predictors are not good cues for a given verb expression and that the two (or more) tested verbs are relatively interchangeable in use. Evidently, this interchangeability is only limited to the annotation features taken into consideration, hence its relative nature.

If the prediction accuracy is strong (0.7[51] or more) then the choice of a particular verb expression among similar verbs is strongly associated with the metaphor properties tagged in annotation.

As an illustration, consider predicting the usage of the following two verb expressions: *went by x we went through*. The frequency distribution of corpus annotations shows that *went by* is predominantly associated with a calendric TE while *we went through* is frequently used with non-anchored events. I, therefore, anticipate that the occurrence of each verb expression—both of which are theoretically similar and take the role of response variables—will be accurately predicted by the type of TE.

Predicted verb expressions are selected based on their shared motion construals. The selection is overall quite intuitive: Within a given cluster, I chose the most similar verbs for prediction, except for the case of transitionary EMTs in which I ran a prediction of all three verb expressions under the cluster. Identifying similarity among verb expressions that share the same cluster is based on a comparison of three properties: tense and aspect, person inflection and consequently the associated metaphor type, and the verb lemma.

4.4.2.2 Overview of the model

The Random Forest model (presented in Section 4.4.2) is based on a balanced dataset of N=50 observations per verb expressions. However, as the model is set to eliminate any lines with NAs or problematic characters, the number observations can fall below 50 by a few lines. Nevertheless, the tested verb forms are predicted using quasi-balanced datasets.

[51] I consider a 0.7 accuracy score as an acceptable threshold for these descriptive models, given their primary purpose of validating observations derived from corpus annotation and the distribution of annotation frequencies. It's worth noting that accuracy thresholds typically range from 0.7 to 0.9, depending on the specific requirements and implications of individual models.

Selection of predictors

The goal in selecting predictors is to ensure that each predictor contributes meaningfully to the analysis. In particular, the selection of EMT types requires contemplation since they are related to the person inflection of the verb expression and can categorically mark the latter. More specifically, EMT types are selected as a predictor in one case and eliminated in two cases, as follows:

1. If the predicted verb forms are inflected for an impersonal or third person singular, then the type of EMT is selected as a predictor. E.g. *goes by x is passing x will pass.* Only in this case does EMT function as a meaningful cue of the verb expression, and consequently of the motion construal each verb represents. This is especially the case if there is variability of distribution of type of EMTs within verbs that share the same, or similar inflection paradigms.
2. If the predicted verb forms are inflected for a first-person plural, then the type of EMT is not selected as a predictor. E.g. *we go through x we are going through.* In this case, the type of EMT does not function as a cue since both verb expressions map onto ME metaphors.
3. If the predicted verb forms are inflected for a combination of first person plural and impersonal and/ or third person singular, then the type of EMT is not selected as a predictor. E.g. *we approach x approaches.* In this case, the prediction would be too easy in the EMT type is used as a predicting variable because one of the verb forms is marked by its type of EMT and so it is identifiable by it. Whenever the type of EMT is removed, the prediction is only based on the other two annotation variables.

The variables used in predictions are indicated with their variable importance in the last column of Table 29. The prediction accuracy rate is expressed as a numerical index ranging from 0 to 1. Alternatively, it can be represented as a percentage. For example, if the prediction accuracy is 0.7, it means the model makes accurate predictions 70% of the time, or 70% of the tested predictions conducted by the model are accurate. The prediction accuracy values in the table are presented in the identical format as reported by the Random Forest model. Also, when applicable, the relevant C-score is provided alongside the prediction accuracy value (Table 29).

Table 29. Random Forest predictions: English EMTs.

	Verb expression	Verb lemma	Tense/ aspect	Expected metaphor type	Prediction rate	Variable importance	Notes
	Prospective EMT Construals						
1	we approach x approaches	Same	Same	Different	0.8014239 C-score: NaN	0.08804150 EXP 0.03762291 TE	*approaches* is used with a higher variability of TE and EXP types while *we approach* is mostly used with collective EXPs and calendric TEs.
2	we are approaching x is approaching	Same	Same	Different	0.83729 C-score: NaN	0.16082252 EXP 0.02836345 TE	The most important difference is in the ME lines with *is approaching* which relate to a non-collective experiencer, mostly shifted experiencers.
3	is coming x we are coming	Same	Same	Different	0.7896364 C-score: NaN	0.07042012 TE 0.02754722 EXP	The type of TE makes the difference. *is coming* is mostly used with non-anchored events while *we are coming* associates more with anchored events. Regarding the types of experiencers, *is coming* is evidently used with a larger variability of experiencer types, mainly deictic personal and shifted alongside the collective type while *we are coming* is predominantly used with collective experiencers and, to a lesser extent, with deictic personal experiencers.
4	is coming x is approaching	Different	Same	Same	0.8006323 C-score: 0.7758333	0.065649033 EMT 0.060520613 TE 0.003760095 EXP	Unlike *is approaching*, the verb expression *is coming* is not used as much with ME metaphors and shifted experiencers.
Concurrent EMT Construals							
5	came x arrived	Different	Same	Same	0.755134 C-score: 0.7229412	0.074076353 TE 0.018158591 EXP -0.001215262 EMT	Both verbs have similar distributions. Both can be used in ME metaphors, but mostly in MTs, and so the type of EMT is not a good cue; it is rather confusing the model, hence its negative value.
6	has come x has arrived	Different	Same	Same	0.8297441 C-score: 0.8174468	0.2002629384 TE 0.0008845348 EXP 0.0000000000 EMT	*has come x has arrived* are used with 100% MT line, which eliminates EMT types from the prediction. They are also proportional in terms of EXP distribution, which weakens its predictable significance. However, they are distinctive in terms of the types of TE they associate with, mostly because *has come* is used a majority of non-anchored events.
7	we go through x we are going through	Same	Different	Same	0.843014 C-score: NaN	0.12969878 EXP 0.08311102 TE	The prediction accuracy is mostly attributed to the use of *we go through* with virtual experiencers, hence it is mostly predicted by type of EXP.
Retrospective EMT Construals							
8	we went through x went by x passed	Different	Same	Different	0.7938663	0.1899962 TE 0.1710599 EXP	This particular combination is composed of motion construals that indicate a past MS and a TE is metaphorical post-location vis-à-vis Ego. The distinction between the construals is made by the type of TE: *we went through* is used mostly with non-anchored TEs, *passed* and *went by* with a majority of calendric times. The testing of *went by* and *passed* returns a 80% accuracy rate, but the c-score is 0.24 which means that the model fit is very low and the selections are probably arbitrary. This is expected as the two verb expressions have very similar usage distributions.

	Verb expression	Verb lemma	Tense/ aspect	Expected metaphor type	Prediction rate	Variable importance	Notes
9	has gone by x has passed	Different	Same	Same	0.7700468 C-score: 0.7392683	0.0713106185 EXP 0.0001750464 EMT -0.0018821089 TE	The differences between these two verb expressions are not significant. The model still performs well given the fact that all the predictors function as cues, and their joint impact predicts each verb expression. However, I do not signal out any of them as a particularly strong predictor. One potential method to validate this interchangeability, both in this context and elsewhere, is to conduct a test across corpus lines. This involves using one verb expression in place of the other to determine if the verbs are actually 100% interchangeable.
Transitionary EMT Construals							
10	goes by x is passing x will pass	Different	Different	Same	0.6652692	0.10777631 TE 0.03862543 EMT 0.03529298 EXP	The model based *goes by* x *is going* x *will pass* are only tested because the verb expressions belong to the same cluster and so they share a broader conceptualization of transitionary EMTs. However, the prediction is not very meaningful because the three verb expressions are not necessarily interchangeable. Still, the model can be understood as a way to test the usage distinctions among the three. With a prediction accuracy of 66% there seems to be a level of distinction based mostly on the type of TE. There is still a considerable amount of overlap between the three verbs, given the fact that they don't really share the same construal, and so it is not expected that each of them would—at least to an extent—specialize in usage.

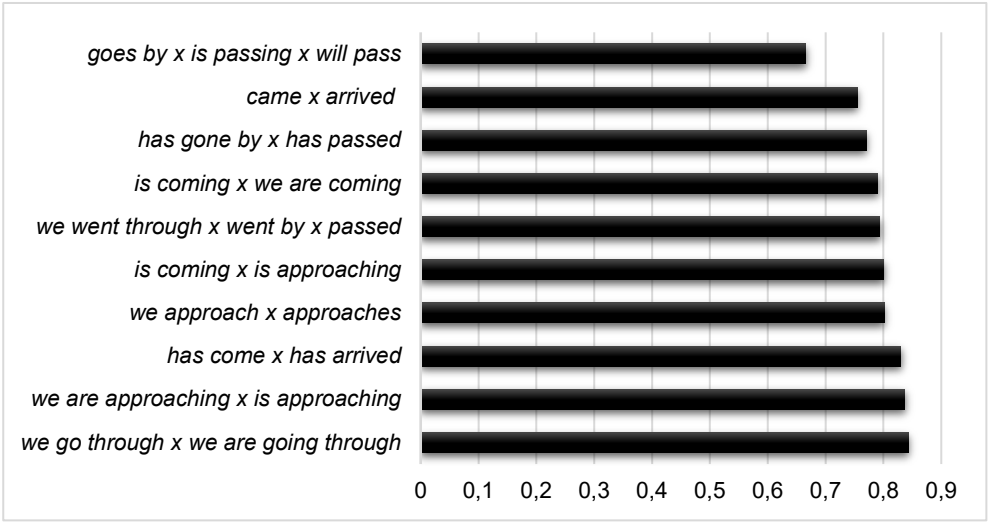

Figure 43. Prediction accuracy of the English EMTs based on the annotation variables. Prediction accuracy ranges from 0.66 to 0.84.

4.4.2.3 Summary and discussion of the results

The models return accuracy scores that range from 0.66 to 0.84 which indicates overall success in predicting verb expressions based on annotation variables. This series of predictions, in turn, showcases the usage distinctions of each of the motion construals. That is to say, the language user selects among 'interchangeable' verb expressions based on the type of experiencer, the type of TE and, occasionally, the type of EMT.

In most of the models, the annotation features prove to be meaningful predictors, but with different importance scores. To evaluate the significance of each cue, including the TE, I calculated the sum of variable importance values for each predictor from across the models. The results are as follows:

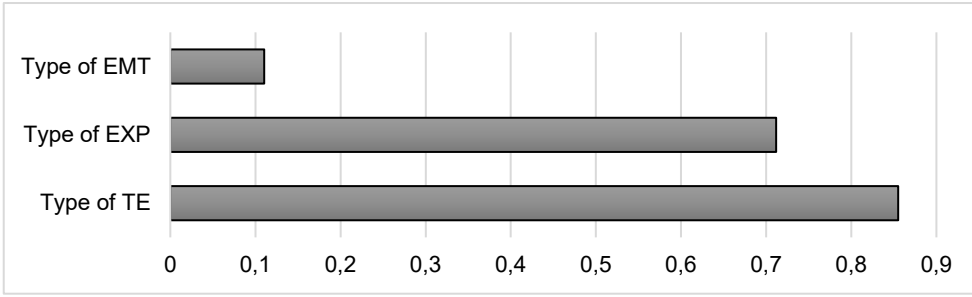

Figure 44. Sum of the predictor variable importance (English models).

The significance of the TE type as a predictor variable is evident. The importance of TE type is further emphasized in the theoretical sections (4.4.1), where it is highlighted that the properties of TE are intricately connected to construal properties. For example, the context being described requires the use of a TE with extended duration rather than referring to momentous times. This highlights the significant role that TE type plays in guiding the selection of appropriate motion construals. This, in turn, shows that the TE type serves as a significant element, both conceptually and practically as a criterion for selecting a specific motion construal over others. In essence, the two are closely related.

It is true that in this study, EMTs are taken as a cognitive linguistic phenomenon, but at this point, I would like to remind us that each of the EMT lines under examination was uttered by a human person in a specific context. Some of the corpus lines belong to fictional narratives, others to news reports, blogs, historical accounts, etc. At this point, I invite the reader to direct their attention towards the contextual aspects of choosing a verb expression for an EMT, taking a moment away from calculations and going back to the situational context of utterance.

As mentioned earlier in Section 4.3.2, the TE is the focal point of an EMT. That is to say, the selection of verb expressions and their corresponding motion construals is probably subject to situational features informed primarily by the times that emerge in the scope of attention of the speaker with a degree of relevance to the context. For instance, a corpus line such as *...change comes with astonishing quickness when the time is right* [COCA, BLOG, 2012] is an utterance in a larger context that probably invites talk about *change*, rather than one that invites the use of the verb *come*. As such, the selection of motion verbs suits the goal of discussing particular TEs and their corresponding experiencers, both of which are situational, rooted in our conception of (ir)reality. This, in turn, highlights the situational importance of the TEs, complementing their computational value highlighted by the prediction models.

The type of EXP is the second-best predictor overall, and in some models, it is the best predictor. The type of EXPs stand out as a predictor particularly in the case of testing verb expressions that share the same inflection paradigm. This refers to two cases in particular. In case all the predicted verb expressions are used with the first-person plural pronoun *we*, the type of EMT is meaningless and so the types of TEs and the types of EXP are the only two cues. In this case, the type of EXP make the difference between verb expressions where *we* refers to a majority of collective experiencers and verb expressions where *we* refers to a variability of collective, shared, and virtual experiencers, e.g. model 7 (*we go through x we are going through*). In the case the verb expression is used in the third person or is uninflected for person, the verb expression usually returns a totality or a majority of MT metaphors. Verb expressions used with a variety of EMT metaphors return more variability in experiencer type for a simple reason: In case of MT, the TE is the Mover in Subject position. In this case, each type of experiencer has a chance of occurrence. E.g. *Summer is approaching*. In the case of ME, a third person Mover, typically human, the experiencer is either shifted e.g. *Carl is approaching an important deadline* or virtual e.g. *Any woman goes through this at some point of her life*.

Obviously, for third person or uninflected verbs, EMT types are also a valid predictor. Interestingly, EMTs are significant cues in most predictions that fall under this case provided the two predicted verb expressions have different EMT distributions for e.g. *is coming* (0 ME lines, 50 MT lines) *x is approaching* (15 ME lines, 35 MT lines). However, when both (or all) predicted verb expressions are used with MT metaphors only, EMT types become an irrelevant cue, e.g. model #6: *has come x has arrived*.

4.4.3 Cognitive linguistic models: Conceptual and deictic representations of the Arabic EMTs based on aspectualized verb expressions

In what follows, I will present the Arabic motion construals[52]. The aspect-based verb expressions are mapped onto the same clusters used for the English verb expressions. These are the prospective, concurrent, retrospective, and transitionary clusters. The description of the deictic subsystems follows the lexico-grammatical properties of each verb informed by the paradigm identified in Section 4.3.9.

At the beginning of each of these subsections (Sections 4.4.31 to 4.4.34), I present the verb expressions within the cluster then I describe the properties of the cluster itself and the rationale for incorporating the associated verb expressions. Next, I divide each of the four clusters into subclusters in which I group verb expressions that can be mapped onto the same representation together. In line with the English models, for each of these divisions, I provide two descriptions: the deictic subsystems and the conceptual illustration based on an adaptation of Huumo's (2017) model. In addition to the conceptual and deictic properties of each motion construal, I describe the usage properties of the verb expressions using Random Forest models (Section 4.4.4).

4.4.3.1 Cluster 1: Prospective EMTs

Verb expressions: ***qaaraba***, ***iqtaraba***, ***aqbala*** (approach.PERF.3SG.M), ***yaqtarib*** (approach.IMPF.3SG.M), ***naqtarib*** (approach.IMPF.1PL), ***saya'tee*** (fut=come.IMPF.3SG.M)

The prospective EMTs cluster in Arabic encompasses two different types of verb expressions: First, the perfective and imperfective 'approaching' verb lemmas: *iqtaraba, aqbala,* and *qaaraba*. The rationale for mapping these verb expressions under the prospective EMT cluster is simple: As indicated in Section 4.3.6, the lexical aspect of APPROACH[53] indicates a single stage of motion where the Mover becomes more proximal to a Location. Subsequently, irrespective of the level of completeness of the event indicated by grammatical aspect, the verb lemmas cannot profile co-location of Mover with the Ground Location, hence the association of ***iqtaraba, aqbala,*** and ***qaaraba*** (approach.PERF.3SG.M) with the prospective cluster. The prospective EMTs cluster also includes an APPROACH verb in the imperfective,

[52] **Important note**: Considering the large number of verb expressions and anticipating the cognitive burden on the reader in the upcoming sections, I ensured that the descriptions are both concise and systematically presented, especially that the logic of the analysis is the same for English and Arabic data.

[53] The small caps notation APPROACH is used to indicate the action type in both languages, irrespective of the verb lemma (cf. Section 4.3.6).

namely ***yaqtarib*** (approach.IMPF.3SG.M) and ***naqtaribu*** (approach.IMPF.1PL). The latter will be presented based on the lexical aspect of the verb, since the imperfective in Arabic is not taken as a grounding element (Section 4.3.9). Finally this cluster includes the verb expression *sayati* (FUT=come.IMPF.3SG.M). Here, the *sa-* imperfective paradigm profiles a motion event that is in the future of the Conceptualizer.

All these verb expressions are prospective in that they indicate a future TE either vis-à-vis Ego in the case of all the verb expressions that use the action type APPROACH; i.e, *qaaraba, iataraba, aqbala, yaqtarib,* and *naqtarib*, or the Conceptualizer in the case of *saya'tee***.** The specific deictic properties of the verbs and the representation of the motion construal using Huumo's (2017) model will be in the following order:

- *Qaaraba*, *iqtaraba*, *aqbala* (approach.PERF.3SG.M), presented in Section 4.4.3.1.1
- *yaqtarib* (approach.IMPF.3SG.M), *naqtarib* (approach.IMPF.1PL), presented in Section 4.4.3.1.2
- *saya'tee* (FUT=come.IMPF.3SG.M), presented in Section 4.4.3.1.3

4.4.3.1.1 *qaaraba, iqtaraba, aqbala* (approach.PERF.3SG.M)

The description of the motion construals presented here results from the interplay between the lexical aspect of APPROACH and the perfective aspect, which is grounded with reference to the Conceptualizer. Following the analysis plan outlined in Section 4.3.10, the Arabic perfective is associated with a past perspective at the Conceptualizer level. Hence, the conceptual illustration will utilize a CT timeline to depict this grounding relationship. This axis will be employed for both perfective and *sa-* imperfective verb expressions.

Conceptual illutsration:

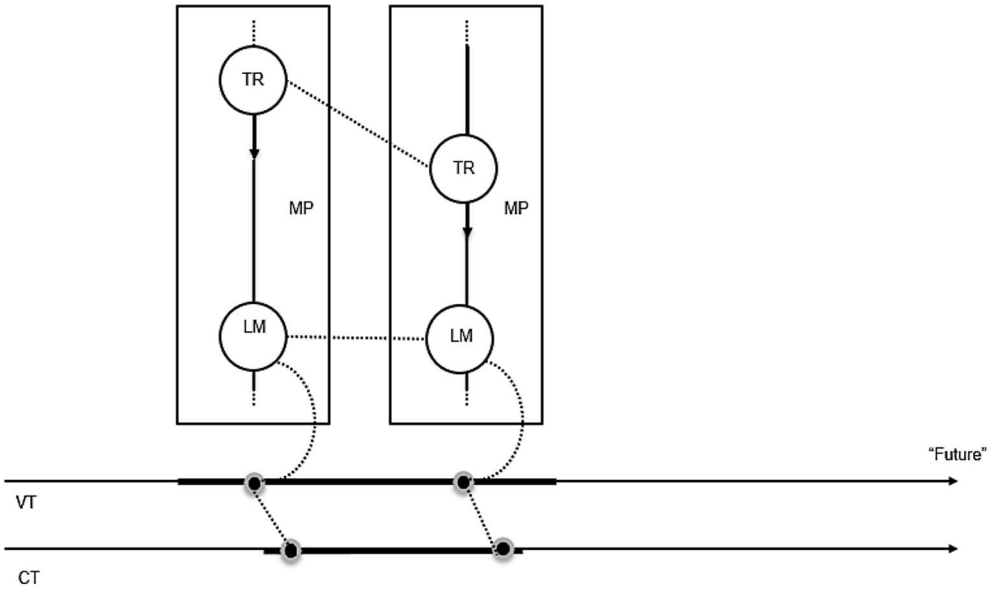

Figure 45. Representation of the verb expressions *iqtaraba, qaarba, aqbala* (approach.PERF.3SG.M) The motion scenario is in the past with reference to some medial level of conceptualization marked by the of the Conceptualizer, but reference to the speaker is context-dependent.

Deictic properties:

- **Ego-MP-TE:** pre-location to more proximal pre-location (increased proximity)
- **Ego-VT-TE:** Ego-future to a more imminent position within Ego-future
- **Conceptualizer-MS:** completed action, outcome of MS attained.

4.4.3.1.2 yaqtarib (approach.IMPF.3SG.M), *naqtaribu* (approach.IMPF.1PL)

An EMT that uses the verb form *yaqtarib* (approach.IMPF.3SG.M) and *naqtarib* (approach.IMPF.1PL) indicates an incomplete 'approaching' motion scenario vis-à-vis an Ego experiencer.

Conceptual illustration:

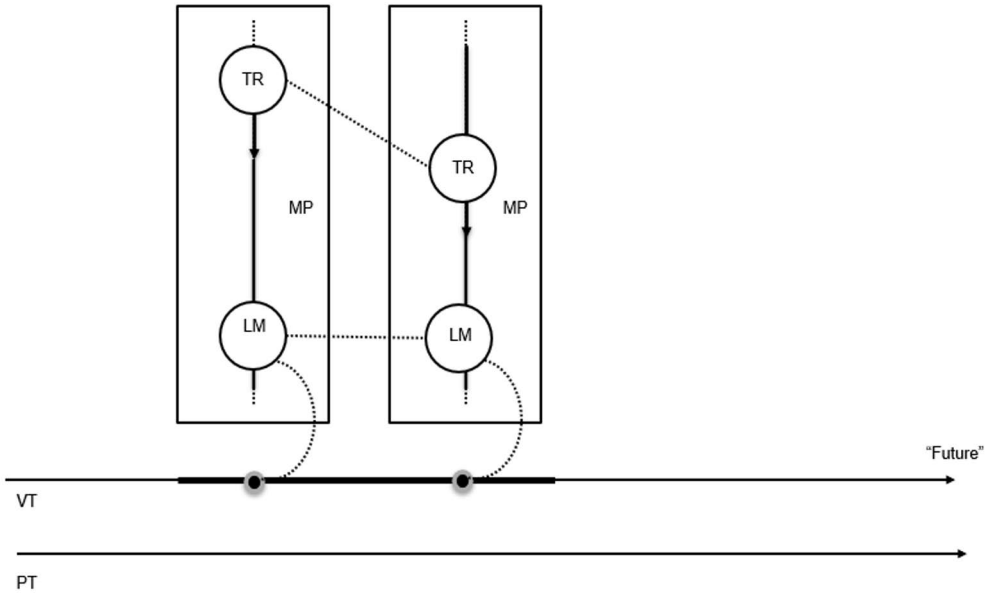

Figure 46. Representation of the verb expressions *yaqtarib* (approach.IMPF. 3SG.M) and *naqtarib* (approach.IMPF.1PL).

Deictic properties:

- **Ego-MP-TE:** pre-location to more proximal pre-location (increased proximity).
- **Ego-VT-TE:** Ego-future to a more imminent position within Ego-future

The difference between the perfective expressions highlighted in the previous section and the imperfective verb expressions is that in the perfective the conceptualizer can evaluate the action of approaching in her past, which makes it complete, without necessarily indicating its arrival.

4.4.3.1.3 saya'tee (FUT=come.IMPF.3SG.M)

The description is based on the combination of the lexical aspect, acting on the identification of the segment traversed on MP, and the future reference of the *sa-* imperfective construction, related to the Conceptualizer. The *sa-* imperfective verb profiles the motion scenario is in the future with reference to some medial level of conceptualization related to the of the Conceptualizer while reference to the speaker is context-dependent (cf. Section 4.3.9.3).

Conceptual illustration:

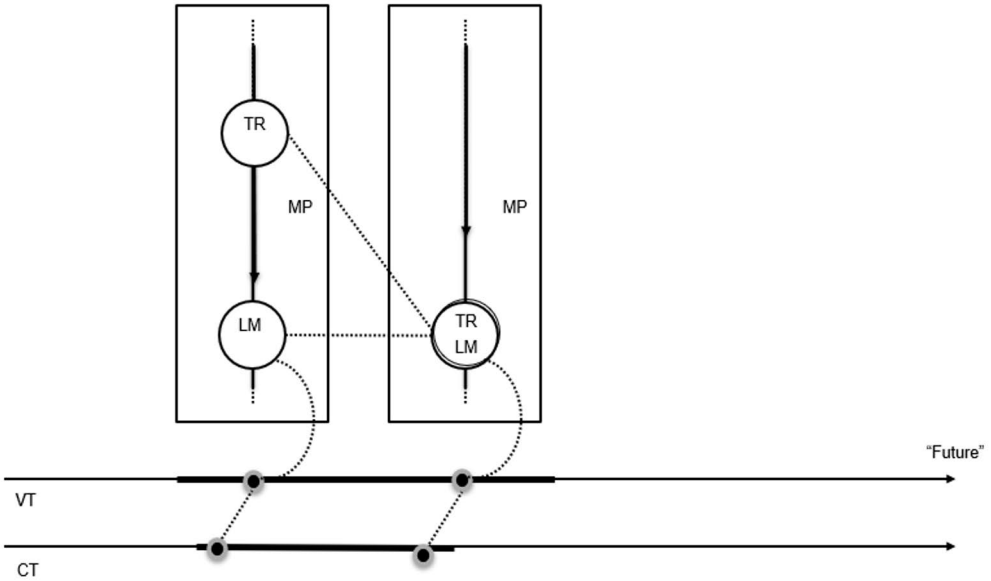

Figure 47. Representation of the verb expression *saya'tee* (FUT=come.IMPF.3SG.M).

Deictic properties:

- **Ego-MP-TE:** pre-location to co-location
- **Ego-VT-TE:** Ego-future to Ego's 'now'
- **Conceptualizer-MS:** the MS is in the (relative) future of the Conceptualizer

4.4.3.2 Cluster 2: concurrent EMTs

Verb expressions: *jaa'a, ataa* (come.PERF.3SG.M), *Halla* (arrive.PERF.3SG.M) *namurr bi* (pass.IMPF.1PL=PREP), *ya'tee, yajee'* (come.IMPF.3SG.M), *yaHill* (arrive.IMPF.3SG.M)

Similar to the English cluster, this cluster encompasses verb expressions that indicate a TE at Ego's 'now' on VT and possibly, but not necessarily, in the speaker's immediate reality. Here, three motion construals are available:

1. an imperfective ME motion that indicates passage by or through a TE: *namurru bi* (pass.IMPF.1PL.=PREP). The 1PL maps onto a ME construction, and the combination of the verb and the preposition profile a passage 'through' or 'by' a TE, which indicates a co-location with time. In this

scenario, Ego moves (metaphorically) in co-location with the TE segment on MP.

2. a perfective COME construal where the combination of the lexical aspect of the verb and the perfective indicates an arrival motion stage. The verbs under this sub-cluster are *jaa'a* and *ataa* (come.PERF.3SG.M)**,** *Halla* (arrive.PERF.3SG.M).
3. an imperfective COME verb in the 3SG. Here the models are based on the lexical aspect of the verbs with reference to Ego the experiencer, only. The lexical aspect here profiles a pre-location to co-location segment on MP, and Ego-MP-TE changes position accordingly. Co-location on MP is mapped onto a position of co-occurrence on VT (NOW IS HERE metaphor), hence the concurrent nature of the motion construals. This sub-cluster includes *ya'tee* and *yajee'* (come.IMPF.3SG.M) s well as *yaHill* (arrive.IMPF.3SG.M).

Evidently since the two construals under this cluster have different properties, they will be described separately in the following three subsections.

- *jaa'a*, *ataa* (come.PERF.3SG.M) and *Halla* (arrive.PERF.3SG.M) will be presented in section 4.4.3.2.1.
- *namurr bi* (pass.impf.1PL=PREP) will be presented in section 4.4.3.2.2.
- *ya'tee*, *yajee'* (come.IMPF.3SG.M), *yaHill* (arrive.IMPF.3SG.M) will be presented in section 4.4.3.2.3.

4.4.3.2.1 jaa'a, ataa (come.PERF.3SG.M.), *Halla* (arrive.PERF.3SG.M.)

This group combine two 'come' verbs (*jaa'a* and *ataa*) with an 'arrive' verb (*Halla*), following the same logic applied to the English models (Section 4.4.2), namely because both verb lemmas share the same outcome: co-location with a Ground. Although they are in the same cluster, the deictic and conceptual descriptions will make the distinctions between them to acknowledge their differences.

Conceptual illustration:

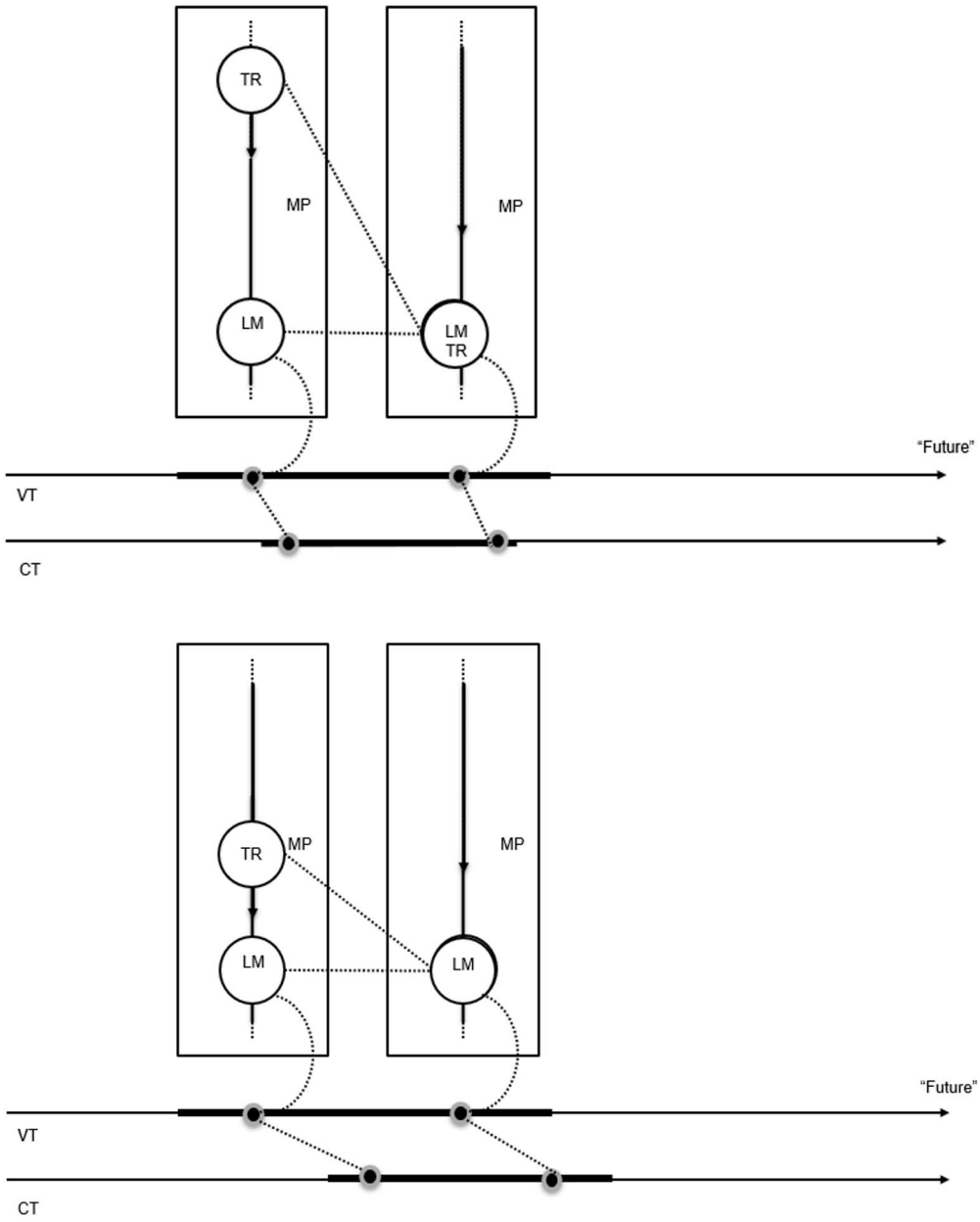

Figure 48. Representation of the verb expressions: *jaa'a* and *ataa* (come.PERF.3SG.M) shown in the upper illustration, and *Halla* (arrive.PERF.3SG.M), shown in the lower illustration.

Deictic subsystems:

- **Ego-MP-TE:** pre-location to co-location for *jaa'a* and *ataa* (come.PERF.3SG.M), and proximal pre-location to co-location for *Halla* (arrive.PERF.3SG.M).
- **Ego-VT-TE:** Ego-future to Ego's 'now' for *jaa'a* and *ataa* (come.PERF.3SG.M), and Ego's near future to Ego's 'now' for *Halla* (arrive.PERF.3SG.M).
- **Conceptualizer-MS:** completed action, outcome of MS attained. The MS is in the past of the Conceptualizer.

4.4.3.2.2 namurr bi (pass.IMPF.1PL=PREP)

The verb expression *namurru bi-* can be used to mean 'we (are) go(ing) though', or 'we (are) pass(ing) by'. It is important to note here that *bi-* can take different meanings depending on the context. The same goes for *mararna bi-* which can be translated into 'we went though', or 'we passed by' depending on the meaning of the preposition *bi-*. In either cases, *bi* fulfills the function of "a directional component related to the orientation of the path of motion" (Abdulrahim, 2013, p.226). Also, in both cases, *namurru bi* indicates a concurrent TE in a ME scenario. The only difference is in the last stage of motion. For *we are going through*, the scenario highlights a co-location to a co-location, while for *the we pass/are passing by*, it profiles a co-location to an expected post-location.

Presuming the meaning of *bi-* to be equivalent of *through*, *namurru bi-* can be represented as follows:

Conceptual illustration:

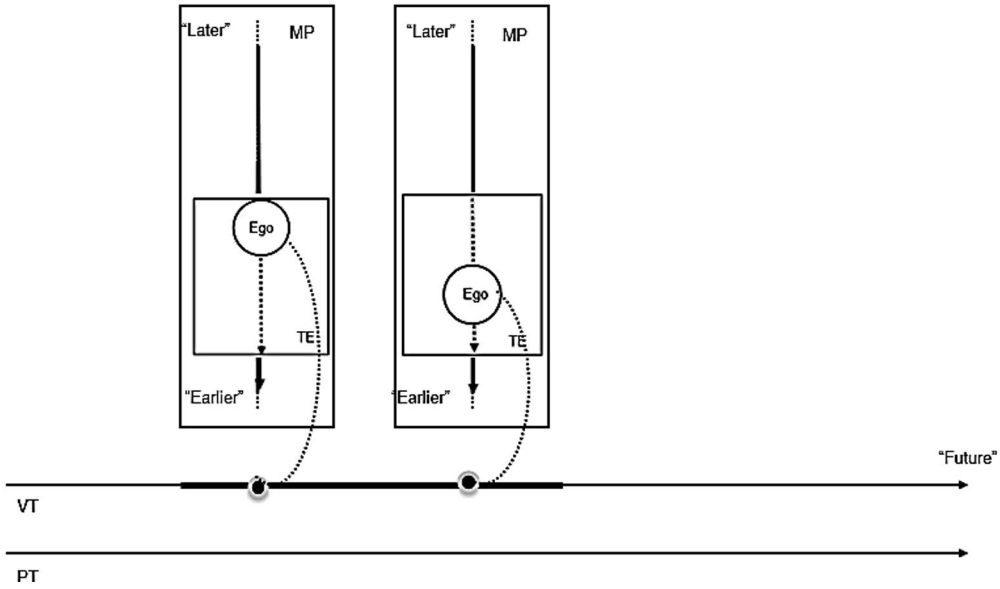

Figure 49. Representation of the verb expression*: namurr bi* (pass.IMPF.1PL=PREP) presuming that *bi* indicates motion *through* a TE.

Deictic subsystems:

- **Ego-MP-TE:** co-location to co-location
- **Ego-VT-TE:** Ego's 'now' to a later position within Ego's 'now'

4.4.3.2.3 ya'tee, yajee' (come.IMPF.3SG.M), and *yaHill* (arrive.IMPF.3SG.M)

Again here, *jaa'a* and *ataa* ('come') are described together with *Halla* ('arrive'). The deictic subsystems are based only on the lexical aspect of the verb which is mapped onto MP and VT.

Conceptual illustration:

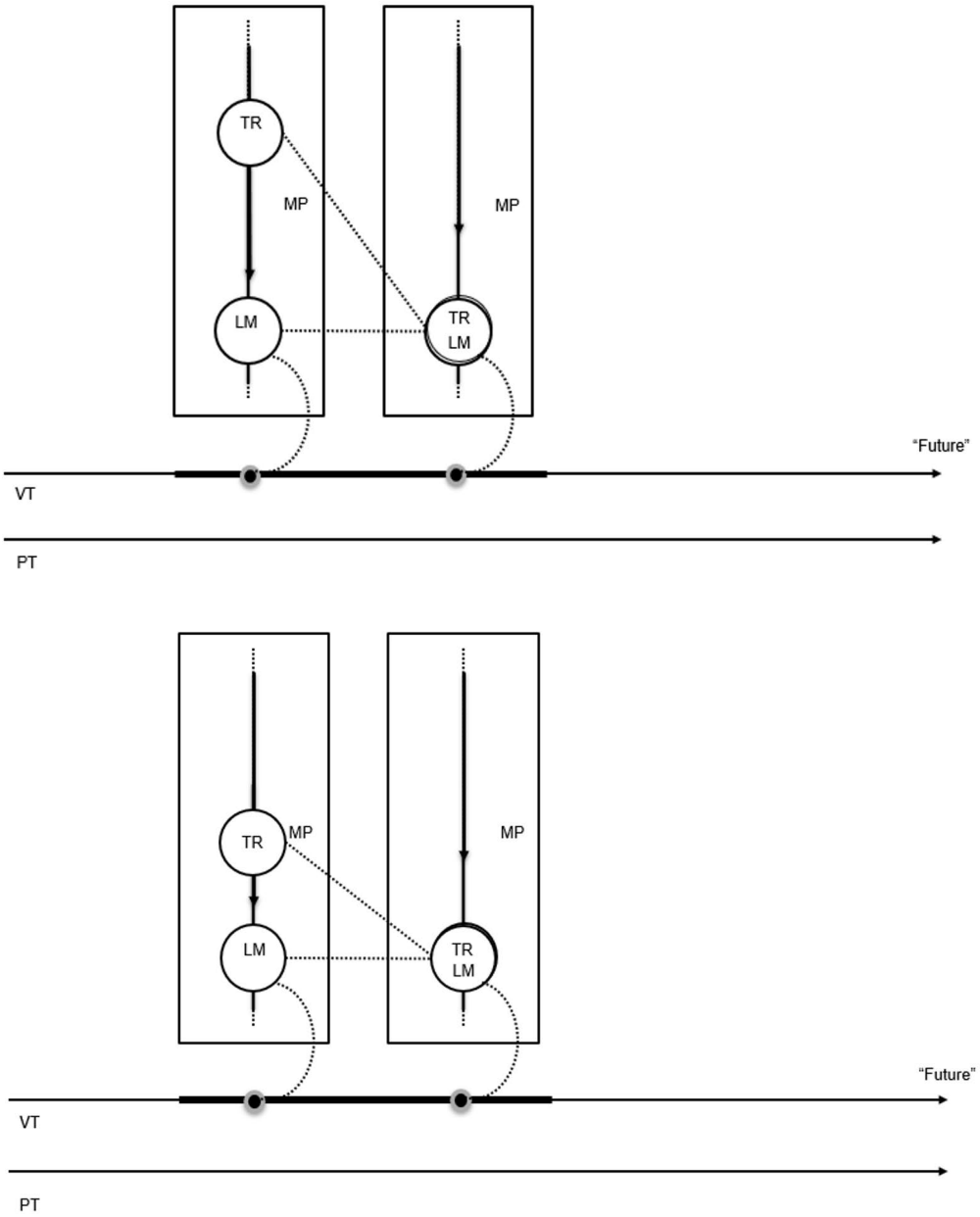

Figure 50. Representation of the verb expressions: *yajee'* and *ya'tee* (come.IMPF.3SG.M), upper figure and *yaHill* (arrive.IMPF.3SG.M), lower figure.

Deictic subsystems:

- **Ego-MP-TE:** pre-location to co-location for *yajee'* and *ya'tee* (come.IMPF.3SG.M), and proximal pre-location to co-location for *yaHill* (arrive.IMPF.3SG.M).
- **Ego-VT-TE:** Ego-future to Ego's 'now' for *yajee'* and *ya'tee* (come.IMPF.3SG.M), and Ego's near future to Ego's 'now' for *yaHill* (arrive.IMPF.3SG.M).

4.4.3.3 Cluster 3: retrospective EMTs

Verb expressions: *mararna bi* (pass.PERF.1PL=PREP), *marra, maDaa*, (pass.PERF.3SG.M), *dahaba* (go.PERF.3SG.M)

Retrospective EMTs refer to motion scenarios that map the TE onto the past of Ego in VT and the Conceptualizer in CT. The past of Ego on VT is indicated by the translation of the metaphorical motion segment profiled by the lexical verb from MP to VT; that is from post-location to Ego's past. The past of the Conceptualizer is inferred from the perfective aspect. The mapping holds true irrespective of the Mover type; that is, it holds true in case of ME or MT.

The verb expressions are subdivided into three subclusters: *Marra* and *maDaa* (pass.PERF.3SG.M) are presented together in Section 4.4.3.3.1 since they are synonymous. *Mararna bi* (pass.PERF.1PL=PREP) is presented in Section 4.4.3.3.2, and *dahaba* (go.PERF.3SG.M) is presented in Section 4.4.3.3.3.

4.4.3.3.1 marra, maDaa (pass.PERF.3SG.M)

To start with, the reason for which *maDaa* and *marra* are presented together is that the lexical entry of *maDaa* in the Frequency Dictionary of Arabic (Buckwalter & Parkinson, 2011) which indicates that the verb means 'to pass, go by, elapse (time)' (p.92).

The conceptual and deictic properties of both verb expressions are jointly shared, in what follows.

Conceptual illustration:

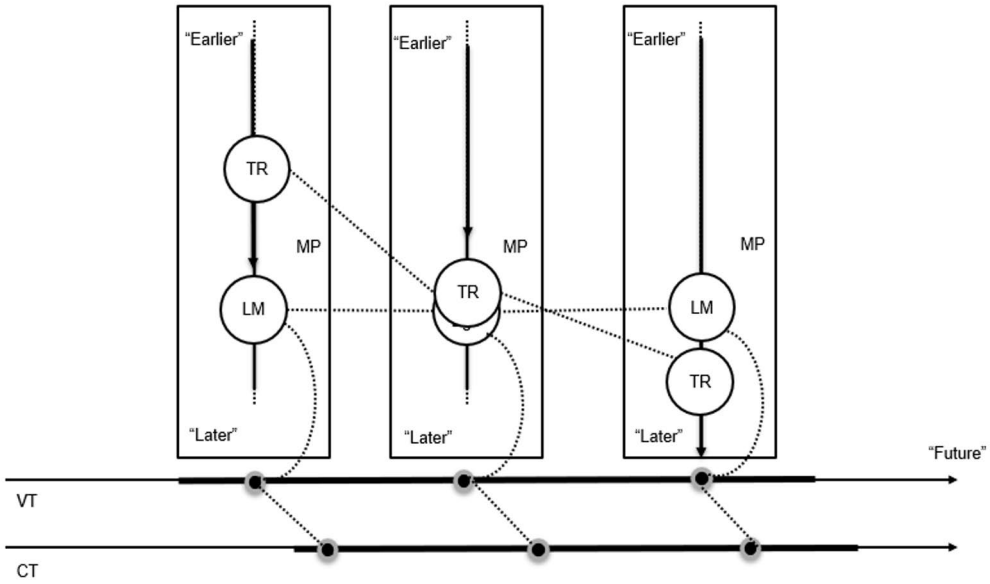

Figure 51. Representation of the verb expressions *marra* and *maDaa* (pass.PERF.3SG.M)

Deictic subsystems:

- **Ego-MP-TE:** pre-location to post-location
- **Ego-VT-TE:** Ego-future to Ego-past
- **Conceptualizer-MS:** completed action, outcome of MS attained.

4.4.3.3.2 mararna bi (pass.PERF.1PL=PREP)

As pointed out in Section 4.4.3.2.2, irrespective of the specific meaning of the preposition *bi*, *mararna bi* can be classified under retrospective EMTs since the second stage of motion on the MP is that of post-location.

Deictic subsystems:

- **Ego-MP-TE:** pre-location or to post-location
- **Ego-VT-TE:** Ego-future to Ego-past
- **Conceptualizer-MS:** completed action, outcome of MS attained

Conceptual illustration:

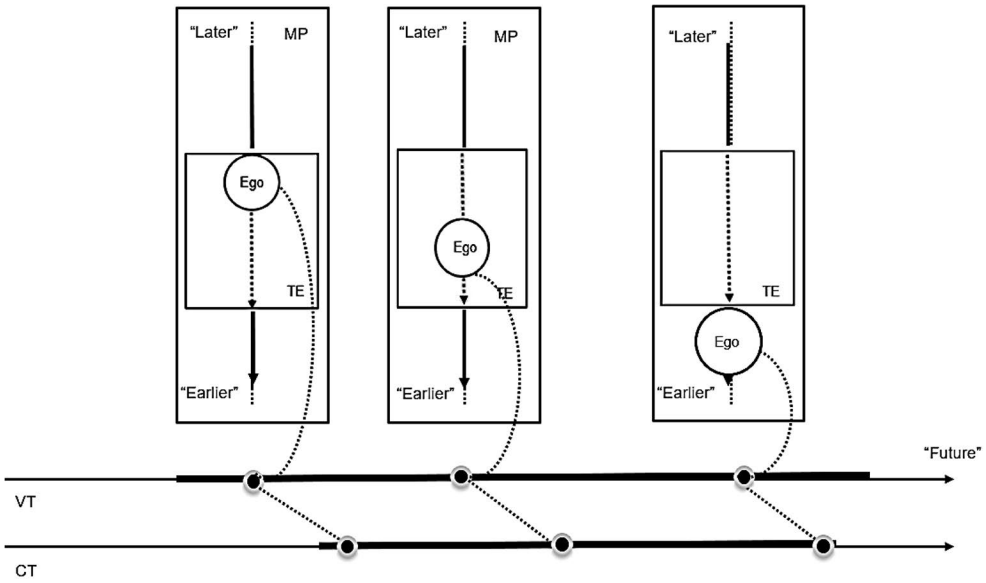

Figure 52. Representation of the verb expressions *mararna bi-* (pass.PERF.3SG.M=PREP).

Note: The figure presumes that *bi-* indicates motion through a TE. Taking the meaning of *bi-* to be motion past a TE and not through a TE, then the motion construal of *marana bi-* can be assimilated to that of *marra* and *maDaa*, only with the specification of Ego as the TR.

4.4.3.3.3 dahaba (go.PERF.3SG.M)

The spatial motion profiled by this verb expression indicates a shift from co-location to post-location. Pre-location is not included in the scope of this verb expression. This is why it is described separately from *maDaa* and *marra* (pass.PERF.3SG.M).

Conceptual illustration:

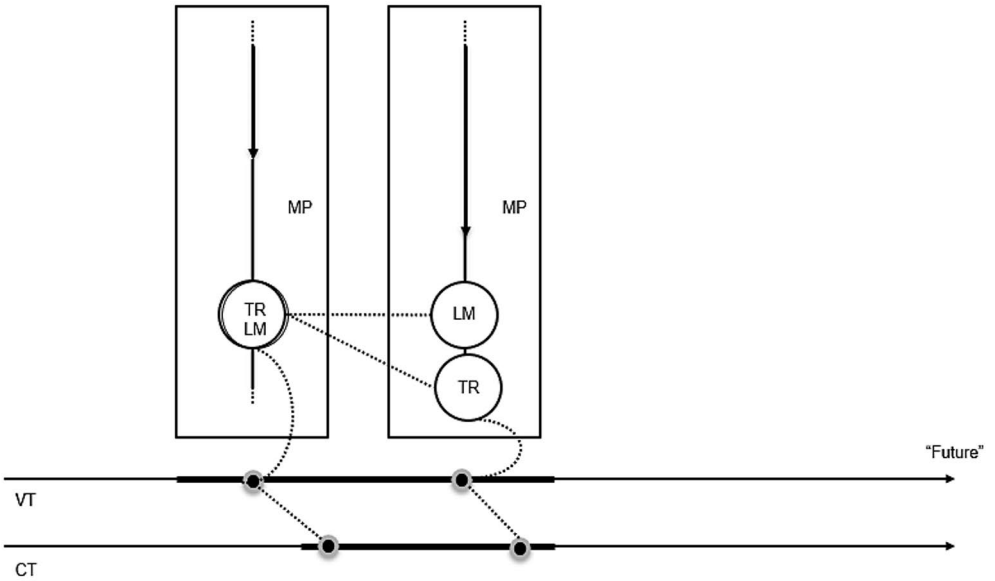

Figure 53. Representation of the verb expressions *dahaba* (go.PERF.3SG.M).

Deictic subsystems:

- **Ego-MP-TE:** co-location to post-location
- **Ego-VT-TE:** Ego's 'now' to Ego-past
- **Conceptualizer-MS:** completed action, outcome of MS attained.

4.4.3.4 Cluster 4: Transitionary EMTs

Verb expressions: ***yamDee*, *yamurr*** (pass.IMPF.3SG.M)**,** ***sayamurru*** (FUT=pass.IMPF.3SG.M)

Similar to the English transitionary cluster, this section puts together verbs that do not have a defined TE location on MP, and where the lexical aspect of the verb is subject to specification by the nominal aspect of the TE (cf. Section 4.4.1.4). In line with the English transitionary models also, for each of the verb expressions under this cluster, two readings will be considered based on the nominal aspect of the TE. A telic reading corresponds to a bounded TE and an atelic reading to an unbounded TE. Three verb expressions are included here: ***yamDee*, *yamurr*** (pass.IMPF.3SG.M)**,** ***sayamurru*** (FUT=pass.IMPF.3SG.M). The first two are presented together in the next subsection while the third is presented in the one that follows.

4.4.3.4.1 yamurr, yamDee (pass.IMPF.3SG.M)

Conceptual illustration:

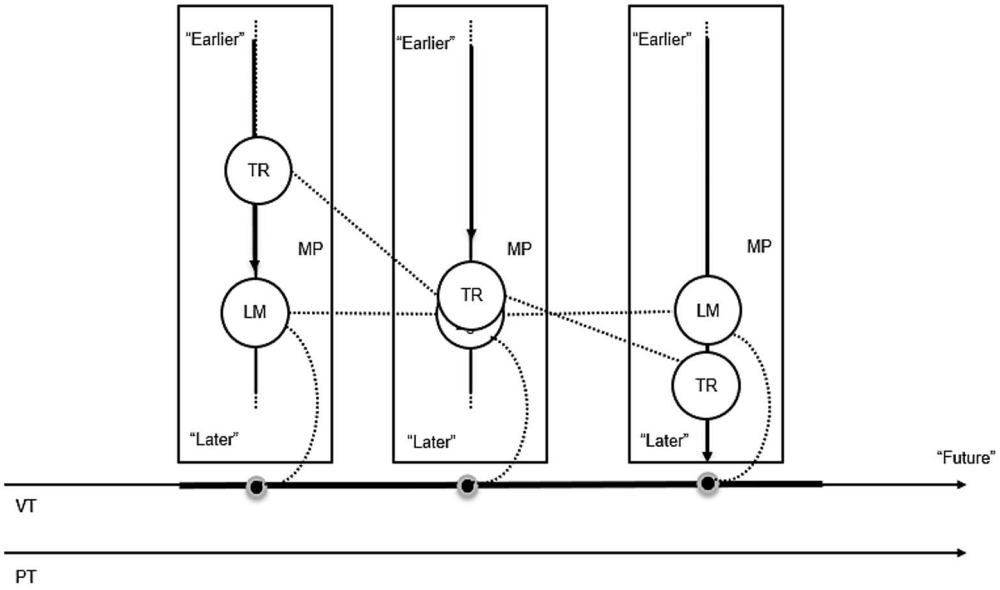

Figure 54. Telic representation of the verb expressions *yamurr* and *yamDee* (pass.IMPF.3SG.M).

The telic reading is mapped onto the following deictic properties:

- **Ego-MP-TE:** pre-location or co-location to post-location
- **Ego-VT-TE:** Ego-future to Ego-past

This atelic reading of the motion construal can be classified under concurrent EMTs since it indicates that the TE is at Ego's present on VT, as follows:

- **Ego-MP-TE:** co-location to co-location
- **Ego-VT-TE:** Ego's 'now' to (a later position within) Ego's 'now'

4.4.3.4.2 Sa-yamurru (FUT =pass.IMPF.3SG.M)

Conceptual illustration:

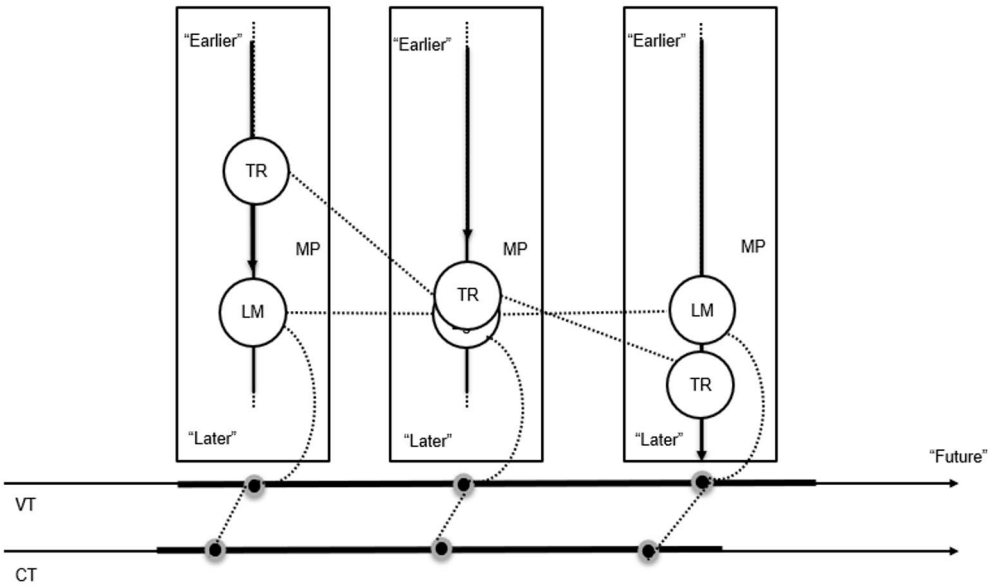

Figure 55. Representation of the verb expressions *sayamurr* (FUT=pass.IMPF.3SG.M).

Deictic subsystems (telic reading using a bounded TE):

- **Ego-MP-TE:** pre-location or co-location to post-location
- **Ego-VT-TE:** Ego-future to Ego-past
- **Conceptualizer-MS:** the MS is in the future at some medial level of conceptualization

Deictic subsystems (atelic reading):

- **Ego-MP-TE:** co-location to co-location
- **Ego-VT-TE:** Ego's 'now' to (a later position within) Ego's 'now'
- **Conceptualizer-MS:** the MS is in the future at some medial level of conceptualization.

4.4.4 Computational models & usage properties of the Arabic EMT construals

In English, each of the verb expressions is distinctive either by its lexical aspect or the motion construal it describes. Arabic, on the other hand, has a different lexicalization pattern that depends on a larger number of COME and GO verbs (cf. Abdulrahim, 2013; Alhamdan et al., 2018). As a result, many verb expressions share the same motion construals e.g. *qaaraba, iqtaraba,* and *aqbala* (approach.PERF.3SG.M). Again here, I am testing whether these verb expressions which share a similar meaning and a similar metaphor construal are actually used interchangeably. I am conducting prediction tests using the Random Forest model, particularly looking at whether the annotation variables can predict the selection of each verb expression.

The present section is organized as follows: First, I will present an overview of the models (Section 4.4.4.1). Next, I will comment on the sum of the variable importance of the three predictors to identify the best cue in the predictions (Section 4.4.4.2). Last, in Section 4.4.4.3, I will comment on different verb expressions with reference to their usage and semantic properties.

4.4.4.1 Overview of the model

In order to align the English with the Arabic models, model predictions were run following the same hypotheses and selection criteria explained in Section 4.4.2. As is the case with English models, the C-score does not always return a valid number, and in such cases, I rely on the frequency of distribution of the annotations, the prediction accuracy, and the variable importance scores to assess the model.

The English models are based on similarity in conceptual content or motion construal. For instance, *goes by* and *passes* are different verbs that have been united in prediction because they share similar conceptual representations and similar deictic subsystems (Section 4.4.1). What is particularly different about the Arabic models is that **the predicted verbs are also lexical synonyms.** This is the result of the unique lexicalization patterns for Arabic by means of which a single lexical verb e.g. *come* in English maps onto multiple verbs in Arabic, e.g. *jaa'a, ataa*, etc. For this reason, some lexical properties of the Arabic verbs are also given, in addition to the model descriptions (Sections 4.4.4.3 to 4.4.4.10). It's important to note that these descriptions are not exhaustive but serve as complementary insights.

Table 30 and Figure 56 indicate that the model performs well overall with prediction accuracy ranging from 61% to 91%. Table 30 shows the different models ordered by number for ease of reference while Figure 56 displays the same models with ascending prediction accuracy values. Understandably, the model performs particularly well when the number of response variables is limited to two verbs and

shows slightly reduced performance when predicting three verbs. Evidently, the number of response variables and cues is not the only indicator of model fit. Usage distinctions captured by the frequency of distributions of the annotation variables remain the most important factor. Each time, the model runs based on the same number of observations (=50 lines per verb expression), and if verbs exhibit varying predictor frequencies, then the prediction is easy, and vice versa. When the prediction accuracy is high, then the synonymous verbs with shared conceptual and deictic properties are used with distinct 'types' of metaphors. By types here, I again refer to the variety of metaphors based on the type of TE, the types of EXPs, and when used as a predictor, the type of EMT.

Admittedly, for a more detailed examination of verb distinctions, a more elaborate annotation scheme is required. The latter needs to incorporate other idiosyncratic properties of verbs and other features of TEs, such as whether the TE is positive, negative, or neutral, as well as properties of the EXP, like whether it is implicit or explicit, etc. Nonetheless, the modest number of annotation tags employed in the current analysis proves effective across most models, and, in summary, it is reasonable to assert that verbs with shared semantic, conceptual, and deictic properties are distinctively utilized across metaphors.

Table 30. Random Forest predictions: Arabic EMTs.

	Verb expression	Verb lemma	Aspect	Expected metaphor type	Prediction rate	Variable importance
1	*yaqtarib* (approach.IMPF.3SG.M) x naqtaribu (approach.IMPF.1PL)	Same	Same	Different	0.8908275 C-score: NaN	0.18515126 EXP 0.06365077 TE
2	*aqbala* x *iqtaraba* x *qaaraba* (approach.PERF.3SG.M)	Different	Same	Same	0.6866103	0.18651753 EMT 0.018022465 TE 0.002002854 EXP
3	*ataa* x *jaa'a* (come. PERF.3SG.M)	Different	Same	Same	0.8198038 C-score: 0.7755814	0.08400174EXP 0.07842721 TE 0.0000000 EMT
4	*ataa* x *jaa'a* (come. PERF.3SG.M) x *Hall* (arrive.PERF.3SG.M)	Different	Same	Same	0.7451635	0.23431213 TE 0.05374152EXP 0.0000000 EMT
5	*yajee'* x *ya'tee* (come.IMPF.3SG.M) x *yaHill* (arrive.IMPF.3SG.M)	Different	Same	Same	0.6958374	0.1848467 TE 0.0480726 EXP 0.0000000 EMT
6	*yajee'* x *ya'tee* (come.IMPF.3SG.M)	Different	Same	Same	0.7896442C-score: 0.2621277	0.11166136 TE 0.01705163 EXP 0.0000000 EMT
7	*maDaa* x *marra* (pass.PERF.3SG.M) x *dahaba* (go.PERF.3SG.M)	Different	Same	Same	0.6101524	0.085997706EXP 0.041074850 TE 0.007716644EMT
8	*maDaa* x *dahaba* (go.PERF.3SG.M)	Different	Same	Same	0.7571979 C-score: 0.6861702	0.051721377 EXP 0.008867092 TE 0.00000000 EMT
9	*marra* (pass.PERF.3SG.M) x *mararna bi* (pass.PERF.1PL=PREP)	Same	Same	Different	0.944314 C-score: NaN	0.2210466 TE 0.1933422 EXP
10	*yamurr* (pass.IMPF.3SG.M=PREP) x *namurr bi* (pass.IMPF.1PL=PREP)	Same	Same	Different	0.9165287 C-score: NaN	0.338853843 EXP 0.008995127 TE
11	*yamurr* x *yamDee* (pass.IMPF.3SG.M)	Different	Same	Same	0.8518879 C-score: 0.8457792	0.168525805 TE 0.083661356EMT -0.00712143EXP

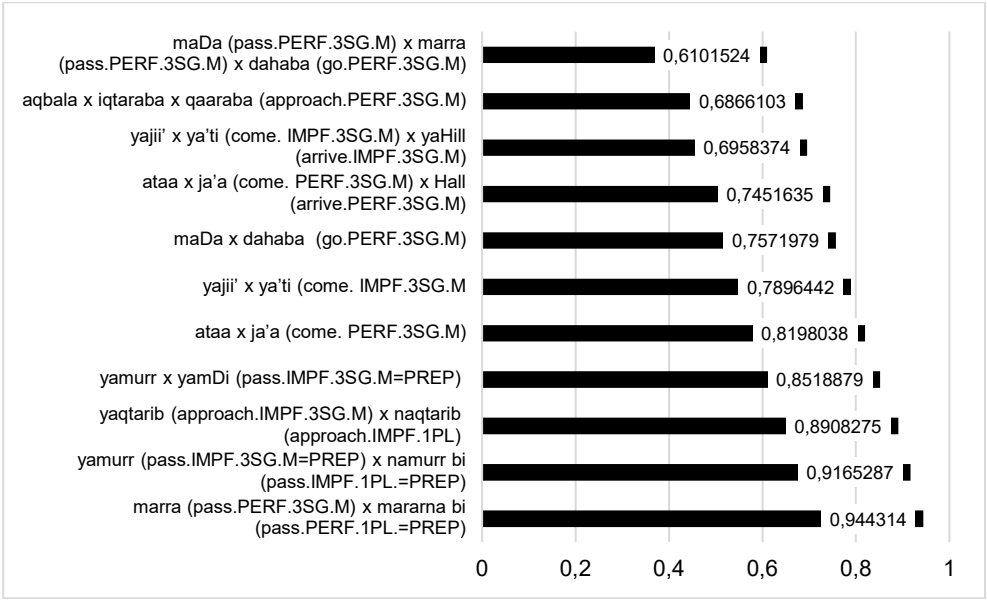

Figure 56. Prediction accuracy of the Arabic EMTs based on the annotation variables. Prediction accuracy ranges from 0.61 to 0.94.

As hypothesized, Figure 56 shows a clear association between the verb expression and its usage context. This is evidenced by the high proportion of models returning high accuracy predictions. This suggests that the annotated properties – type of TE, type of experiencer, and type of EMT – are strong predictors for verb choice in many cases. Conversely, in line with the original hypothesis outlined in Section 4.4.2, the lower percentage of verbs with accuracy below 0.7 might indicate two possibilities: 1) interchangeability in specific contexts, or 2) the influence of factors beyond the selected predictors.

4.4.4.2 Evaluation of predictors

The sum of importance scores of individual predictors indicates, once more, that the type of TE stands out as the most influential cue for predicting verb expressions (Figure 57). Different EMT construals are associated with distinct TE types, which reiterates the pattern observed in English predictions (Section 4.4.2). This cross-linguistic consistency, in turn, adds significance to this cue. The EXP type also remains the second strongest, closely following the TE type. Specifically, the EXP type holds particular relevance in verb expressions which are inflected for a 3SG and used in an ME metaphor that involves a shifted experiencer. As for the type of EMT, again here, the models are very selective of whether the type of EMT is a meaningful predictor or not, but when used, it typically ranks second or third in the prediction.

The only exception to this is Model #2 (*aqbala x iqtaraba x qaaraba* (approach.PERF.3SG.M) where the type of EMT outperforms the type of TE and the type of EXP. This can be explained by the following usage patterns: *iqtaraba* is used only with MT metaphors and *aqbala* with a minority of ME and a majority of MT metaphors. On the other hand, *qaaraba* stands out for its usage in ME metaphors (over 50%). This, in turn, results in a strong association of the verb expression with ME metaphors and, as such, the verb expression is categorically marked and predictable by this cue. Consequently, the EMT type gains significance as a predictor in this scenario.

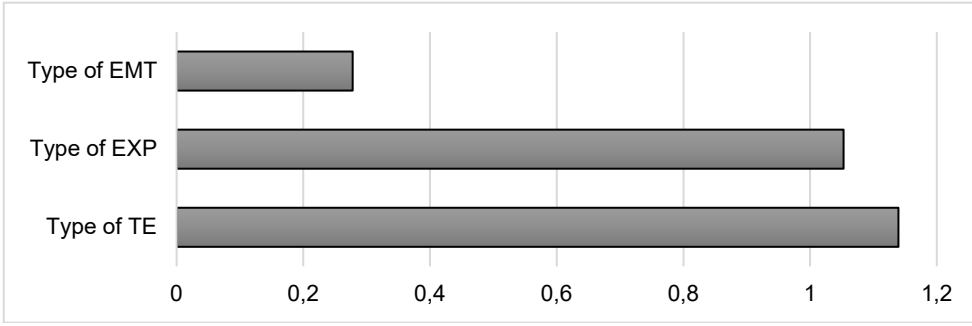

Figure 57. Sum of the predictor variable importance (Arabic models).

4.4.4.3 Usage distinctions

Having examined the overall model accuracy and ranked the predictors by importance scores, it is time to focus on the specifications of the different models and different and lexical properties of the verb expressions. The present section is structured with subtitles commenting on the tested verb expressions, either in comparison to each other or individually, if the verb is not tested in any model. The comments provide usage insights along with considerations of lexical properties.

yaqtarib (approach.IMPF.3SG.M) x *naqtarib* (approach.IMPF.1PL)

Predicting the selection of *yaqtarib* (approach.IMPF.3SG.M) vs. *naqtarib* (approach.IMPF.1PL) is primarily predicted by the type of experiencer. This is attributed to the fact that the corpus lines using *naqtarib* come mostly from news reports and the experiencer type is collective. The type of TE is also a good predictor of the verb. *Naqtarib* is used with non-anchored events while *yaqtarib* is used more with calendric and anchored events. This validates the view that a ME is more inclined to conceptions of personal times and an MT to conceptions of collective times; that the times *we* approach are subject to our selection while the times that

approach *us* are conventionalized: "The collocational analysis of the verb *approach* revealed a preference for events of personal significance …to appear in the Ego-moving construal, and for collectively shared events …to appear in the Time-moving one.**"** (Piata & Soriano, 2022, p. 24)**.** The observation by Piata & Soriano (ibid) is therefore not exclusive to English; it rather maps cross-linguistically to Arabic APPROACH verbs. This suggests that *Ego approaching a TE* is conceptually—rather than linguistically—different from *TE approaching Ego* in the type of TE that it is used with.

aqbala x *iqtaraba* x *qaaraba* (approach.PERF.3SG.M)

The Random Forest model proficiently predicts three distinct verb expressions with an accuracy of nearly 70% accuracy. This effectiveness in prediction is mainly the outcome of the observed type of EMT. Although the three verbs are expected to target MT metaphors, *qaaraba* stands out as a ME verb form. With a higher variability of EMT types, the model can use it as a good predictor. The TE type, on the other hand, does not perform well as a predictor in this model since all three verb forms are used mostly with calendric TEs. The distributions of the types of EXP are also not significant enough for prediction. Nonetheless, *qaaraba* stands out as a non-collective verb form. More explanations of the usage properties are as follows:

Aqbala belongs to path verbs and indicates a "Motion+Path" pattern (Alhamdan et al., 2018) implying a motion construal where the Figure is approaching the Ground from a FRONT position. *Aqbala* is associated in the literature with positive or "joyous events" (Abdulrahim, 2013, p.37). Usage-wise, *aqbala* appears frequently with the two TEs *Al-laylu* ('the night') and with *RamaDaan*, thus collocating with both TEs. Its association with RamaDaan in particular is reasonable since Arab Muslims celebrate the arrival of RamaDaan.

Another intriguing aspect of a*qbala* is that, while it is categorized as an 'approaching' verb in the Frequency Dictionary of Arabic Core Vocabulary (Buckwalter & Parkinson, 2010), it can also map onto an arrival stage of motion (Stage 3 of the schematic motion event), as illustrated in the following example:

(33)

قد أقبل رمضان

qad	*aqbala*	*RamaDaan*
AUX	approach.PERF.3SG.M	RamaDaan
has[54]	come	RamaDaan

'RamaDaan has come'

[54] The particle قد *(qad)* is a perfective auxiliary (Alhaider, 2021)

To my intuition (and also using the available translation models like Google Translate), the most probable translation is *RamaDaan has come* or *RamaDaan has arrived*, and not *RamaDaan has approached*. Such utterances are usually made at the beginning of the month of RamaDaan to signal its arrival.

Qaaraba and *iqtaraba* are two different stem derivations from the same root /qrb/ which means 'to approach'. Morphologically, *iqataraba* indicates self-propelled motion indicated by the reflexive meaning of the eighth verbal stem *iC$_1$taC$_2$aC$_3$* (Glanville, 2018). Corpus data indicate that *iqtaraba* in its perfective and imperfective forms is used frequently to indicate a Purposeful Activity metaphor where Ego is the Mover. For example:

(34)

نقترب حاليا من هدفنا المشترك

naqtaribu	*Haaliyyan*	*min*	*hadafi-na*
approach.IMPF.1PL	ADV	ABL	goal-CL.1PL.GEN
we approach	currently	from	our goal

al=mushtarak
ART=common
the common

'We are currently approaching our common goal'

[ArabiCorpus, n.d.]

Example (34) indicates a Purposeful Activity metaphor namely because the progression towards the TE 'the common goal' indicated by a metaphorical motion construal is dependent on the efforts of the subject which is also the Figure of motion (Section 3.5.2.2). As put forth in Section 3.5.2.2, PAs are eliminated from the corpus data, but since they share many properties with ME metaphors, they are worthy of mention here.

Qaaraba is, to my native-speaker intuition, the verb that indicates the nearest proximity of a Figure to Ground without indication of co-location of all approaching verbs. The meaning equivalent of *qaaraba* is to 'be almost the same as something', 'incline downwards or in a specific direction or approach closely or to be on the verge of', and 'be near; border on; approach; approximate; come' (Almaany.com). This in part can be explained by the meaning of the stem of *qaaraba*, namely CaaCaCa (Stem III), which is known for its "conative meaning", mainly showing an effort to achieve Stem I meaning *qaruba* of the stem CaCaCa (Glanville, 2018). Thus

qaaraba[55] shows an increased proximity towards the Ground of motion in comparison to the tri-consonantal root verb *qaruba*. The corpus data shows that *qaaraba* is typically used for indications of 'approaching' with expressions of age to indicate approximation of an age point. The latter could be conceived of as a calendric marker metonymically; that is, the age stands for the time at which the age point is achieved.

saya'tee (FUT=come.IMPF.3SG.M)

Saya'tee is the only future COME verb form in SA. Subsequently, it cannot be used in a predictive model since there are no other verb forms that share the same exact motion construal expressed by this verb form. The future forms of the motion verbs in EMT construals are generally constrained mainly because the future reference in an expression that implies a multiple conceptualization of time is not dependent only on the future tense. The 'approaching', 'coming', or 'arrival' indicated by the verb of motion can indicate a future TE even when the verb is not in the future tense. *Saya'tee* combines a future motion event with a COME motion construal, thus having a two-fold future reference. Nonetheless, just based on the description of the quantitative usage properties of the verb it is clear that *saya'tee* is mainly used with non-anchored events and with a variety of experiencers. Additionally, *saya'tee* is used in predictions that talk about the future, similar to the use of *will come* in English.

jaa'a, ataa (come.PERF.3SG.M), *Halla* (arrive.PERF.3SG.M)

Despite their conceptual semantic similarity (Section 4.4.3.2.1), *Halla, jaa'a,* and *ataa* look very different on the corpus sheets. *Jaa'a, ataa*, and *Halla* are translation equivalents of *has come*, *has arrived* as well as *came* and *arrived*. The distinction of a concurrent TE typical of the present perfect verbs and a past TE typical of the simple past is not reflected with perfective aspect. Instead, the situational context has the function of indicating whether the TE is in the speaker's Concurrent Reality or whether it is in her Conceived Reality (cf. Section 4.3.5). As

[55] *Qaaraba* can also be used to indicate a motion construal where two entities are approaching each other, but this use is excluded from this study. Whether a Moving Ego and Moving Time can be combined in a motion scenario is subject to inquiry since there is evidence that this type of scenario is constricted if ME is assimilated with a factual motion scenario and MT with a fictive motion scenario, and in Talmy's typology, factive and fictive motion events cannot be combined in one construal.

a result, the corpus sheets consist of a combination of present and past times, all of which are in metaphorical co-location of an Ego experiencer.

These distinctions were, at least partially, captured by the annotation variables and validated by the accuracy of predictions. More specifically, the model successfully predicts both the selections of *jaa'a* and *ataa* (come. PERF.3SG.M) together (prediction accuracy > 80%) and when combined with *Halla* (arrive. PERF.3SG.M) with a prediction accuracy of over 70%. The most important predictor is the type of TE, detailed as follows:

- *Jaa'a* appears with events which are reported on in the news. Admittedly, the corpus lines using *jaa'a* were particularly difficult to cleanse, namely in identifying what a TE is with reference to *jaa'a*. The TEs included in the EMTs that use *jaa'a* as the motion verb include announcements, decisions, victories, etc. each of which are viewed as an event that is representative of a temporal location.
- *Ataa* is different than *jaa'a* in that the TEs are more on the 'pure' time: with calendric times and prototypical anchored events like meetings and celebrations. The verb is used in news reports as well as in stories which explains the variability of experiencer types.
- *Halla* is the most used with calendric times and is used mostly in personal narratives and historical accounts.

To further validate the usage distinctiveness of each of these verb forms, I attempted to substitute the term *jaa'a* first with *ataa* and then with *Halla.* Based on my personal intuition, *jaa'a* and *ataa* manifest a certain degree of interchangeability, whereas the interchangeability between *jaa'a* and *Halla* is notably limited. These descriptions evidently remain tentative, as I only use this test to verify the lexical and semantic distinction between the three verbs. Further elaborations are undoubtedly required.

ya'tee, *yajee'* (come.IMPF.3SG.M), *yaHill* (arrive. IMPF.3SG.M)

Just as in the case with *Halla, jaa'a,* and *ataa*, the imperfective forms of the same verbs are also quite distinct in usage, mainly in the type of TE with which they are commonly associated. *Ya'tee* and *yaj'u* are typically used to report news and indicate a motion event that has actually taken place. The imperfective makes the motion scenario more immediate to the moment of speech. This is an instance where the imperfective indicates a past action.

(35)

يجيء اللقاء احتفالا بفوز

yajee'	*al=liqaa'*	*iHtifaal=ACC*	*bi-fawz*
come.IMPF. 3SG.M	CONJ=meeting	celebration	INST-winning
comes	the meeting	in celebration	of winning

الأهلي بلقب نادي القرن في افريقيا

Al=ahlee	*bi-laqab*	*naadee*	*al=qarn*	*fi*	*ifriqia*
CONJ=Ahlee	INST-title	club	CONJ=century	LOC	Africa
Al Ahli (football team)	with title	club	the century	in	Africa

'the meeting comes in celebration of Al-Ahly winning the Club of the Century title in Africa'

[ArabiCorpus, n.d.]

This example uses the imperfective, equivalent here of the simple present in English in the context of news reports to inform the listener about the occurrence of the TE, i.e. *the meeting*. Used this way, the imperfective action maps onto Conceived Reality of the speaker and the hearers. Interestingly, the same example can be said prior to the occurrence of the TE, and in this second case the imperfective used with the COME verb in *yajee'* would map onto the future tense. To illustrate this point, it suffices to revisit Example (35), this time around envisioning *the meeting* as a future event.

In a way, English and Arabic are comparable. Specifically, the English verb expressions *comes* and *arrives* which are a combination of a verb lemma (either *come* or *arrive*) x present tense x imperfective aspect. The verb forms *yajee', ya'tee,* and *yaHill* are a combination of a verb lemma (either *come* or *arrive*) x imperfective aspect. Since the present tense is not a defined grounding element in the present paradigm, the two verb groups are actually quite similar in composition.

maDaa x marra (pass.PERF.3SG.M) x *dahaba* (go.PERF.3SG.M)

This group is not perfectly interchangeable, usage-wise, due to distinctions in lexical meaning: *maDaa* and *marra* indicate passage (similar to the image of a passing train) while *dahaba* indicates motion away from co-location to post-location. In terms of TEs, the three verbs are quite similar in that they tend to be used with calendric times for the most part. The type of experiencer is a better indicator of the type of verb used. Again here, I tested the interchangeability of the verbs: *marra* and *maDaa* are to a great extent interchangeable while *dahaba* is distinctive because it combines the meaning of 'motion away' with the meaning of loss.

marra (pass.PERF.3SG.M) x *mararna bi* (pass.PERF.1PL=PREP)

Just as is the case with the imperfective forms *yamurru* and *namurru bi,* the perfective verb forms *marra* and *mararna bi* by and large describe different experiences of different times. This is confirmed by the prediction accuracy of over 0.9 and the variable importance of the types of TE and the types of EXP. Again here, it is confirmed that the times that *we went through/by* (*mararna bi*) are less anchored, more personal, and mostly experienced collectively while the times that passed are more defined as calendric and anchored events and were experienced both personally and collectively.

yamurru x yamDee (pass.IMPF.3SG.M)

At a semantic level, *yamDee* and *yamurru* are synonymous. When used in an EMT, they are quite different. Most notably, *yamurru* stands out for its usage in ME constructions: 33 ME lines vs. 17 MT lines out of the 50 collected EMT lines. This marks a usage distinction rooted in the subject semantic category of the verb and mapping onto the type of Mover used in an EMT, which in part explains the prediction accuracy of the model and the contribution of EMT types to the model fit.

4.5 Model applications

This section provides applications of the models used in this study and consists of three main parts: First, it will present an analysis of the Examples a to d, provided by Moore (2016) and shared in the introductory section (reiterated below). Next, it will provide a bilingual application of the cognitive linguistic illustrations discussed in sections 4.4.1 and 4.4.3. Lastly, it will offer a description of the essential elements of an EMT, ultimately answering the question: How do two unrelated languages (Arabic and English) express similar metaphor frames using different lexico-grammatical systems?

To illustrate the deictic variability of EMTs and demonstrate the notion of EMTs as a deictic problem, the introductory chapter referred to four examples from Moore (2016). These examples highlight the interactions of many aspects including the grounding properties of the verb expression, which include a combination of finite and infinitive, affirmative and negated verbs; the type of experiencer; and the type of Temporal Entity. To conclude the analysis, I will apply the deictic subsystems and the annotation variables identified in this study to these examples. The purpose here is to determine what properties make Example a prototypically deictic and then to explain how the examples b to d move from deictic to decentred. Each time, an example will be cited and then followed by a brief commentary.

Example a: *Summer has come*.

In this example, all the deictic subsystems are easily identifiable without additional context cues. More specifically, this example designates the third stage of the schematic motion event and invokes a concurrent motion construal by using a motion verb in the present perfect. The illustration can be mapped onto the following deictic subsystems (cf. Section 4.4.1.2.2):

- **Ego-MP-TE** pre-location to co-location
- **Ego-VT-TE** future to present.
- **Speaker-MS** the motion scenario is in the speaker's past
- **Speaker-TE** the TE is in the speaker's present.

The example presents other cues for analysis, namely the TE and the EXP types. To start with, using the annotation frame of this study, the TE used can be classified as a prototypical calendric TE characterized as conventionalized and specific. The TE also correlates with a collective experiencer Ego, which in this example is implicit: not encoded in the expression but inferred from the TE type. For these reasons, this particular example is a canonical deictic EMT with specified deictic references, a specific TE, and a specified EXP type. As stated in the introductory chapter, EMTs of this type are likely to be used in the academic literature as prototypical illustrations of the metaphor.

Example b: *When summer comes, you'll know it.*

Similar to the first example, this expression also uses a calendric TE which is easy to identify with reference to a calendric system. However, in this example, the type of experiencer is not easily identifiable. In fact, we have a choice between three types: collective, if we infer the experiencer type from the type of TE and consider the first clause in isolation; shifted, considering the pronoun *you* used in the main clause and interpreting the former as an indicator of a shifted experiencer; and virtual, in case *you* is interpreted generically to refer to 'anyone'. Each of these interpretations can be consolidated in a separate reading, namely: *When summer comes [to all of us], you'll know it* shows a collective experiencer, *When summer comes [to you], you'll know it* shows a shifted experiencer, and *When summer comes [to anyone], you'll know it,* shows a virtual experiencer.

Now coming to the temporal grounding of the verb expression, there two points for consideration. If we identify the Speaker-MS and the speaker-TE based on the finite verb *comes*, then, following the paradigm of this study, both references are vague. This vagueness is related to the simple present verb *comes* which is not taken

as a grounding element. In other words, it does not designate a specific point in time for the action of *coming* to take place (cf. Section 4.4.1.2.4). On the other hand, if we consider the other grounding cues beyond the finite verb then the analysis is as follows: The most important cue in the EMT expression is the *when* clause, which, as a whole functions as a temporal adverbial in the main clause and specifies the temporal reference of *comes*. In other words, *when* here serves as the defining deictic cue and the primary element guiding the temporal grounding of the subordinate clause to indicate the future.

- **Ego-MP-TE** pre-location to co-location
- **Ego-VT-TE** future to present.
- **Speaker-MS** The main deictic cue in this example is the *when* clause which indicates a future metaphorical Motion Scenario vis-à-vis the Speaker.
- **Speaker-TE** Inferring from the *when* clause, the TE is evidently in the future of the Speaker as it is the Subject of the future 'come' event.

Example c: *The end of the world is bound to come eventually*.

This example is assumed to be more vague than the previous too. The analysis of its properties will show why it is classified as such.

To begin with, both the EXP and the TE types are commented on by Moore (2016, p.198) as follows: "Ground = a future Time with an unspecified experiencer. This Time does not have any specific relation to an ordinary, e.g., Gregorian, calendar". To further consolidate Moore's comments, the TE can be classified using the annotation frame of this study as a non-anchored event. As for the type of experiencer, it is implicit. Nonetheless, inferring from the TE, the type of EXP can either be collective or indexical: collective, if *the end of the world* is expected to be a shared experience involving the Speaker and the broader community, and indexical if it is projected into the future and is expected to be experienced by people who will live in then.

Secondly, the verb *to come* in this example is used in its infinitive form, so the deictic subsystems used in this study do not qualify as regards its description. However, while the infinitive verb *to come* lacks temporal grounding to the Speaker, it can be considered as a deictic cue to the experiencer as it correlates the TE in post-location vis-à-vis Ego on MP and in the future of Ego's 'now' on VT.

Again here, the analysis will examine more deictic elements beyond the motion verb. In fact, by grounding the larger expression *is bound to come* with a focus on the finite verb form *is bound*, an epistemic stance prevails at the moment of speech. Notably, the EMT can be related to the Speaker's Projected Reality, which refers to

the specific paths within potential reality that are "especially likely to be followed" (Langacker, 2008, pp. 306–307). The TE is thus part of the Speaker's (potential) future and the metaphorical Motion Scenario corresponds to a modal stance of the speaker toward the certainty of the future 'coming' event. Another important cue for the temporal grounding of this example is the adverb *eventually* which modifies the whole clause and indicates a future reference. Thus, while *bound* has an epistemic interpretation, *eventually* indicates a temporal grounding. However, if we omit *eventually*, the example still refers to the future because of the verb to be in the simple present: *is to come* thus maps onto a future 'come' event, *is bound to come* refers to a future 'come' event that indicates the Speaker's epistemic stance, and *is bound to come eventually* indicates a future 'come' event that indicates the Speaker's epistemic stance with two deictic cues that map onto the MS and the TE onto Speaker's present: the combination of the verb to be in the simple present with the infinitive verb *to come* and the adverb *eventually*.

Example d: *A future time is one that hasn't come yet*.

This example has unique properties. First the verb expression uses a TE that is typically deictic to both the Speaker and Ego. *A future time* is a generic non-anchored temporal entity which refers to a virtual TE. Particularly, this TE identifies a class or category of TEs; with very little definition and a broad scope of members, this TE expression is at the extreme end of schematic TEs.

Additionally, the experiencer in this example is not specified; and, because the statement is a definition, the experiencer is virtual. A rather unattractive reiteration of this example is: *A future time (calendric or not, imaginary or planned, etc.) is always defined as a time that has not yet come to anyone,* or alternatively*: for any (experienced) time X, a future time Y is a time (conceptualized as being) later than X*[56].

Structurally, this example consists of two clauses: one main clause and one subordinate. The purpose of this example is to provide a generic definition rather than depict an unfulfilled Motion Scenario. Therefore, it takes the form of a copula in the form of X is Y, where X represents the TE. Consequently, the EMT metaphor is divided between the main and subordinate clauses: the TE resides in the main clause while the Motion Scenario is encapsulated within the *that* clause. Considering the clause *that has not come yet*, two comments are attested. First, *that* has two functions: it defines the TE and introduces the MS. Second, the verb expression is

[56] Credits to Tuomas Huumo (personal communication) for this second reconstruction.

negated and the negation takes away the attainment phase of MS for the Speaker. Following this, the deictic subsystems of this example can be identified as follows:

- **Ego-MP-TE** pre-location to co-location
- **Ego-VT-TE** future to present.
- **Speaker-MS** future if we take into consideration the negation of the present perfect, i.e. *has not come yet.*
- **Speaker-TE** future because of the negation

To understand why this example is more deictically vague than the previous one, two properties need to be considered. First, the temporal entity in the previous example can be subcategorized under the temporal entity in this example; that is, *the end of the world* can be subclassified under *a future time*. This makes Example c more specific and the example at hand more schematic. Moreover, the negated verb expression in this example maps onto "any imagined present with any imagined experiencer" (Moore, 2016, p.198) which again stresses the timelessness of the example and makes it virtual. This is particularly related to our conception of definitions as "**timeless** truths" (cf. Langacker, 2008).

As such, the progression from the most deictic to the most schematic among the four examples (from a to d) is driven by the interaction of grammatical and lexical properties. This progression is systematically explained by the deictic subsystems and annotation variables. Importantly, two observations emerge from the commentary: First, more deictic cues are present in each example and 2) these examples further showcase how assessing the deictic properties of EMTs is closely intertwined with their epistemic properties and to temporal grounding. By epistemic properties, I refer to the conception of reality, and by temporal grounding, I refer to the conception of time, with a focus on two primary relations: the Speaker-MS and the Speaker-TE. As a result, examining these examples not only categorizes them along the deictic spectrum mentioned in Moore (2016), but also demonstrates the diverse ways EMTs vary in terms of epistemic and temporal properties.

Notably, this analysis underscores the characteristics of EMTs beyond the COME or GO verb, which was the primary focus of this analysis in this monograph (Section 4.4). Interestingly, although the finite verb is typically regarded as the principal grounding element within a clause construction (Langacker, 2008), it is not the only grounding element, and in some cases, it is not the main grounding element within an EMT. That is why, other factors also play significant roles. These include temporal adverbs (such as *eventually*), the type of temporal expression (TE) categorized as anchored, calendric, or non-anchored, the lexical aspect of the TE: bounded or unbounded, the specificity or vagueness of person pronouns corresponding to the type(s) of experiencer, e.g. the reference of *you* in Example b,

and the presence of subordinating elements if the EMT functions as a dependent clause, for instance, *when* or *that* in Examples c and d, respectively. This commentary provides evidence of some of these interactions, but a comprehensive identification and systematic examination of such components, as well as how they relate to the temporal, epistemic, and deictic profiles of EMTs, remain open for future investigation.

The second application aims to show how the theoretical models can be used to analyze and compare metaphorical expressions in the two languages under study. Evidently, the deictic and conceptual models identified in the analysis pinpoint distinctions and similarities between Arabic and English. The distinctions are informed by the temporal systems of the two languages, in which English stands out as a more advanced system with more specified tense categories that can be categorically mapped onto the moment of speech. However, the mapping is based on an idealized prototypical description of each of the tenses (cf. Section 4.3.8). Consequently, if we were to take a more comprehensive representation of the English tense, then both the conceptual and deictic models of English and Arabic would ultimately converge. Consider the following illustration:

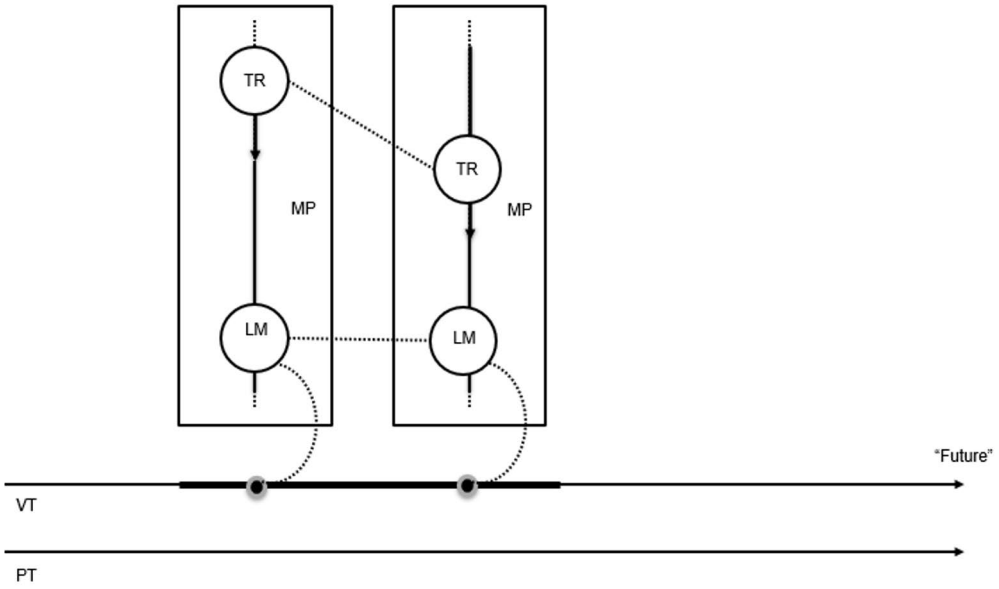

Figure 58. Conceptual illustration of a verb with the lexical equivalent meaning to 'approach' in the Arabic imperfective aspect or in the (English) simple present.

At this point in the analysis, I assume the reader is sufficiently acquainted with the model, and as a result, it should be possible to predict which verb expression(s)

is (are) represented by each illustration. The reading process should commence from the top by identifying the shift in Ego-MP-TE, which is mapped onto a specified stage of motion (cf. Moore, 2016). Next, the reader should proceed to the VT and CT/ PT mappings depending on which axes are used. This aids in determining if the Motion Scenario aligns with the moment of speech when VT is mapped onto PT, or if it occurred in the past of the Speaker/Conceptualizer when shifted slightly to the left, or in the future if shifted to the right. Alternatively, if the Motion Scenario is not linked to the speaker, VT is not mapped onto PT. In each of these instances, the language system (Arabic or English) and the tense and aspect can usually be deduced.

In the particular case of Figure 58, the representation is language-independent. More specifically, the conceptual illustration in question represents the EMT construal of an APPROACH verb in the Arabic imperfective aspect or in the English simple present. That is to say, Figure 58 is a conceptual illustration of the verb expressions: *approaches*, *we approach*, and *yaqtarib* (approach.IMPF.3SG.M). This similarity holds true for all the verb expressions in the Arabic imperfective and in the English simple present. This, in turn, means that the particular model in Figure 58 together with the models of the Arabic imperfective verbs and the English simple present verbs are generic language-independent representations. By generic I refer to the possibility of representing a MT or an ME metaphor. By language-independent, I refer to the fact that the illustration represents both Arabic and English. By imperfective, I refer to the imperfective aspect as a separate grammatical category in Arabic and the imperfective aspect as a characteristic of the simple present tense in English, both of which are treated as non-grounding elements in the paradigm of this study (Sections 4.3.8 and 4.3.9).

The same principle of representation is valid for the Arabic perfective and the English simple past, albeit with slight adjustments. That is to say, if we take the non-indicative uses of the English simple past into account, both the Arabic perfective and the English past can be presented using the same illustrations, as shown in the following example:

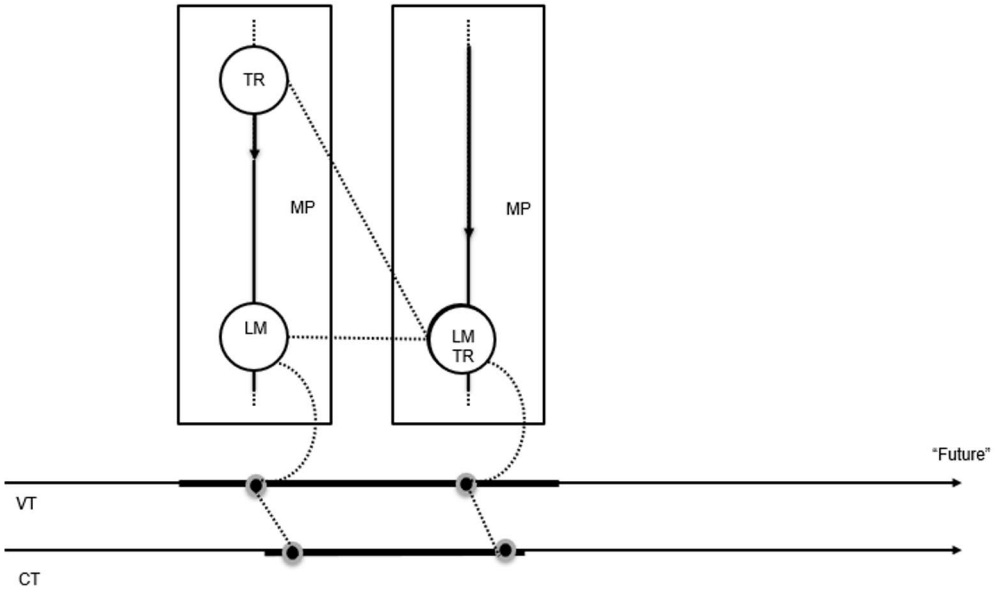

Figure 59. Conceptual illustration of a verb with the lexical equivalent meaning to 'come' in the Arabic perfective aspect or in the (English) simple past.

Figure 59 represents the verb expressions *came*, *arrived*, *jaa'a* (come.PERF.3SG.M) and *ataa* (come.PERF.3SG.M). The Conceptualizer, who in this case replaces the speaker allows the representation of counterfactual scenarios in both languages, taking into account cases where the motion scenario is not mapped onto the epistemic past of the speaker. The perfective is considered in the analysis paradigm as an indicator of a completed motion scenario at some level of conceptualization, which is not necessarily equated with that of the Speaker (cf. Section 4.3.9.1). This is also the case with English since the motion construals in the past tense form can also be used in the conditional and subjunctive moods. However, the past tense in English is a tense category that was identified based on a prototypical definition to be mapped onto the speaker's Conceived Reality (Section 4.3.8) (cf. Langacker, 2008). Nonetheless, if we want to take the conditional and the subjunctive moods into consideration, then the English verbs in the simple past should also be represented with reference to the Conceptualizer instead of the speaker, in line with the Arabic perfective.

Applying the same logic, the simple future in English can be illustrated together with the *sa-* imperfective paradigm in Arabic by representing the two categories with reference to a Conceptualizer. This again allows the illustration to account for cases where the simple future verb does not map onto the speaker's Projected Reality (cf. Example 18, Section 4.4.1.1.3).

Subsequently, the Arabic models can be applied to the English models. This approach, in turn, allows the conceptual illustrations to be elevated to a higher level of schematic representation and enables them to depict cross-linguistic motion construals. Clearly, exploring the applicability of the model to various languages calls for further examination. However, at this point, I aim to hint at the potential for language-independent model representations of EMTs. The applicability of these models is anticipated to be particularly significant among languages that share similar temporal systems, presuming that linguistic resemblance contributes to their generalizability.

With the potential of unified illustrations of EMTs, we come closer to deducing the basic lexical and grammatical EMT elements which are present in both languages. To this end, I propose that we now shift our attention away from the specificities of each language, and, instead, focus on the fundamental structure of EMTs. In other words, if we deconstruct the structure of an EMT and identify the basic lexical and grammatical elements used in its expression, then we can contrast the two languages.

The introduction section presumed that, for the two languages to express the same metaphor, they need to exhibit a degree of lexico-grammatical similarity, and that this similarity is to be examined based on the properties of EMTs (cf. Section 1.5). To determine this similarity, I first recall the generic aspectual structure (Section 2.2.2.5) and the schematic motion event shared by Moore (2016), presented again here:

> Stage 1: The Mover is distal from the Location and moving towards it.
>
> Stage 2: The Mover is approaching the Location. (That is, The Mover is becoming proximal to the Location.)
>
> Stage 3: The Mover arrives at and is passing the Location. (That is, The Mover becomes transiently co-located with the Location and begins to move away; i.e., begins to not be co-located.)
>
> Stage 4: The Mover is distal from the Location and moving away from it.
>
> (Moore, 2016, p. 31)

In each of the four clusters, the lexical aspect of COME and GO interacts with the imperfective and perfective viewpoint aspects indicated by the different temporal categories to provide grounding vis-à-vis Ego, the experiencer. A generic summary of the verb clusters in both languages can be as follows:

- An imperfective COME verb profiles a prospective EMT that maps onto Stages 1 and 2 of the schematic motion events.
- A perfective COME verb profiles a concurrent EMT that maps (at least) onto Stage 3 of the schematic motion event.
- A perfective GO verb profiles a retrospective EMT that maps onto Stage 4 of the schematic motion event.
- An imperfective GO verb profiles a transitionary EMT that maps onto Stages 2-4 of the schematic motion events.

From this breakdown of the generic EMT structure, we can imply that the essential elements of an EMT include the aspectual dichotomy of perfective and imperfective which are crucial for depicting the four motion stages, in interaction with the lexical aspect of the verb. In terms of lexical properties, EMTs rely on: 1) at least one COME verb profiling the initial, approaching, and arrival stages of the schematic motion event through its lexical aspect, and 2) a GO verb profiling Ego-motion through a specific time (Stage 3) or the passage of time (stage 4). This observation suggests that, among the five verbs studied in English and the ten verb lemmas included from Arabic, the verbs with the lexical aspect of COME and GO can be used to express all the stages of the motion event. Consequently, both languages express EMTs despite their differences because they include the essential lexico-grammatical elements of the metaphor, namely at least a COME and a GO verb which encompass various motion stages, while also featuring an imperfective viewpoint aspect.

As a result, regardless of linguistic diversity, the fundamental components of COME and GO verbs, along with the aspectual dichotomy of perfective and imperfective viewpoints, enable the representation of a wide range of metaphorical motion construals. This identification strengthens the cognitive foundation of how the speakers of both languages conceptualize and linguistically encode temporal imminence and occurrence using metaphorical motion scenarios, independent of specific lexicalization patterns and grammatical temporal structures.

5 Conclusion

In general, humans have a dynamic relation with time; either we are *catching it* or it is *fleeing us*. Events can be moved *forward* or *backward* with reference to our present moment or to other times. They can also go *fast* or *slow, come toward us* and we can *move toward* them. Then finally, when a time *arrives*, it coincides with the present moment, and then, eventually, becomes part of the past. As such, linguistic reference to times shows that we are constantly watching time as we are tracking it either in relation to ourselves (Ego) or in relation to other times using embodied motion schemas. This very act of tracking time makes it an ontological entity and a domain for conception.

This study examines language, time, self, and motion, where language is the main facilitator of the conceptual interplay of time, self, and motion by virtue of allocating lexico-grammatical resources; these resources allow the communication of the complex conceptual associations evident in metaphors of time. EMTs represent a unique type of metaphor that incorporates significance for cognitive scientists and linguists alike. As outlined in the previous sections, EMTs are distinctive not just because they combine temporal passage with metaphorical spatial motion, but also because they involve multiple conceptualizations of time and multiple deictic subsystems.

The next section (Section 5.1) will discuss the main contributions of the study while the following section (Section 5.2) will explore its implications and limitations.

5.1 Contributions

This study was built on three different points of intersection:

First, the fact that Ego-centered motion metaphors of time are expressed by English and Arabic means that the metaphor is at the intersection of two different related language systems. This, in turn, entails a similarity between these languages to allow for its expression.

The second point of intersection lies within the metaphor itself. Huumo (2017) suggests that the metaphor comprises two types of elements: metaphorical and

veridical, and the latter can be further subdivided into lexical and grammatical components.

Third, to analyze this composition, the study employed conjugated verb expressions as a unit of analysis. The verb expression is thus the third point of intersection as each finite verb represents a different deictic configuration.

Overall, by exploring the structure of EMTs, the analysis uncovered systematic distinctions between 1) Ego and the Speaker, 2) the veridical and metaphorical elements of the metaphor, and 3) the two languages: Arabic and English.

To begin, as indicated by the title of this monograph, the primary focus of this study was to distinguish between Ego and the Speaker, as well as between Ego's 'now' and the Speaker's present. To make these distinctions systematic, the study mapped the deictic anchors and their properties onto different subsystems, namely Ego-MP-TE, Ego-VT-TE, Speaker-MS, and Speaker-TE. Besides, the analysis mapped the speaker's present onto the conception of reality using Langacker's (2008) model of epistemic modality.

By demonstrating that the Speaker's present and Ego's 'now' do not always coincide, the research highlighted the potential for complex deictic configurations that extend beyond the immediate moment of speech and the constraints of epistemic reality. These distinctions are essential for understanding the mechanism of temporal imagination, which is central to human temporal conception. Put simply, through these deictic configurations, individuals can imagine scenarios where Ego, the experiencer, *moves* through time while remaining cognizant of the Speaker's anchorage, rooted in epistemic reality and grounded in the present. Ultimately, this ability to express temporal passage without being bound to the Speaker's reference point facilitates the creation of diverse metaphorical construals, including those that underpin our capacity to 'go back in time', to understand narratives, and to express counterfactual scenarios.

Another significant distinction concerns the metaphorical and veridical elements. On the metaphorical side, this study integrates Moore's (2016) model with Huumo's (2017) model, by incorporating elements such as the generic structure of the metaphor, the interplay of the Figure and Ground entities, the frames of MOTION and EGO-CENTERED TIME, grounding scenarios, and schematic motion events. Next, these elements were associated with several lexical and grammatical elements within a framework of multiple conceptualizations of time. These veridical elements include 1) the lexical aspect of the verb lemma, or Aktionsart; 2) tense; 3) progressive, perfective, and imperfective aspects; and in certain cases, 4) the nominal aspect of the TE. While the role of each of the metaphorical elements was provided in Section 2.2.2 in the literature review, a brief reminder of the roles of the veridical elements based on the outcome of this study is presented here.

Starting with the role of **verb lemmas**, the study demonstrated that verbs of motion serve as lexical resources for invoking motion, specifically by mapping onto stages of the schematic motion event. Additionally, verb lemmas were found to contribute to the temporal profile of metaphors through "time schemata" in the form of lexical aspect. Thus, verb lemmas are not limited to the indication of metaphorical motion; they also influence the temporal meaning of the EMT expression. Hence, verbs have dual functions: **metaphorical spatial** through evoking motion and mapping onto motion stages and **temporal** by bringing in specific time schemata that map onto the stages of the motion event and interact with viewpoint aspect.

On the grammatical end and within the subset of veridical elements, the study examined the role of **tense** by employing Langacker's (2008) theory of Temporal Grounding. Also, by investigating a broader range of tenses, including the simple future, present perfect, and simple past, the study investigated a varied range of grounding relations. The analysis indicates that all tenses, except the simple present, function as grounding categories: they identify the Speaker-MS relation and contribute to inferring the Speaker-TE. However, the examination of empirical usage data from the corpus shows that these connections remain prototypical, notably considering that temporal decentering was observed with all the tested verb expressions.

Generally, the discussion of tenses as a category that designates the relation between event time and the speaker's present has been exclusive to English. However, this does not imply that Arabic verbs lack the ability to convey the relationship between the Motion Scenario and the Speaker; rather, it is suggested that additional contextual cues are often needed for this relation to be deduced. Besides, although English employs more defined tense categories and despite the fact that the motion construals using the English tenses are generally more specific than the Arabic motion construals using the perfective and the imperfective aspects, English tenses are also subject to context variation and further ad-hoc specification. Considering this view, tense, in general, could be identified as follows:

> Tense is the linguistic (syntactic) realisation of the speaker's perception of the location of the reported event with respect to a given deictic center. This mediation of the event is subject to (and could be overridden by) modal and affective considerations rooted in the speaker's attitude to the proposition. Thus tenses could be either canonical … where there is a total matching between the deictic center and the 1/here/now of the speaker, or displaced where these two axes of reference do not overlap ... Similarly. tenses can be ambiguous … since there can be more than one deictic center with respect to which they are defined
>
> Triki (1996, p. 96)

The definition above recognizes that the speaker (and addressee) is the most omniscient person in determining all the deictic points related to how events are construed because the speaker has access to all the indicators of the situational context. Evaluating the temporal relations based on more schematic level of analysis that takes into consideration the interaction of the temporal categories is totally reliant on the definition characteristics of these categories, thus referring to the ”canonical” meanings of tenses.

To complement the examination of tenses, the study delved into various types of aspect. While Huumo (2017) explored aspectual contrasts between perfective and imperfective processes concerning internal temporal structure, boundedness, and duration, additional aspects played a role in describing EMT construals using finite verbs: viewpoint aspect, grammatical aspect, and the nominal aspect of the TE (cf. Section 4.3).

To start with, viewpoint aspect was found to be essential for the selection of a motion stage through interacting with the Aktionsart of the verb. The lexical aspect of the verb determines the maximum profiling of the motion stage(s) it represents, while viewpoint aspect can restrict the scope of these stages. For example, the imperfective viewpoint resulting from the progressive aspect *is coming* profiles a more limited part of the motion stages indicated by the verb lemma *to come*. On the other hand, the perfective viewpoint of the simple past tense *came* instantiates a maximal scope and encompasses the entire motion from its initiation, or the DEPARTING stage, to its culmination, or the ARRIVAL stage.

Additionally, in the paradigm of this study, the description of the perfective and imperfective aspects is not limited to the levels of completeness of a given event. Instead, the perfective was taken as a deictic grounding element relative to the Conceptualizer. This relation draws on scholarly evidence which indicates that, in the absence of past tense, the perfective conveys some past reference. However, the imperfective remained largely vague in terms of its grounding properties.

The progressive aspect was also discussed in relation to scope and viewpoint. The analysis follows the scholarship in taking the progressive as an element that mandates an immediate scope as opposed to a maximal scope (Langacker, 2008) and functions as an imperfectivizing element (Boogaart & Janssen, 2010). To complement these theoretical insights, the conceptual illustrations of the EMT construals have shown how the progressive aspect turns actions into ongoing processes. These illustrations also demonstrated how the progressive aspect can reshape the understanding of verbs by emphasizing internal segments of the motion event (cf. Section 4.4.1).

Another significant observation concerns the role of the nominal aspect of the TE in the conceptualization of the transitionary verb expressions (cf. Sections 4.4.1.4 and 4.4.3.4). Particularly, the nominal aspect of the TE influences the conception of

the boundedness of the motion scenario when the verb lemma, combined with tense and aspect, remains vague. The nominal aspect is a novel element added into the inventory of veridical elements within Huumo's (2017) model of multiple conceptualizations of time. It specifically delineates the impact of time as an Object of Conceptualization in portraying the EMT scenario.

Throughout the study, these veridical elements were mapped to the metaphorical components. A brief summary of these mappings is as follows:

First, the Figure and Ground entities were mapped onto the Subject and Object of the verb. The analysis placed specific emphasis on the Figure entity since it is always expressed explicitly in the metaphor ME or MT while the Ground entity can be implicit in MT expressions[57].

Second, the frames of SPACE-MOTION and TIME were mapped on MP. This particular association involved multiple stages and different components: the deictic subsystem Ego-MP-TE was estimated to adjust its position based on the motion stage(s) identified by the finite motion verb. While grounding scenarios were not directly mapped, they provided the chronological sequence of the motion stages on MP based on experiential grounds. Moreover, they helped break down schematic motion events into concise stages and align them with the Aktionsart of verb lemmas and the segments traversed on MP by Ego or the TE. From this mapping, the Ego-VT-TE relation was deduced. The first mapping: Ego-MP-TE is **metaphorical spatial-like**. The second mapping Ego-VT-TE is **temporal**, but both mappings are **imagined** with reference to Ego, the experiencer.

The third[58] association that was established was between the Speaker and the Motion Scenario, or using purely temporal relations, this highlights the association between Ego's 'now' and the speaker's present primarily using the tense of the verb. This mapping was facilitated by Huumo's (2017) model, which accounts for multiple conceptualizations of time.

The last reference was established between the Speaker and TE, but as stated in Section 4.3.4, this relationship was based on an **inference**, which means that it was not included in the mappings of the frames (since they are metaphorical, only related to Ego), nor was it included in the Grounding framework (since it relates the Motion Scenario to the moment of speech). As detailed in Section 4.3.4, the Speaker-TE relationship stands out as the most crucial deictic subsystem. However, due to the **innate ability** of the human mind to discern it when provided with adequate cues in the discourse context, identifying the underlying mechanism of its deictic and

57 E.g. *Summer is approaching (us)*.

58 It important to note here that although I narrate these mappings sequentially, I do not necessarily imply the same sequentiality nor order in the mental activity of their conception.

grounding properties becomes challenging, especially if the analysis is based only on the grounding elements within the finite verb expressions. For this reason, the speaker-TE was only deduced in cases when the interaction of the verb lemma and viewpoint aspect resulted in a specific reference. Otherwise, the verb expression was deemed vague, and more elements were needed for specifying the position of the TE vis-à-vis the Speaker's present.

Overall, the descriptions provided in Section 4.4 stem from analyzing and illustrating 44 unique construals originating from 44 different verb expressions in both Arabic and English. However, as discussed in Section 4.5, the surrounding context often introduces a broader array of deictic cues, further refining our understanding of EMT construals. Additionally, these cues are found to fulfil multiple roles: deictic, temporal, and epistemic.

Quantitatively, the outcomes of the corpus query and retrieval also yield several significant findings.

First, there is a close correlation between the type of person inflection and the metaphor type; specifically, 3SG verbs were consistently associated with MT metaphors in both languages (cf. Section 4.2).

Second, the corpus frequencies validate Feist and Duffy's (2020) observation that English exhibits a higher prevalence of MT metaphors and extend this observation to Arabic. However, it is worthy to note that the prevalence of MT or ME metaphors in verb usage is also influenced by the subject semantic category associated with that verb (Sections 3.4.4, 4.1.2, and 4.2.1). This in turn relates lexical semantic preferences and metaphor types.

The selection of ME and MT construals is also found to be related to the different motion stages. Notably, the ARRIVAL Stage is found to be correlate with MT metaphors in both languages. This observation also adds to the previous two to show that the selection of metaphor type is subject to typological and linguistic criteria in the form of person inflection or subject semantic category of the verb, in addition to conceptual criteria related to the mental representations of the metaphor.

Third, the examination of EMT construal variations (Section 4.3.3), reveals insights into the usage criteria guiding verb selection. The computational analysis of corpus data, particularly the predictions of the Random Forest model, demonstrates that while Arabic and English often offer multiple verb expressions that are conceptually similar, their usage patterns exhibit distinct differences (Sections 4.4.2 and 4.4.4).

Evidently, despite the extensive corpus analysis conducted in this study, further investigations are required to delve into the lexical preferences of verbs in EMT expressions and the different aspects of EMTs. However, the integration of quantitative corpus-based research with detailed theoretical descriptions has led to a nuanced understanding of the metaphor. For instance, it is now confirmed that EMT

expressions rely not only on **multiple conceptualizations of time** but also on **a dual conceptualization of the self**. Second, they exhibit greater variability than is typically observed in qualitative descriptions, and their structure, combining **non-metaphorical** with **metaphorical** components, is far more complex than is usually depicted. Third, and most notably, EMTs possess **typological potential** as they facilitate comparisons across different language systems, particularly for testing the mechanisms of **deictic reference, temporal grounding,** and **epistemic modality**.

5.2 Study implications and limitations

5.2.1 Implications

Although this study primarily examines theoretical aspects, it carries significant practical implications, particularly for language learning and teaching. Language learners, much like linguists, confront the complexities of language systems and frequently engage in comparative analyses to grasp various linguistic structures. Consequently, the findings of this study can directly enhance language instruction and comprehension. The body of literature that explores the application of Cognitive Linguistics to second language (L2) learning and teaching is vast. For example, Boers and Lindstromberg (2006) provide an empirical evaluation of Cognitive Linguistics (CL) in L2 instruction, while Littlemore (2023) offers a more recent overview, emphasizing the importance of construals, radial grammatical categories, metaphors, embodied cognition, and other CL elements in contemporary instructional approaches.

In general, the notion that multiple motion construals can map onto a single conceptual content underscores languages' inherent capacity to offer diverse resources for conveying the same meaning. This insight proves particularly valuable in language learning environments, where students can learn to appreciate and utilize the various ways in which a single idea can be expressed across different languages. Thus, a pluralistic approach to L2 instruction not only enriches the learners' linguistic repertoire but also deepens their understanding of the flexibility and creativity inherent in language use.

Moreover, the study's focus on tense, aspect, and mood underscores the necessity for a more concrete, usage-based identification of linguistic entities and patterns. Traditional language teaching often relies on static definitions and fixed rules, which can be restrictive. However, this research advocates for dynamic, real-world examples that demonstrate how these grammatical categories operate in actual usage (see, for instance, Kermer (2016) for an empirical assessment of the pedagogical implications of Cognitive Grammar theory in the instruction of English tense and aspect to L2 learners). By incorporating authentic language samples and situational

contexts, educators can provide learners with a more accurate and practical understanding of tense, aspect, and mood. This approach reflects the true nature of language and makes learning more engaging and relevant.

Interestingly, the initial encounter with the concept of tense often occurs in language classrooms rather than in linguistics courses. These early definitions significantly shape our understanding of tense, influencing both language learners and future linguists. Therefore, it is crucial that these foundational lessons are both accurate and comprehensive. Language educators including teachers and curriculum designers should ensure that they provide a more nuanced explanations of tense, by including a variety of examples that illustrate its different uses and meanings. This foundational knowledge is essential for students to develop a robust understanding of linguistic temporality.

In a nutshell, two specific needs emerge from this study:

Usage-based Descriptions: There is a pressing need for descriptions that incorporate real illustrations of the different extensions of tenses and aspects. These should be drawn from actual language use rather than constructed prototypical examples, which will offer learners authentic insights into how these grammatical features operate in context. Such descriptions can also help demystify complex temporal concepts and reduce the margin of errors.

Flexible Testing Approaches: Language testing should accommodate the interchangeable nature of different construals. Instead of rigid, one-size-fits-all answers, tests should allow for multiple valid responses, reflecting the natural variability in language use. This flexibility can be achieved by designing questions that present learners with limited cues, encouraging them to apply their knowledge creatively and critically to determine the most appropriate construal. This approach not only better assesses their understanding but also mirrors real-life language use, where multiple linguistic forms are often possible.

In sum, while this study advances theoretical knowledge, its implications for language teaching and learning are profound. By advocating for more dynamic, usage-based approaches to teaching tense, aspect, and mood, and by highlighting the importance of flexible testing methods, this research provides valuable insights that can significantly enhance the effectiveness of language education.

5.2.2 Limitations

While guided by a specific methodology and grounded in quantitative data, it is important to acknowledge certain limitations in the current inquiry, along with prospects for future research, which will be discussed as follows:

First, this analysis was based on a large sample of data, providing a solid overview of EMTs in Arabic and English. The richness of empirical evidence,

however, comes with its own challenges; namely, the findings discussed in this thesis only address a subset of the possible aspects highlighted by the corpus evidence. Additionally, some parts of the present analysis were limited to schematic representations, although this approach is supported by detailed illustrations from the corpus data where suitable.

An important aspect of the corpus richness relates to the observed variability of TEs. The most important observation from the collection of TEs from the corpus data is validating that the TE in EMTs is not homogenous and covers a large number of different times, which in turn relate to different metaphors. The categories calendric times, anchored events, and non-anchored events are a proposed ontology based on the relationship between the temporal entity and the calendar, a conventional way of conceptualizing time. However, this ontology is only a first step towards exploring the different aspects of temporal entities. Other categorical aspects include (un)boundedness, metonymy, and fictional vs. real-time references, among many others. The last distinction between fictional and real-time references also relates to modality, which remains an under studied aspect of EMTs. Notably, the epistemic status of the metaphorical Motion Scenario and the TE vis-à-vis the Speaker and their impact of the conceptualization of EMTs require a more systematic examination.

Moreover, this study admittedly takes into account certain aspects of metaphors at the expense of others. This is informed by the focus on the deictic nature of EMTs as expressed by a combination of grammatical and metaphorical elements. However, the corpus data can also be studied for its constructional properties, particularly with reference to prepositions. The pairing of a particle with a verb changes the meaning of the latter and can result in different motion construals. Note, for instance, the difference between *we have gone through vs. we have gone by,* or *we are coming to vs. we are coming at,* etc. The syntactic position of the verb expression vis-à-vis the TE and Ego and aspects of transitivity are also valid aspects to consider for future research. Constructional and collocational elements preceding the verb predicates and indications of temporality: *as* VP, *when* VP, etc. are also related phenomena that require further explorations. Finally, the study acknowledges the importance of verb transitivity and its relation to the explicit and implicit encoding of Trajector and Landmark entities. For instance, *approach* and *pass* are transitive verbs and code the Landmark as a grammatical object, while *come* and *go* are intransitive verbs and code the Landmark as an oblique (adverbial) element[59]. This aspect remains a future subject of inquiry.

[59] Credits to Tuomas Huumo for pointing this out in a personal communication.

Bibliography

Abdulrahim, D. (2013). A corpus study of basic motion verbs in Modern Standard Arabic. University of Alberta (Canada).

Abdulrahim, D. (2014). Annotating corpus data for a quantitative, constructional analysis of motion verbs in Modern Standard Arabic. Proceedings of the EMNLP 2014 Workshop on Arabic Natural Language Processing (ANLP), 28–38. https://doi.org/10.3115/v1/W14-3604.

Abdulrahim, D. (2019a). Go constructions in Modern Standard Arabic: A corpus-based study. Constructions and Frames, 11(1), 1–42. https://doi.org/10.1075/cf.00022.abd

Abdulrahim, D. (2019b). Quantitative approaches to analysing COME constructions in Modern Standard Arabic. Arabic Corpus Linguistics, 170.

Ahmed, A. (2015). On Agreement Affixes, Incorporated Pronouns, and Clitics in Standard Arabic. SKY Journal of Linguistics, 28.

Al-Balushi, R. (2013). Verbal and Nominal Case Suffixes in Standard Arabic: A Unified Account. Brill's Journal of Afroasiatic Languages and Linguistics, 5(1), 35–82. https://doi.org/10.1163/18776930-00501002

Alekseeva, L., Isaeva, E., & Mishlanova, S. (2013). Metaphor in computer virology discourse. World Applied Sciences Journal, 27(4), 533–537.

Alhaider, S. M. (2021). The syntax of the particle qad in standard Arabic and Asiri Arabic. Saudi Journal of Language Studies, 1(2), 81–94.

Alhamdan, B., Alenazi, O., & Maalej, Z. A. (2018). Motion verbs in Modern Standard Arabic and their implications for Talmy's lexicalization patterns. Language Sciences, 69, 43–56. https://doi.org/10.1016/j.langsci.2018.06.001

Aliwy, A., Taher, H. A., & AboAltaheen, Z. (2020). Arabic Dialects Identification for All Arabic countries. Workshop on Arabic Natural Language Processing.

Alnosairee, A., & Sartini, N. W. (2021). A SOCIOLINGUISTICS STUDY IN ARABIC DIALECTS. PRASASTI: Journal of Linguistics, 6(1), 1. https://doi.org/10.20961/prasasti.v6i1.43127

Anizi, M., & Dichy, J. (2009). Assessing Word-form based Search for Information in Arabic: Towards a New Type of Lexical Resource. Khalid Choukri and Bente Maegaard, Proceedings of the Second International Conference on Arabic Language Resources and Tools, 22–23.

Azizah, I. N., Wahya, W., & Machdalena, S. (2020). Exploring the Use of Adverb Literally in Corpus of Contemporary American English. Lensa: Kajian Kebahasaan, Kesusastraan, Dan Budaya, 10(2), 250–262.

Bahloul, M. (2007). Structure and function of the Arabic verb. Routledge.

Beller, S., Bender, A., & Bannardo, G. (2005). Spatial Frames of Reference for Temporal Relations: A Conceptual Analysis in English, German, and Tongan. Proceedings of the Annual Meeting of the Cognitive Science Society, 27(27). https://escholarship.org/uc/item/8mm9740x.

Bender, A., & Beller, S. (2014). Mapping spatial frames of reference onto time: A review of theoretical accounts and empirical findings. Cognition, 132(3), 342–382. https://doi.org/10.1016/j.cognition.2014.03.016.

Benmamoun, E. (1999). Arabic morphology: The central role of the imperfective. Lingua, 108(2), 175–201. https://doi.org/10.1016/S0024-3841(98)00045-X.

Bernards, M. (2020). Ibn Abī Isḥāq (d. Ca. 125/743) and His Scholarly Network. In Islam at 250 (pp. 9–31). Brill. https://doi.org/10.1163/9789004427952_003.

Biber, D. (1993). Representativeness in corpus design. Literary and Linguistic Computing, 8(4), 243–257.

Blachère, R., & Gaudefroy-Demombynes, M. (1952). Grammaire de l'arabe classique: Morphologie et syntaxe. (No Title). https://cir.nii.ac.jp/crid/1130282272985834240.

Boers, F., & Lindstromberg, S. (2006). Cognitive linguistic applications in second or foreign language instruction: Rationale, proposals, and evaluation. *Applications of cognitive linguistics*, *1*, 305.

Boogaart, R., & Janssen, T. (2010). Tense and aspect. https://academic.oup.com/edited-volume/34552/chapter/293175379.

Boroditsky, L. (2000). Metaphoric structuring: Understanding time through spatial metaphors. Cognition, 75(1), 1–28.

Bouamor, H., Habash, N., Salameh, M., Zaghouani, W., Rambow, O., Abdulrahim, D., Obeid, O., Khalifa, S., Eryani, F., & Erdmann, A. (2018). The maDaar arabic dialect corpus and lexicon. Proceedings of the Eleventh International Conference on Language Resources and Evaluation (LREC 2018). https://aclanthology.org/L18-1535.pdf

Brisard, F. (2013). An Account of English Tense and Aspect in Cognitive Grammar. In K. M. Jaszczolt & L. de Saussure (Eds.), Time: Language, Cognition & Reality (pp. 1–210). Oxford University Press.

Buckwalter, T., & Parkinson, D. (2010). A Frequency Dictionary of Arabic: Core Vocabulary for Learners. Routledge. https://doi.org/10.4324/9780203883280.

Buckwalter, T., & Parkinson, D. (2011). A frequency dictionary of Arabic: Core vocabulary for learners. Routledge.

Casasanto, D., & Bottini, R. (2010). Can Mirror-Reading Reverse the Flow of Time? (C. Hölscher, T. F. Shipley, M. Olivetti Belardinelli, J. A. Bateman, & N. S. Newcombe, Eds.; Vol. 6222, pp. 335–345). Springer Berlin Heidelberg. https://doi.org/10.1007/978-3-642-14749-4_28.

Casasanto, D., & Boroditsky, L. (2008). Time in the mind: Using space to think about time. *Cognition*, *106*(2), 579-593.

Clark, H. H. (1973). SPACE, TIME, SEMANTICS, AND THE CHILD. In T. E. Moore (Ed.), Cognitive Development and Acquisition of Language (pp. 27–63). Academic Press. https://doi.org/10.1016/B978-0-12-505850-6.50008-6.

Comrie, B. (1985). Tense (Vol. 17). Cambridge university press.

Dancygier, B., & Sweetser, E. (2014). Figurative language. Cambridge University Press.

Davies, Mark. (2008-) The Corpus of Contemporary American English (COCA). Available online at https://www.english-corpora.org/coca/.

Davies, M. (2010). The Corpus of Contemporary American English as the first reliable monitor corpus of English. Literary and Linguistic Computing, 25(4), 447–464. https://doi.org/10.1093/llc/fqq018.

De Wit, A., & Brisard, F. (2014). A Cognitive Grammar account of the semantics of the English present progressive1. Journal of Linguistics, 50(1), 49–90.

Ding, P. (2021). A Corpus-Based Study of Conceptual Metaphor—On Chinese English Learners' Use of "Wind." Open Journal of Social Sciences, 9(10), 448–455.

Duffy, S. E., & Feist, M. I. (2016). Power in time: The influence of power posing on metaphoric perspectives on time. Language and Cognition, 9, 637–647. https://doi.org/10.1017/langcog.2016.33.

Duffy, S. E., Feist, M. I., & McCarthy, S. (2014). Moving Through Time: The Role of Personality in Three Real-Life Contexts. Cognitive Science, 38 8, 1662–1674. https://doi.org/10.1111/cogs.12124.

Evans, V. (2004). The structure of time. The Structure of Time, 1–292.

Evans, V. (2013). Temporal frames of reference. https://doi.org/10.1515/cog-2013-0016.

Fauconnier, G., & Turner, M. (2003). Conceptual blending, form and meaning. Recherches En Communication, 19, 57–86.

Feist, M. I., & Duffy, S. E. (2020a). On the path of time: Temporal motion in typological perspective. Language and Cognition, 12(3), 444–467.
Feist, M. I., & Duffy, S. E. (2020b). On the path of time: Temporal motion in typological perspective. Language and Cognition, 12, 444–467. https://doi.org/10.1017/langcog.2020.7
Ferreira, F., Christianson, K., & Hollingworth, A. (2001). Misinterpretations of garden-path sentences: Implications for models of sentence processing and reanalysis. Journal of Psycholinguistic Research, 30, 3–20.
Fillmore, C. J. (1972). Subjects, Speakers, and Roles. In D. Davidson & G. Harman (Eds.), Semantics of Natural Language (pp. 1–24). Springer Netherlands. https://doi.org/10.1007/978-94-010-2557-7_1.
Fillmore, Charles J. 1982a. Frame semantics. In The Linguistic Society of Korea (ed.), Linguistics in the morning calm. Seoul: Hanshin Publishing Co.
Fillmore, Charles. 1982b. Towards a descriptive framework for spatial deixis. In Robert Jarvella & Wolfgang Klein (eds.), Speech, Place, and Action: Studies in Deixis and Related Topics, 31–59. Chinchester: John Wiley and Sons Ltd.
Fillmore, Charles J. 1985. Frames and the semantics of understanding. Quaderni di semantica 6(2).
Gadalla, H. A.-S. H. (2017). Translating Tenses in Arabic-English and English-Arabic Contexts. Cambridge Scholars Publishing. http://ebookcentral.proquest.com/lib/kutu/detail.action?docID=4858048.
Galton, A. (2011). Time flies but space does not: Limits to the spatialisation of time. Journal of Pragmatics, 43(3), 695–703. https://doi.org/10.1016/j.pragma.2010.07.002.
Genette, G. (1980). Narrative discourse: An essay in method (Vol. 3). Cornell University Press.
Gentner, D., Imai, M., & Boroditsky, L. (2002). As time goes by: Evidence for two systems in processing space → time metaphors. Language and Cognitive Processes, 17(5), 537–565. https://doi.org/10.1080/01690960143000317.
Glanville, P. J. (2011). The Arabic verb: Root and stem and their contribution to verb meaning. https://repositories.lib.utexas.edu/items/c03d2981-0caf-47e5-9ac4-3c13ae722734
Glanville, P. J. (2018). The lexical semantics of the Arabic verb. Oxford University Press.
Glynn, D. (2014). The many uses of run. Corpus Methods for Semantics: Quantitative Studies in Polysemy and Synonymy, 43, 117–144.
Grady, J. (1999). A typology of motivation for conceptual metaphor. Metaphor in Cognitive Linguistics, 79–100.
Grady, J. (2007). A typology of motivation for conceptual metaphor: Correlation vs. Resemblance. In V. Evans, J. Zinken, & B. Bergen (Eds.), The cognitive linguistics reader (pp. 316–334). Equinox Publishing Ltd. https://researchportal.port.ac.uk/en/publications/the-cognitive-linguistics-reader
Gries, S. T. (2021). Statistics for Linguistics with R: A Practical Introduction. Walter de Gruyter GmbH & Co KG.
Habash, N., Eryani, F., Khalifa, S., Rambow, O., Abdulrahim, D., Erdmann, A., Faraj, R., Zaghouani, W., Bouamor, H., & Zalmout, N. (2018). Unified guidelines and resources for Arabic dialect orthography. Proceedings of the Eleventh International Conference on Language Resources and Evaluation (LREC 2018). https://aclanthology.org/L18-1574.pdf
Habib, S., Goddard, C., & Gladkova, A. (2012). Contrastive lexical-conceptual analysis of folk religious concepts in English, Arabic, and Hebrew: NSM approach.
Hamdi, S. (2008). Conceptual metaphors of time in English and in Arabic: A comparative cognitive study [PhD Thesis]. Université Laval.
Hanks, William. 1990. Referential Practice: Language and Lived Space among the Maya. Chicago: University of Chicago Press.
Harbert, W., & Bahloul, M. (2002). Postverbal Subjects in Arabic and the Theory of Agreement (J. Ouhalla & U. Shlonsky, Eds.; Vol. 53, pp. 45–70). Springer Netherlands. https://doi.org/10.1007/978-94-010-0351-3_2
Hashad, O. (2015). An approach to evaluating the pedagogical value of concordances in Arabic foreign language classrooms: Perspectives from the users.

Help: IPA/Arabic. (2022). In Wikipedia. https://en.wikipedia.org/w/index.php?title=Help:IPA/Arabic&oldid=1087606910

Holes, C. (2006). The Arabic dialects of Arabia. Proceedings of the Seminar for Arabian Studies, 25–34. https://www.jstor.org/stable/41223878?casa_token=c987F5tcGNMAAAAA:0eriqeR8BoCu1-y7RgcdM0VkSsoRURAgE38FsckWFshwXCshyhfUYYq1xIEbDVrWiGtRlaID4tmMQowbjXHX2TAhk_1mnReJltFXgMjOrwcm9qIwmoITQg

Hu, C., & Chen, Z. (2015). Inflation Metaphor in Contemporary American English. Higher Education Studies, 5(6), 21–35.

Huumo, T. (2010). Nominal aspect, quantity, and time: The case of the Finnish object1. Journal of Linguistics, 46(1), 83–125.

Huumo, T. (2017). The grammar of temporal motion: A Cognitive Grammar account of motion metaphors of time. Cognitive Linguistics, 28(1), 1–43. https://doi.org/10.1515/cog-2016-0015

Huumo, T. (2018). Moving along paths in space and time. Journal of Linguistics, 54(4), 721–751. https://doi.org/10.1017/S0022226717000366

Janda, L. A. (2015). Cognitive linguistics in the year 2015. Cognitive Semantics, 1(1), 131–154.

Janda, L. A. (2018). The Paradigm as a Radial Category. In Ten Lectures on Cognitive Linguistics as an Empirical Science (pp. 300–324). Brill. https://brill.com/downloadpdf/book/9789004363519/BP000018.pdf

Jarunwaraphan, B., & Mallikamas, P. (2020). A Corpus-Based Study of English Synonyms: Chance and Opportunity. REFLections, 27(2), 218–245.

Khalifa, S., Habash, N., Abdulrahim, D., & Hassan, S. (2016). A Large Scale Corpus of Gulf Arabic (arXiv:1609.02960). arXiv. http://arxiv.org/abs/1609.02960.

Khalifa, S., Habash, N., Eryani, F., Obeid, O., Abdulrahim, D., & Al Kaabi, M. (2018). A morphologically annotated corpus of Emirati Arabic. Proceedings of the Eleventh International Conference on Language Resources and Evaluation (LREC 2018). https://aclanthology.org/L18-1607.pdf

Kermer, F. (2016). *A cognitive grammar approach to teaching tense and aspect in the L2 context.* Cambridge Scholars Publishing.

Kranjec, A. (2006). Extending spatial frames of reference to temporal concepts. Proceedings of the Annual Meeting of the Cognitive Science Society, 28(28).

Kuczok, M. (2016). Metaphorical conceptualizations of" death" and" dying" in American English and Polish: A corpus-based contrastive study. Linguistica Silesiana, 37, 125–142.

Kumcu, A. (2022). Space-Time Mapping in Turkish: A Corpus-Based, Crosslinguistic Investigation. https://www.researchgate.net/profile/Alper-Kumcu/publication/371292433_Space-time_mapping_in_Turkish_A_corpus-based_crosslinguistic_investigation/links/647d9bbd79a7223765122f7d/Space-time-mapping-in-Turkish-A-corpus-based-crosslinguistic-investigation.pdf

Lahlou, H., & Abdul Rahim, H. (2020). The influence of prior knowledge on learning Scientific Terminology: A corpus-based cognitive linguistic study of acceleration in Arabic and English. AWEJ for Translation & Literary Studies, 4.

Lakoff, G., & Johnson, M. (1980). Metaphors we live by. University of Chicago Press.

Lakoff, G., & Johnson, M. (2003). Metaphors we live by. The university of Chicago press. https://nyshalong.com/public/archive/20150131/20150131_ref.pdf.

Langacker, R. W. (2001). The English present tense. English Language & Linguistics, 5(2), 251–272.

Langacker, R. W. (2008). Cognitive grammar a basic introduction. Oxford University Press.

Langacker, R. W. (2009). Investigations in Cognitive Grammar. De Gruyter, Inc. http://ebookcentral.proquest.com/lib/georgetown/detail.action?docID=453907.

Langacker, R. W. (2023). Conceptual Semantics. In Fuyin Thomas Li (Ed.), Handbook of Cognitive Linguistics (pp.178–217). Brill.

Levinson, S. C. (2003). Space in Language and Cognition: Explorations in Cognitive Diversity. Cambridge University Press.

Levshina, N. (2020). Conditional Inference Trees and Random Forests. In M. Paquot & S. Th. Gries (Eds.), A Practical Handbook of Corpus Linguistics (pp. 611–643). Springer International Publishing. https://doi.org/10.1007/978-3-030-46216-1_25.

Liao, Y., Flecken, M., Dijkstra, K., & Zwaan, R. A. (2020). Going places in Dutch and mandarin Chinese: Conceptualising the path of motion cross-linguistically. Language, Cognition and Neuroscience, 35(4), 498–520. https://doi.org/10.1080/23273798.2019.1676455

Lindstromberg, S. (2010). English Prepositions Explained: Revised edition (1st ed.). John Benjamins Publishing Company. https://doi.org/10.1075/z.157

Littlemore, J. (2023). *Applying cognitive linguistics to second language learning and teaching*. Springer Nature.

Liu, D. (2012). The most frequently-used multi-word constructions in academic written English: A multi-corpus study. English for Specific Purposes, 31(1), 25–35.

Margolies, S. O., & Crawford, L. E. (2008). Event valence and spatial metaphors of time. Cognition and Emotion, 22(7), 1401–1414. https://doi.org/10.1080/02699930701810335

McCarthy, J. J. (1981). A prosodic theory of nonconcatenative morphology. Linguistic Inquiry, 12(3), 373–418.

McTaggart, J. E. (1908). The unreality of time. Mind, 457–474.

Moore, K. E. (2011). Ego-perspective and field-based frames of reference: Temporal meanings of front in Japanese, Wolof, and Aymara. Journal of Pragmatics, 43, 759–776. https://doi.org/10.1016/J.PRAGMA.2010.07.003

Moore, K. E. (2014). The Spatial Language of Time: Metaphor, metonymy, and frames of reference. https://doi.org/10.1075/hcp.42

Moore, K. E. (2016). Elaborating time in space: The structure and function of space–motion metaphors of time. Language and Cognition, 9, 191–253. https://doi.org/10.1017/langcog.2016.6

Moore, K. E. (2020). Moving Time vs. Frame-relative motion: A frame-based account of the distinction between primary metaphor and fictive motion. Constructions and Frames, 12(2), 272–314.

Murphy, G. L. (1996). On metaphoric representation. Cognition, 60(2), 173–204.

Neves, M., & Ševa, J. (2021). An extensive review of tools for manual annotation of documents. Briefings in Bioinformatics, 22(1), 146–163. https://doi.org/10.1093/bib/bbz130

Newman, J. (2004). Motivating the uses of basic verbs: Linguistic and extralinguistic considerations. In G. Radden & K. U. Panther (Eds.), Studies in linguistic motivation (pp. 193–218). Mouton de Gruyter.

Núñez, R. E., & Sweetser, E. (2006). With the Future Behind Them: Convergent Evidence From Aymara Language and Gesture in the Crosslinguistic Comparison of Spatial Construals of Time. Cognitive Science, 30(3), 401–450. https://doi.org/10.1207/s15516709cog0000_62

Ouali, H. (2018). The syntax of tense in Arabic. Routledge Handbooks Online. https://doi.org/10.4324/9781315147062-6

Parkinson, D. B. (2019). Under the hood of arabiCorpus. In Arabic Corpus Linguistics (pp. 17–29). Edinburgh University Press Edinburgh.

Parkinson, D. B. (n.d). arabiCorpus: Arabic Corpus Search Tool. Available online at https://arabicorpus.byu.edu/index.php .

Petcharat, N., & Phoocharoensil, S. (2017). A Corpus-Based Study of English Synonyms: Appropriate, Proper, and Suitable. LEARN Journal: Language Education and Acquisition Research Network, 10(2), 10–24.

Piata, A., & Soriano, C. (2022). The affect bias in the metaphorical representation of anticipated events: The case of approach. Metaphor and the Social World, 12(1), 115–137. https://doi.org/10.1075/msw.18034.pia.

Qin, Y. (2023). That Which Does Not Kill You on Wednesday Makes You Stronger On Friday: A Bidirectional Relationship between Resilience and Time. British Journal of Applied Linguistics, 3(2), 47–59.

Reichenbach, H. (1947). The tenses of verbs. Time: From Concept to Narrative Construct: A Reader, 1–12.

Richmond, J., Wilson, J. C., & Zinken, J. (2012). A feeling for the future: How does agency in time metaphors relate to feelings? European Journal of Social Psychology, 42, 813–823. https://doi.org/10.1002/EJSP.1906

Ryding, K. C. (2014). Arabic: A linguistic introduction. Cambridge University Press.

Saleh, M. K., & Fatah, A. H. (2022). A Construal-Based Approach to Arabic Tenses. The Scientific Journal of Cihan University–Sulaimaniya PP, 60, 77.

Slobin, D. I. (1987). Thinking for speaking. Annual Meeting of the Berkeley Linguistics Society, 13, 435–445. http://journals.linguisticsociety.org/proceedings/index.php/BLS/article/download/1826/1598.

Smith, C. S. (1991). The parameter of aspect. Kluwer academic publishers.

Stefanowitsch, A. (2020). Corpus linguistics: A guide to the methodology. Language Science Press. https://doi.org/10.5281/zenodo.3735822.

Stutterheim, C. von, Bouhaous, A., & Carroll, M. (2017). From time to space: The impact of aspectual categories on the construal of motion events: The case of Tunisian Arabic and Modern Standard Arabic. Linguistics, 55(1), 207–249. https://doi.org/10.1515/ling-2016-0038.

Tagliamonte, S. A., & Baayen, R. H. (2012). Models, forests, and trees of York English: Was/were variation as a case study for statistical practice. Language Variation and Change, 24(2), 135–178.

Talmy, L. (2000a). Toward a cognitive semantics. Volume I, Concept structuring systems. The MIT Press.

Talmy, L. (2000b). Toward a cognitive semantics. Volume II, Typology and process in concept structuring. The MIT Press.

Th Gries, S. (2019). On classification trees and random forests in corpus linguistics: Some words of caution and suggestions for improvement. Corpus Linguistics and Linguistic Theory, 16(3), 617–647.

Toolan, M. J. (1988). Narrative: A critical linguistic introduction. Routledge and Kegan Paul. https://www.taylorfrancis.com/books/mono/10.4324/9781315011271/narrative-michael-toolan

Traboulsi, H. (2009). Arabic named entity extraction: A local grammar-based approach. 2009 International Multiconference on Computer Science and Information Technology, 139–143.

Triki, M. (1991). THE REPRESENTATION OF SELF IN NARRATIVE. Jlse, 20(2), 78–96. https://doi.org/10.1515/jlse.1991.20.2.78

Triki, M. (1996). The linguistics of literary pedagogy. Revue Langues et Littératures, 14, 87–108.

Tversky, B. (2014). Where partonomies and taxonomies meet. In Meanings and Prototypes (RLE Linguistics B: Grammar) (pp. 344–354). Routledge.

Uçar, S., & Yükselir, C. (2017). A Corpus-Based Study on the Use of the Logical Connector" Thus" in the Academic Writing of Turkish EFL Learners. English Language Teaching, 10(2), 64–72.

Valenzuela, J., & Castillo, R. I. (2022). A corpus-based look at time metaphors. Time Representations in the Perspective of Human Creativity, 75, 15.

van Putten, M. (2020). Classical and Modern Standard Arabic. Arabic and Contact-Induced Change, 1, 57.

Vendler, Z. (1957). Verbs and times. The Philosophical Review, 66(2), 143–160.

Von Stutterheim, C., Gerwien, J., Bouhaous, A., Carroll, M., & Lambert, M. (2020). What makes up a reportable event in a language? Motion events as an important test domain in linguistic typology. Linguistics, 58(6), 1659–1700. https://doi.org/10.1515/ling-2020-0212.

Waliński, J. T. (2018). Verbs in fictive motion. Wydawnictwo Uniwersytetu Łódzkiego.

Waliński, J. T. (2020). Inconsistencies in Temporal Metaphors: Is Time a Phenomenon of the Third Kind? Studies in Logic, Grammar and Rhetoric, 61(1), 163–181. https://doi.org/10.2478/slgr-2020-0009.

Waltisberg, M. (2012). The Arabic verb: Form and meaning in the vowel-lengthening patterns.(Studies in functional and structural linguistics 63.). JSTOR.

Wit, A. D. (2016). The Present Perfective Paradox across Languages. Oxford University Press.
Wright, W. (1967). A Grammar of the Arabic Language, 3d ed., rev. By W. Robertson Smith and MJ de Goeje, 2 vols. Cambridge: Cambridge University Press, 1, 136A.
Youssef, C. B., & Gries, S. T. (n.d.). Code-Switching in Tunisian Arabic.
Zaidan, O. F., & Callison-Burch, C. (2014). Arabic dialect identification. Computational Linguistics, 40(1), 171–202.
Zanned, L. (2011). The case of Arabic: Aspect as a scanning device in natural language processing. In A. Patard & F. Brisard (Eds.), Cognitive Approaches to Tense, Aspect, and Epistemic Modality (pp. 181–214). John Benjamins Publishing Company. https://doi.org/10.1075/hcp.29.12zan.
Zhang, C. (2022). Expressions of Motion Events by German, Chinese, and English Native Speakers and German Learners of Chinese and English [PhD Thesis]. https://archiv.ub.uni-heidelberg.de/volltextserver/31688/.
Zinken, J. (2010). Temporal frames of reference. In P. Chilton & V. Evans (Eds.), Language, cognition and space: The state of the art and new directions (pp. 479–498). Equinox Publishing Ltd.

Appendices

Appendix A. EMT corpus collected from the literature and annotated for type EMT, type of verb used, and type of tense. The blue lines are repeated examples. Examples collected from Huumo, (2017), Kranjec (2006), Moore (2011), and Núñez & Sweetser (2006).

EMT lines	ME	MT	Verb used	tense and aspect
We're coming to the end of the year	1		come	present progressive
The end of the year is approaching		1	approach	present progressive
the week ahead of us is approaching		1	approach	present progressive
Christmas is following us,		1	follow	present progressive
coming events		1	come	NA
We're racing toward the end of the semester	1		race toward	present progressive
The new year is coming upon us;		1	come	present progressive
Time is flying by;		1	fly	present progressive
The time has long since gone when …		1	go	present perfect
The end of the world is approaching		1	approach	present progressive
The time to make a decision has come		1	come	present perfect
She passed the time happily		1	pass	simple past
We are approaching the end of the summer	1		approach	present progressive
He left his difficult childhood behind.			leave	simple past
We are racing through the semester.	1		race through	present progressive
We are coming to the end of the month	1		come	present progressive
The end of the world is approaching (moving-time variant)		1	approach	present progressive
We are approaching the end of the summer (moving-Ego variant)	1		approach	present progressive
the time has come		1	come	present perfect
We are coming to the end of the year	1		come	present progressive
Summer vacation is coming		1	come	present progressive
Christmas is coming	1		come	present progressive

“We are approaching our first wedding anniversary” (ME)	1		approach	present progressive
We [ego, FIGURE] are approaching Christmas	1		approach	present progressive
The weeks ahead should be interesting. We are approaching/getting close to the end of the semester. We have arrived at the end of the week. We have reached June already (Lakoff & Johnson 1999: 146). We have passed the deadline	1		approach	present progressive
We have arrived at the end of the week.	1		arrive	present perfect
We have reached June already (Lakoff & Johnson 1999: 146	1		reach	present perfect
We have passed the deadline	1		pass	present perfect
We are approaching Christmas	1		approach	present progressive
(41) Noon crept up on us.		1	creep up on	simple past
(42) We are just coming into troubled times.	1		come (into)	present progressive
(50) I’m going forward in time	1		go (forward)	present progressive
We are approaching the end of the year		1	approach	present progressive
The end of the year is approaching		1	approach	present progressive
We are approaching Christmas	1		approach	present progressive
Christmas is coming		1	come	present progressive
Life goes on			go (on)	simple present
Time flows on			flow (on)	simple present
We are approaching Christmas	1		approach	present progressive
Christmas is approaching		1	approach	present progressive
Christmas is approaching [EGO’S position, EGO-CENTERED MOVING TIME],		1	approach	present progressive
Christmas is coming		1	come	present progressive
Christmas is approaching,		1	approach	present progressive
The end of the year is approaching me;		1	approach	present progressive
? I am approaching Christmas).			approach	NA
Christmas is approaching ~ ahead			approach	
We were happy as Christmas was approaching.		1	approach	
2) Ann is nervous because her graduation is approaching		1	approach	present progressive
3) With tomorrow being the 1st of December, Christmas is approaching fast, so remember we can help with		1	approach	present progressive

your food goodies tor the festive season. http://www.billboardme.co.nz/billboard/detail/foodfactoryshop? p = news#.Vp9RcFLOE2I				
4) ?On December 25th, Christmas is approaching fast.			approach	NA
On Wednesday, the meeting is approaching fast,		1	approach	present progressive
6) This financial problem has been approaching us for years, and Washington has done the same thing year after year – kick the can down the road.	note the TE here	1	approach	present perfect progressive
Christmas is approaching		1	approach	present progressive
(?Christmas approaches			approach	NA
?We approach Christmas)			approach	NA
Christmas was approaching		1	approach	present progressive
Christmas arrived		1	arrive	simple past
Christmas approached, Bill felt more and more anxious		1	approach	simple past
Christmas finally arrived		1	arrive	simple past
We are approaching Christmas)	1		approach	present progressive
Christmas is approaching		1	approach	present progressive
, Christmas is coming		1	come	present progressive
By the time I began high school at 12, the family was stable, affluent even, and I was pottering along nicely, the horrors of the past receding behind me. (Barbra Leslie: Dear Merilyn, Wakefield Press 2003, p. 181)		1	recede	NA
Christmas is approaching		1	approach	present progressive
We are approaching Christmas	1		approach	present progressive
Days and weeks rushed past;		1	rush past	simple past
Time goes by at an incredible speed,		1	go (by)	simple present
We are struggling through bad times	1		struggle through	present progressive
The financial problem has been approaching us for years		1	approach	present perfect progressive
Christmas is {0/lurking/waiting} ahead			lurking/waiting ahead	present progressive

Appendix B. Usage frequency of the English verbs under study. Source COCA, (Davies, 2008-) [accessed on 11/11/2023].

1	COME	912127
2	CAME	402931
3	COMING	262894
4	COMES	219129
5	COMIN	4573
6	COMETH	582
7	COMEING	13
8	COME-THE	1
	TOTAL	**1802250**
1	APPROACH	111884
2	APPROACHES	27958
3	APPROACHED	20011
4	APPROACHING	13937
	TOTAL	**173790**
1	ARRIVED	56458
2	ARRIVE	22610
3	ARRIVING	10658
4	ARRIVES	10101
	TOTAL	**99827**
1	GO	1261366
2	GOING	1218392
3	WENT	376951
4	GON	354396
5	GONE	181192
6	GOES	169847
7	GOIN	10678
8	GOS	84
	TOTAL	**3572906**
1	PASS	100659
2	PASSED	94880
3	PASSES	26441
4	PASSING	21981
5	PASS-ON	1
	TOTAL	**243962**

Appendix C. Top-ranked Arabic COME and GO verbs based on the search in *A Frequency Dictionary of Arabic*.

	Results in Arabic script*	**Transliteration**	**Other translations**	**Decision: included/ excluded**	**Justification of elimination**
Search term	to come				
1	جاء	*jaa'a*		included	
2	اتى	*ataa*		included	
3	بلغ	*balagha*	to reach	excluded	meaning *Balagha* (to reach) could be selected for this study as a motion verb. However, it was eliminated because there is evidence to suspect its limited suitability of accessing a range of EMTs. First of all, balagha is most used for ME as it shows an intuitive preference of an animate subject. It is similar to the verb to reach or attain in English which is restricted to certain temporal entities or states. The ME form *balaghna* (reach.IMPF.1PL.) is frequently used with RamaDaan—also frequently phrased as the month—in a ME metaphor in expressions like to We have reached RamaDaan. The popular belief here is that RamaDaan is a month of blessings and that the people who get to experience it are selected by God. As a result, the verb here is used not just used to indicate motion toward a time, but in its meaning, there is also an implicit indication of achievement. Alternatively, it can be used with states (to reach a state or a phase), but again the meaning here is related to achievement.
4	حضر	*HaDara*	to attend	excluded	meaning

5	آنَ	aana		excluded	indicates the coming of time only not metaphorical
6	آلَ	aala	to come to something	excluded	meaning *Aala* indicates arrival at a consequence. Its meaning is rather logical than temporal. It is the equivalent to to result in rather than to come.
7	تلا	talaa	to come after	excluded	not deictic instantiates SEQUENCE IS RELATIVE POSITION ON A PATH, not for EMTS
Search term	to approach				
1	قارَبَ	qaaraba		included	
2	قَرُبَ	qaruba		excluded	basic search returns too many forms. The tri-consonantal verb root is also mixed with a preposition that means "near". The advanced search that includes vowels returns only 10 lines.
3	تقارَبَ	tqaaraba		excluded	It does not indicate motion of a Figure towards a Ground. Rather, it indicates two objects moving toward each other. For an EMT, Ego needs to be either in Figure or Ground position, but this verb indicates bi-directional motion which cannot be described using the schematic motion event.
4	أقبل	aqbala		included	
Search term	to arrive				
1	وصَلَ	*waSala*	to arrive at	excluded	meaning *WaSala* is not used for temporal motion. It can indicate physical motion or attainment.
2	قَدِمَ	*qadima*		included	
3	وَرَدَ	*warada*	to show up, to appear	excluded	meaning
4	آلَ	*aala*	to become, to come into	excluded	meaning

5	حانَ	*Haana*	to arrive, approach (time)	excluded	ME/MT indicates the coming of time However, judging from the returned word forms from the corpus, the verb is not used for ME metaphors
6	حَلَّ	*Halla*		included	
7	آنَ	*aana*		repeated	
Search term	to go				
1	سار	*saara*	to go, walk	excluded	not deictic
2	ذهَبَ	*ḏahaba*		included	
3	مضَى	*maDaa*	to go by, elapse (typical of time, but also used to indicate other types of motion)	included	
4	مرَّ	*marra*		included	
Search term	to pass				
1	مرَّ	*marra*		repeated	
2	فاتَ	*faata*	to elude sb; to stop by	excluded	Includes motion away from or motion past a location. However, also judging from the returned word forms from the corpus, it is mostly used with time, so it is expected not to be used in ME scenarios.
3	مضَى	*maDaa*		repeated	
4	جاوَز	*jaawaza*	to exceed	eliminated	unusual for temporal motion

the search excludes results from dialects*

Appendix D. Arabic-English translations of the COME and GO verbs under study.

Arabic verbs	N index	Relevant[60] English translations (Source Al Maany Dictionary, https://www.almaany.com)
COME verbs		
جاء ***jaa'a***	109	- get to; show up; arrive; come; reach - report for duty - present oneself; be present; be there; go to; attend; visit
اتى ***ataa***	343 آت 2245	- carry out; accomplish; do; execute; fulfill; make; perform; fulfil - show up; attent to; come - advance to; go to; proceed to - bestow upon; confer upon; donate to; furnish with; give to; grant to; provide with; supply with - Report for duty - be present; be there; get to; appear; attend; reach; visit - set in; begin; dawn; start - take place; happen; occur
اقترب ***iqtaraba***	1383	- Come near to - draw near; be near to; be imminent; approach; approximate; come; impend - Be at the point of - Be on the brink of - Be on the verge of - be close to; be near to
قارب ***qaaraba***	2849	- Come near to - Draw near to - To move closer in time - Be at the point of - Be on the brink of - Be on the verge of - Be almost the same as something - Incline downwards or in a specific direction or approach closely or was on the verge of - be near; border on; approach; approximate; come
قدم ***qadima***	3121 قادم 500 قُدوم 4429	- directed onwards; ahead; onward - proffered; extended; offered; presented - Come or go before something in time - precede - Be old and ancient - be age-old; be ancient; be antique; be timeworn; be old-fashioned; be out-of-date; age; superannuate
أقبل **'aqbala**	3263	draw near; approach - advance to; proceed to

60 Al Maany Dictionary provides different entries of meanings and of categories (noun and verb). I selected the meanings necessary to understand the motion scenario profiled by each verb. For more, see Al Maany Dictionary at https://www.almaany.com

	مُقبل 598	- be present; be there; go to; show up; attend; come
حلّ **Halla**	3384	- Act of replying or what is replied - The noun gerund of verb to reply - Restoration of a thing to it's proper owner or original state - response; admission; answer; acceptance; answering; compliance; consent; fulfilling; fulfillment; receptiveness; permission - breaking up; disbandment - off; relaxation; easing; slackening; unloosing; unstringing Entry from the Frequency Dictionary of Arabic (Buckwalter & Parkinson, 2011) to befall, strike على/ب sb (misfortune); to arrive, start (month, season)
GO verbs		
ذهب **dahaba**	489 ذهاب 1594	- move away; turn away; take off - be bound for; be headed for; make for; repair to; take to - Be in vain - Come to nothing - Miss the mark - Be of no avail - go wrong; be abortive; be futile; be unavailing; be unfruitful; be unsuccessful; fizzle out; fail; miscarry - Go far way - Make one's way - Tour or wander or leave or trip. - Come as a permanent resident to a country other than one's native land - go away; give up; let go; depart; go; leave; abandon; forsake; acquit; advance - move on to; head for; proceed to; travel to - betake oneself to; go to; head for; repair to; take to
مرَّ **marra**	510 to pass by Murur 528	- Come to an end - be wound up; be completed; be concluded; be done; be finalized; be finished; be terminated; lapse; terminate
مضى **maDaa**	908 مُضِيُّ 3231	- be elapsed - Come to an end - Be over and in the past - Bring or come to an end. - pass away; be wound up; be completed; be concluded; be done; be finalized; be finished; be over; be past; be terminated; run out; be bygone; fall in; elapse; expire; lapse; pass; terminate; pass; q; glide - end - Make one's way - Go away suddenly and often secretly - Tour or wander or leave or trip. - Come as a permanent resident to a country other than one's native land - go away; depart; go; leave; decamp; abandon; advance - perform; accomplish - carry out; wind up; accomplish; conclude; execute; perform - Go on doing - proceed in

Appendix E. Distribution of annotation variables.

			Type of Metaphor		Type of Temporal Entity (TE)				Type of Experiencer (EXP)		
		Verb expression	Moving Ego	Moving Time	Calendric Reference	Anchored Event	Non-Anchored Event	Deictic Exp.	Shifted Exp.	Collective Exp.	Virtual Exp.
Arabic verbs	1	*yamDee* (pass.IMPF.3SG.M)	3	47	31	2	11	6	14	25	5
	2	*marra* (pass.PERF.3SG.M)	0	50	27	6	12	14	20	16	0
	3	*maDaa* (pass.PERF.3SG.M)	0	50	34	1	12	9	8	32	1
	4	*yajee'* (come.IMPF.3SG.M)	0	50	7	18	22	3	8	35	4
	5	*ataa* (come.PERF.3SG.M)	1	49	14	22	7	4	10	32	4
	6	*aqbala* (approach.PERF.3SG.M)	0	50	30	1	8	6	14	22	8
	7	*jaa'a* (come.PERF.3SG.M)	0	50	4	45	1	0	1	49	0
	8	*qaaraba* (approach.PERF.3SG.M)	38	12	32	10	3	0	39	6	5
	9	*Halla* (arrive.PERF.3SG.M)	0	50	39	1	8	6	5	38	1
	10	*yaHillu* (arrive.IMPF.3SG.M)	0	50	21	2	21	4	23	19	4
	11	*iqtaraba* (approach.PERF.3SG.M)	7	43	33	9	7	1	24	22	3
	12	*yaqtaribu* (approach.IMPF.3SG.M)	27	23	35	12	4	2	27	19	2
	13	*saya'tee* (FUT=come.IMPF.3SG.M)	0	50	1	1	48	5	18	27	0
	14	*ya'tee* (come.IMPF.3SG.M)	0	50	6	40	4	2	3	45	0
	15	*yamurru* (pass.IMPF.3SG.M)	33	17	7	0	42	3	36	7	4
	16	*sayamurru* (FUT=pass.IMPF.3SG.M)	5	45	13	13	20	2	21	25	2
	17	*ḏahaba* (go.PERF.3SG.M)	0	50	36	1	7	3	18	20	9
	18	*namurru bi* (pass.IMPF.3SG.M=PREP)	50	0	3	1	46	0	0	48	2
	19	*mararna bi* (pass. PERF.1PL=PREP)	50	0	1	2	47	3	0	46	1

	20	*naqtaribu* (approach.IMPF.1PL)	50	0	12	3	35	0	0	50	0
English verbs	1	*is coming*	0	50	6	9	33	5	9	35	1
	2	*arrives*	0	50	13	15	21	5	16	27	2
	3	*will come*	0	50	2	4	45	9	10	29	2
	4	*has passed*	2	48	21	4	25	6	9	33	2
	5	*came*	1	49	8	27	15	13	8	29	0
	6	*comes*	0	50	11	7	28	7	22	10	11
	7	*has arrived*	1	49	18	16	16	8	12	28	2
	8	*approached*	10	40	36	12	2	19	16	15	0
	9	*approaches*	4	46	30	12	6	6	16	28	0
	10	*is passing*	9	41	9	4	32	8	23	15	4
	11	*goes by*	0	50	37	2	10	17	12	12	9
	12	*has gone by*	5	45	21	10	19	12	19	19	0
	13	*will pass*	0	50	12	2	33	13	16	20	1
	14	*is approaching*	15	35	26	8	16	4	20	22	4
	15	*has come*	0	50	4	0	43	12	13	24	1
	16	*went by*	0	50	48	0	2	20	29	1	0
	17	*passed*	3	47	42	0	6	25	5	19	1
	18	*arrived*	2	48	24	14	12	13	12	24	1
	19	*we are approaching*	50	0	16	2	32	2	0	48	0
	20	*we went through*	50	0	1	0	45	13	0	35	2
	21	*we are coming*	50	0	26	3	21	7	0	43	0
	22	*we are going through*	50	0	1	0	45	13	0	35	2
	23	*we go through*	50	0	11	4	33	12	0	19	19
	24	*we approach*	50	0	44	2	3	4	0	46	0

Appendix F. Tags in R.

Coding selection: Verb form tags

#	Verb expression	Verb_Form tag in R
Arabic verb expressions		
1	*yamDee* (go.IMPF.3SG.M)	"yamdi"
2	*marra* (pass.PERF.3SG.M)	"marr"
3	*maDaa* (go.PERF.3SG.M)	"mad"
4	*yajee'* (come.IMPF.3SG.M)	"yajiu"
5	*ataa'* (come.PERF.3SG.M)	"ata"
6	*aqbala* (approach.PERF.3SG.M)	"aqbal"
7	*jaa'a* (come.PERF.3SG.M)	"ja"
8	*qaaraba* (approach.PERF.3SG.M)	"qaarab"
9	*Halla* (arrive.PERF.3SG.M)	"Hall"
10	*yaHill* (come.IMPF.3SG.M)	"yaHillu"
11	*iqtaraba* (approach.PERF.3SG.M)	"iqtarab"
12	*yaq'tarib* (approach.IMPF.3SG.M)	"294aqtaribu294"
13	*saya'tee* (FUT=come.IMPF.3SG.M)	"sayati"
14	*ya'tee* (come. IMPF.3SG.M)	"yati"
15	*yamurr* (pass.IMPF.3SG.M)	"yamurru"
16	*sayamurru* (FUT=pass.IMPF.3SG.M)	"sayamurru"
17	*dahaba* (go.PERF.3SG.M)	"dahab"
18	*namurru bi* (pass.IMPF.1PL.=PREP)	"namurru_bi"
19	*mararna bi* (pass.PERF.1PL.= PREP)	"mararna_bi"
20	*naqtaribu* (approach.IMPF.1PL)	"naqtaribu"
English verb expressions		
1	*is coming*	"is coming"
2	*arrives*	"arrives"
3	*will come*	"will come"
4	*has passed*	"has passed"
5	*came*	"came"
6	*comes*	"comes"
7	*has arrived*	"has arrived"
8	*approached*	"approached"
9	*approaches*	"approaches"
10	*is passing*	"is passing"
11	*goes by*	"goes by"
12	*has gone*	"has gone"

13	*will pass*	“will pass”
14	*is approaching*	“is approaching”
15	*has come*	“has come”
16	*went by*	“went by”
17	*passed*	“passed”
18	*arrived*	“arrived”
19	*we are approaching*	“we are approaching”
20	*we went through*	“we went through”
21	*we are coming*	“we are coming”
22	*we are going through*	“we are going through”
23	*we go through*	“we go through”
24	*we approach*	“we approach”

Coding selection: Form_or_Tense

	Verb	**Tense-or-form**
Arabic verb expressions		
1	*yamDee* (go.IMPF.3SG.M)	imperfective
2	*marra* (pass.PERF.3SG.M)	perfective
3	*maDaa* (go.PERF.3SG.M)	perfective
4	*yajee’* (come.IMPF.3SG.M)	imperfective
5	*ataa’* (come.PERF.3SG.M)	perfective
6	*aqbala* (approach.PERF.3SG.M)	perfective
7	*jaa’a* (come.PERF.3SG.M)	perfective
8	*qaaraba* (approach.PERF.3SG.M)	perfective
9	*Halla* (arrive.PERF.3SG.M)	perfective
10	*yaHill* (come.IMPF.3SG.M)	imperfective
11	*iqtaraba* (approach.PERF.3SG.M)	perfective
12	*yaq’tarib* (approach.IMPF.3SG.M)	imperfective
13	*saya’tee* (FUT=come.IMPF.3SG.M)	sa_imperfective
14	*ya’tee* (come. IMPF.3SG.M)	imperfective
15	*yamurr* (pass.IMPF.3SG.M)	imperfective
16	*sayamurru* (FUT=pass.IMPF.3SG.M)	sa_imperfective
17	*dahaba* (go.PERF.3SG.M)	perfective
18	*namurru bi* (pass.IMPF.1PL.=PREP)	imperfective
19	*mararna bi* (pass.PERF.1PL.= PREP)	perfective
20	*naqtaribu* (approach.IMPF.1PL)	imperfective
English verb expressions		
1	*is coming*	present progressive

2	*arrives*	simple present
3	*will come*	future
4	*has passed*	present perfect
5	*came*	past
6	*comes*	simple present
7	*has arrived*	present perfect
8	*approached*	past
9	*approaches*	simple present
10	*is passing*	present progressive
11	*goes by*	simple present
12	*has gone*	present perfect
13	*will pass*	future
14	*is approaching*	present progressive
15	*has come*	present perfect
16	*went by*	past
17	*passed*	past
18	*arrived*	past
19	*we are approaching*	present progressive
20	*we went through*	past
21	*we are coming*	present progressive
22	*we are going through*	present progressive
23	*we go through*	simple present
24	*we approach*	simple present

TURUN
YLIOPISTO
UNIVERSITY
OF TURKU

Painosalama, Turku, Finland 2024

ISBN 978-951-29-9768-8 (PRINT)
ISBN 978-951-29-9769-5 (PDF)
ISSN 0082-6987 (Print)
ISSN 2343-3191 (Online)