

'In the moment'

A cross-linguistic exploration of the lexical concept [MOMENT]

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Department of Linguistics
Master's Thesis 30 ECTS credits
Typology & Linguistic Diversity – Master's Thesis
Spring Term 2023
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Abstract

Lexical typological studies examine how various languages express similar concepts. Previous research has discussed how the concept of moment is encoded lexically in English, Ancient Greek, and Ancient Egyptian. However, there are no cross-linguistic studies to date that collect data on the lexical expressions associated with the concept of moment. Apart from documenting expressions encoding the concept in various languages, I determine the morphosyntactic status of the collected expressions, analyze the contexts in which they are used, and identify the conceptual sources that the expressions are related to. The data is collected from a convenience sample of 37 mostly unrelated languages using a multiparallel Bible corpus, lexicons, reference grammars, and etymological dictionaries. An expression was found in 27 of the 37 languages. About 74% of the expressions (20 of 27) were used to create temporal adjuncts via affixation of locative case markers and collocation with adpositions. About 41% of the expressions (11 of 27) displayed conceptual sources pertaining to the cognitive domain TIME, while about 30% (8 of 27) were related to VISION. The study contributes to our knowledge of how abstract temporal concepts are expressed lexically.

Keywords

moment, lexical typology, lexical concept, cognitive model, semantic shift, now

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Sammanfattning

Studier inom lexikal typologi utforskar hur olika språk uttrycker liknande koncept. Tidigare forskning inom området har behandlat hur ett ögonblick som koncept uttrycks på engelska, forngrekiska, och fornegyptiska. Däremot finns hittills inga typologiska studier som samlar data kring lexikala uttryck för konceptet ögonblick. Syftet med denna studie är att dokumentera hur ett ögonblick uttrycks lexikalt i olika språk. Utöver det syftar jag till att fastställa de olika uttryckens morfosyntaktiska status, analysera vad för slags kontext de förekommer i, och identifiera de olika konceptuella källorna som kan ge upphov till uttrycken i fråga. Data samlades in utifrån ett bekvämlighetsurval av 37 mestadels obesläktade språk genom att använda en korpus med bibelöversättningar, lexikon, referensgrammatiker, och etymologiska ordböcker. Ett uttryck för konceptet ögonblick hittades i 27 av 37 språk. Circa 74% av uttrycken (20 av 27) användes inom adverbfraser, då de antingen förekom med lokativa affix eller med adpositioner. Circa 41% av uttrycken (11 av 27) hade konceptuella källor som kunde associeras med TID, medan cirka 30% (8 av 27) hade med SYN att göra. Denna studie bidrar till kunskapen om hur abstrakta temporala koncept uttrycks lexikalt.

Nyckelord

ögonblick, lexikal typologi, lexikalt koncept, kognitiv modell, bytedelseförändring, nu

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Abbreviations and presentation conventions

1	1st person
2	2nd person
3	3rd person
ABST	Abstract noun
ACC	Accusative case
ACT	Actual
AOR	Aorist (past perfective)
AUX	Auxiliary verb
COP	Copula
CVB	Converb
DAT	Dative case
DEF	Definite article
DEM	Demonstrative
DET	Determiner
DIR	Directional
DIST	Distal
EMPH	Emphatic
F	Feminine gender
GEN	Genitive
HAB	Habitual
IM	Immediate
IMP	Imperative
INDEF	Indefinite article
INTER	Interrogative
LOC	Locative case
NOM	Nominative case
NMZ	Nominalizer
PL	Plural
POSS	Possessive
PP	Present progressive
PREP	Preposition
PRF	Perfect
PROX	Proximal
PRS	Present tense
PST	Past tense
SG	Singular
SUBST	Substitutive pronoun
SV	Subjective version
TS	Thematic suffix

Other presentation conventions

CONCEPT – concepts, cognitive domains/models, and facets thereof are written in small capitals

[LEXICAL CONCEPT] – lexical concepts are written in small capitals and presented within brackets

[ISO 639-3] – ISO 639-3 codes are presented in brackets following the name of a language

[Book name chapter #: verse #] – Bible book, chapter, and verse are presented in brackets

1 Introduction

This thesis is concerned with investigating the way in which languages across the world refer to brief periods of time, or moments. This topic touches on various aspects of linguistic research that could potentially be important contributions to the field. First, the investigation is focused on documenting cross-linguistic similarities and differences regarding words and concepts, contributing to the search for universals across languages. More specifically, this thesis is interested in whether the concept of moment exists in all languages. In any case, the information gathered regarding the way that a moment may be encoded across languages contributes to our understanding of what the concept of moment is. The study thus contributes to our knowledge of how temporality is expressed lexically.

Second, the current study incorporates aspects of cognitive linguistics, an approach to linguistic research which maintains that language reflects the general cognitive abilities of humans. According to Ahrens, & Huang (2002, p. 491, citing Lakoff & Johnson, 1980), “the main point of the cognitive linguistic paradigm is that we use our bodily based, concrete experiences to interpret and encode non-bodily based, abstract phenomena”. The current investigation contributes to this idea, as it is concerned with how we use conceptual metaphors to encode a specific facet of the abstract, non-bodily based phenomenon of time in relation to our concrete experiences. Similarly, the current topic also contributes to the way in which meaning emerges through language use, as the cognitive linguistics approach deems the best way of studying language is by studying how it is used.

Moreover, the topic is personally attractive to the author for two reasons. First, I am interested in the human experience of temporality in general and the way that this experience is encoded in language, such as the type of concepts we use to encode experience (of time). Second, I am interested in semantic extensions in general. Following the semantic evolution of words and concepts in specific languages and finding patterns thereof cross-linguistically reveals both culture-specific phenomena as well as patterns related to human cognition.

The current study aims at shedding light on the lexical semantics pertaining to the lexical concept [MOMENT] from a cross-linguistic perspective. Further, I investigate the conceptual sources of the expressions that I find and integrate them into a semantic map.

More specifically, the current study seeks answers to the following questions:

- 1) Do we find an encoding for [MOMENT] as will be defined in 2.3.1 in the investigated languages? What is the morpho-syntactic status of the collected expressions?
- 2) Do these expressions tend to occur in similar contexts across languages?
- 3) Do these expressions exhibit similar conceptual sources?

2 Background

The background section is divided into six subsections. First, in 2.1, I give an overview of onomasiology and semasiology within the domain of lexical typology and explain how they are relevant to the current study. Next, in 2.2, I introduce the study of deixis within linguistics and relate its relevancy to the current study. In subsection 2.3 I define what a lexical concept is and apply this to [MOMENT] as a lexical concept. Subsection 2.4 gives an overview of semantic maps as used in typological research, and then as used within lexical typology specifically dealing with the diachronic colexifications of time-related terms. In 2.5 I outline my aims and research questions.

2.1 Lexical typology

Koptjevskaja-Tamm & Veselinova (2020, p. 1) define lexical typology as “the systematic study of cross-linguistic variation in words and vocabularies”. Understanding how semantic information is embedded in words is the essential aspect of studying lexical typology. Onomasiology and semasiology are two different approaches to the study of meaning, and they are particularly relevant to the current study.

2.1.1 Onomasiology and semasiology

Onomasiology is an approach to lexical semantic research which entails starting out with a meaning or concept and investigating the cross-linguistic variation in terms of the lexical expressions used to convey the given concept. A researcher thereby aims to seek out patterns regarding how languages across the world express similar semantic domains. For instance, Wierzbicka (2009) investigates whether the concepts EAT and DRINK are universal by exploring what lexemes are used to express these actions across languages. The article thus accounts for similar patterns in terms of lexical structures used to express the concepts, but it also shows discrepancies in the expression of the concepts that clearly are culturally conditioned. Ultimately, Wierzbicka (2009, p. 88) finds that not all languages have separate lexemes that reflect the semantic domains of DRINK and EAT, thereby concluding that these concepts, unlike concepts such as PEOPLE and BODY, are not universal.

Semasiology, on the other hand, involves starting with a certain lexeme and examining its potential polysemy in a given language synchronically. The semantic concept(s) it has evolved from may also be investigated. How a lexeme evolves over time to encode different concepts is called semantic evolution or semantic shift. Regarding polysemy, there is some debate as to how it should be defined. I refer to Koptjevskaja-Tamm et al. (2015, p. 436), who claims that “as a rule of thumb, polysemy is acknowledged whenever a word may be used to denote entities, properties or situations that are assumed to belong to very different cognitive domains”. Cognitive domains are, according to Montserrat (2017, p. 73), “cognitive entities that operate as a frame to sets of interrelated concepts”. For example, the word *tongue* is polysemous in that it can either refer to a body part (*a long tongue*), or to language (*mother tongue*, *native tongue*). Body parts can be described as a cognitive domain that encapsulate sets of related concepts, such as ARM, HAND, HEAD, etc., of which language would not be a part. On the topic of the domain of body parts, Kraska-Szlenk (2014) identifies various unpredictable (language-specific and idiosyncratic) semantic extensions of body part terms used in idiomatic expressions within certain languages. Semantic extensions are when a

lexeme is used to refer to a concept that extends beyond the concept originally referred to by the lexeme. In (1) I provide a few examples of idiomatic expressions involving unpredictable semantic extensions of body part lexemes, adapted from Kraska-Szlenk (2014, p. 33):

- (1) a. English [eng]: *Let's play it by ear* 'to not act according to a set plan'
- b. Polish [pol]: *Wyssać z palca* 'tell a made-up story' (literally 'suck out of the finger')
- c. Swahili [swh]: *kichwamaji* 'silly person' (literally 'water(ly) head')

The examples in (1) illustrate that the way in which lexemes belonging even to universal cognitive domains evolve in vastly different and unpredictable ways.

Onomasiology and semasiology are not necessarily mutually exclusive procedures when conducting a lexico-typological investigation. Within the domain of temporality, Georgakopoulos & Polis (2021) explore time expressions in Ancient Greek [grc] and Ancient Egyptian [egy]. Firstly, they employ an onomasiological approach, collecting data on the lexical units that express the concepts they are interested in exploring. These concepts range from SUN, HEAVEN, SKY, WEATHER, SEASON, as well as MOMENT, which is encoded by the lexeme *nw* in Ancient Egyptian. MOMENT can be described as a hyponym (a concept of more specific meaning than the superordinate concept it is a part of) of TIME, which Georgakopoulos & Polis (2021, p. 406) define as “‘a continuum of experience’”. Employing a semasiological approach, they explore the diachronic semantic shift of *nw*. They find that *nw* refers to MOMENT in the earliest records of Ancient Egyptian, but later evolves towards the general expression of TIME from Late Egyptian onwards (Georgakopoulos & Polis, 2021, p. 390).

Chantrain (2020) also explores time expressions in Ancient Egyptian [egy]. She employs a semasiological approach in that she initially gathers the attestations of each time-related lexeme she is interested in from various sources of Ancient Egyptian [egy] literature. She also gathers data on the distributions of the lexemes in diachrony and executes a semantic analysis of each lexeme. Chantrain (2020) pinpoints the exact semantic attributes of MOMENT as a concept, how it is encoded in Ancient Egyptian [egy], and explores the diachronic evolution of the lexeme. However, none of the studies mentioned provide a cross-linguistic investigation into the lexical encoding of MOMENT, including the conceptual evolution of the lexemes.

In sum, lexical typologists may investigate the ways in which a certain concept is encoded within one or several languages (onomasiology), and/or investigate the synchronic polysemy or diachronic semantic evolution of a certain lexeme (semasiology). The current study combines aspects of both approaches. On one hand, within the realm of onomasiology, it is concerned with exploring how, if at all, the concept of moment is expressed cross-linguistically. On the other hand, the study aims to explore potential patterns regarding the diachronic sources of lexemes expressing moments across languages. But before delving deeper into what a moment entails as a concept, I would like to give a brief overview of some relevant aspects of deixis in relation to the current study.

2.2 Deixis

Deixis is the use of language to identify points of reference in discourse. Evans (2004, p. 13) gives examples of previous research that has shown that linguistic expressions relating to time “utilize linguistic structure pertaining to motion events and locations in three-dimensional space”. Evans (2004, p. 13) goes on to state that it has “been observed that it is virtually impossible to talk about time without invoking motion and spatial content to do so”, referring to Lakoff & Johnson (1999). Moreover, the metaphor TIME IS SPACE is claimed to be universal by Yu (1998). Due to the close interrelation of time and space in human cognition and linguistics, I will now provide a brief overview of the notion of deixis as it relates to semantics.

The word deixis “has its roots in the Ancient Greek [grc] word *dyknenai*, meaning ‘to show’ (Stapleton, 2017, p. 2). Deixis is an important field within semantics, as it “refers to the phenomenon wherein understanding the meaning of certain words and phrases in an utterance requires contextual information” (Levinson, 1983, p. 54). Sentences such as (2) are only meaningful to an interlocutor if there is contextual information available regarding who is speaking, the time of the utterance, and the place:

(2) She arrived there late.

There are thus three main types of contextual information, (deictic categories), that can be delivered through language: person, time, and space.

“Person deixis localises an entity in relation to the position of the speaker and/or hearer” (Stapleton, 2017, p. 4, citing Green, 2008). Person deixis is most clearly illustrated via example sentences including pronouns such as (3), in which the active participant is the subject *I*, whereas *her* constitutes a deictic third person who is not an active participant in the speech act.

(3) I saw her.

Temporal deixis “refers to an event of an utterance, which takes place any time relative to the speaking time” (Stapleton, 2017, p. 6). The speaking time referred to, as well as the location of the speaker, constitutes the deictic center of the utterance. Temporal deixis is in many languages represented by tense, such as in (4):

(4) a. She walks. (present tense)

b. She walked. (past tense)

c. She will walk. (future tense)

“Spatial deixis localises both the speech participants and the narrated participants in space” (Stapleton, 2017, p. 5). Demonstrative pronouns such as *this* and *that* are frequently used in English to express spatial deixis, along with prepositions such as *in* and *on*, as well as adverbs such as *here* and *there*. Stapleton (2017, p. 5) points out the difference between “gestural” and “symbolic deictic pointing”, stating that “the gestural use requires monitoring the speech event in order to identify the referent”, while the symbolic use “requires activating knowledge

about the communicative situation and the referent”. In other words, (5a) illustrates the gestural use as it can be accompanied by a pointing gesture, while (5b) is an example of the symbolic use, as it is not accompanied by a pointing gesture, and rather points to a larger situational context (Stapleton, 2017, p. 5).

(5) a. I see better with this eye.

b. This city stinks.

Also within the realm of spatial deixis are certain verbs known as deictic verbs, or deictic motion verbs. They refer to, as the name suggests, the path of an entity in relation to a deictic center. As will be described in 2.3.1, the use of the English lexeme *time* in discourse references the concept of moment when used with certain deictic verbs (see example 9). Lastly, proximity is another aspect of deixis that is particularly relevant to the current study. “Deictic expressions help us realise what is close to the speaker and what is not” (Stapleton, 2017, p. 4). Proximal deictic expressions such as *this*, *here*, and *now*, reference proximity to the speaker, while distal deictic expressions such as *that*, *there*, and *then*, do the opposite. The collocation of demonstratives with a word referencing the concept of moment is, in my view, prototypical in English, Swedish, and Arabic. I expect this to be the case cross-linguistically.

2.3 Composition and lexical concepts

This section details composition as a theory of meaning-construction and the role that lexical concepts play in this theory. Evans (2006) builds on previous research within cognitive linguistics such as Langacker (1987), who makes the point that the meaning of words is relative and interpreted based on vast structures of knowledge. For instance, Evans (2006, p. 502) states that “meaning (a conception) is a function of language use, and thus a property of an utterance”. In other words, lexemes on their own are not necessarily units of meaning. Rather, they are related to a number of potential lexical concepts. Lexical concepts make up the semantic units conventionally associated with a specific linguistic form in a given language. This means that lexical concepts are either linked to certain overt forms (forms which have resolved phonetic forms, like *time*), or certain implicit forms (forms without a resolved phonetic form) such as the ditransitive construction (subject, verb, object 1, object 2). The latter could for instance be associated with the lexical concept [GIVE]. Forms, conversely, (again, e.g. the lexeme *time*, or the ditransitive construction) are not lexical concept-specific (Evans, 2006, p. 503). Rather, they are often associated with multiple lexical concepts. Lexical concepts are thereby necessarily language-specific, as they are associated with the unique forms that exist in a given language. Each language thus has its own inventory of language-specific lexical concepts that constitute “the semantic pole in a form-meaning pair” (Evans, 2006, p. 502). Moreover, lexical concepts are in turn connected to potentially vast networks of conceptual knowledge which Evans (2006, p. 514) calls “cognitive model profiles”: inventories of knowledge related to a specific lexical concept. These are some of the most relevant points in Evans’ (2006, p. 500) Theory of Lexical Concepts and Cognitive Models, in which he proposes that “meaning arises by virtue of language users forming interpretations based on the lexical concepts employed...[which] are always guided by background knowledge and extralinguistic context”.

The way in which lexical concepts access cognitive models is key when it comes to describing meaning-construction. Evans (2006, p. 515) uses the word “composition” to

describe this process. Something to note initially regarding composition is that Evans (2006, p. 523) makes a distinction between lexical concepts that are “relational (as encoded by, for instance, verbs, adjectives and adverbs)”, and those that are “non-relational (as encoded by noun forms)”. The key difference between the two is that non-relational lexical concepts determine *what* conceptual knowledge (cognitive model) is activated, while relational lexical concepts affect *how* a cognitive model is activated. The semantic value of relational lexical concepts “includes information relating to the sorts of lexical concepts to which the relational lexical concept can relate, i.e. ‘argument structure’ or ‘valence’” (Evans, 2006, p. 510). For example, [GIVE], as mentioned previously, encodes relational information relating to a subject, a verb, a direct object, and an indirect object. Another relational concept is [CONTACT], encoded by the preposition *on* in English, which “encodes relational information relating to a figure and reference object (‘ground’)” (Evans, 2006, p. 510).

Because the current paper deals with the non-relational lexical concept [MOMENT], I will now expand upon the way that non-relation lexical concepts activate cognitive models.

For instance, the lexical concept [FRANCE] is related to the cognitive models “GEOGRAPHICAL LANDMASS, NATION STATE, and HOLIDAY DESTINATION” (Evans, 2006, p. 514). The cognitive models are activated independently depending on the situated use of the form *France*, as evidence in (6):

- (6) a. France is larger than Belgium.
- b. France’s immigration policy has changed.
- c. We were in France for a week.

In (6a), *France* is interpreted as a geographical landmass since its physical size is being referenced in comparison to another geographical landmass. In (6b), *France* is interpreted as a nation state, as our background knowledge informs us that nation states control changes in immigration policy. In (6c), our knowledge of France as a place that people go to during holidays leads us to yet another interpretation of *France*, this time as a holiday destination.

Let us now turn to another lexical concept, [BOOK], as referenced by the (7), adapted from Evans (2006, p. 521):

- (7) a. That’s a long book.
- b. That’s a boring book.
- c. That’s a heavy book.

In all three sentences in (7), [BOOK] is accessed by the form *book*. However, the different utterance contexts establish different access routes to three distinct cognitive models pertaining to the lexical concept. In (7a), the form *long* establishes an access route to the cognitive model READING, which references the activity of reading. READING, however, is in turn related to different facets, or distinct attributes of a cognitive model. In the case of (7a), READING is related to the facet DURATION. This facet relates to the specific amount of time that involved when reading a book. Describing the book as *boring*, (7b) relates to another facet of READING, namely the LEVEL OF INTEREST facet (how enjoyable is the activity of reading in

relation to a specific book?). In (7c) the cognitive model BOOK is accessed. Here, describing the book as *heavy* creates an access route to the “physical structure” (TOME facet) of BOOK (Evans, 2006, p. 520). Figure 1 below illustrates the relationship between [BOOK] and its related cognitive models:

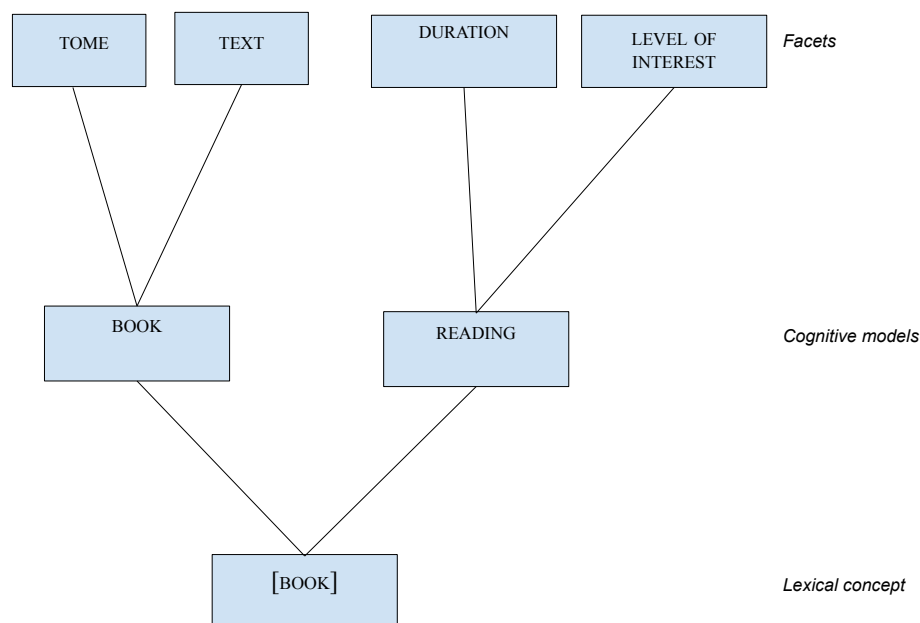


Figure 1 Activation processes within a cognitive model profile (adapted from Evans, 2006, p. 520)

Thus, composition is a complex cognitive process involving networks of conceptual knowledge. Composition consists of accessing cognitive models via the situated use of forms related to specific lexical concepts. Importantly, meaning construction is a function of the utterance, rather than of individual lexemes.

2.3.1 [MOMENT] as a lexical concept

Evans (2004) explores the English lexeme *time*, examining how it references various lexical concepts. In (8), *time* “prompts for a conceptualization of a discrete or punctual point or moment without reference to its duration” (Evans, 2004, p. 123):

- (8) a. She could die at any time.
 b. By the time she turned eighteen...
 c. Call me at an appropriate time.

In (8), *time* references [MOMENT] while acting as the complement in a prepositional phrase. Here, [MOMENT] is conceived of a discrete point in time without any durational reference.

Further, Evans (2013, p. 181) claims that “a lexical concept will exhibit selectional tendencies...which concerns the semantic arguments that make up its argument-structure”. When referencing the non-relational lexical concept [MOMENT], *time* appears to select for verbal complements that relate to deictic and, often times, terminal motion (i.e. verbs such as

arrive, come, approach, et cetera). The sentence in (9) is, according to Evans (2004, p. 124), “both illustrative and typical”:

(9) The time has come.

Here, instead of being contained within a prepositional phrase, *time* itself is the subject, referencing [MOMENT] through its argument selection, namely a terminal motion verb. This selectional tendency of [MOMENT] is also observed in Ancient Greek [grc] *hōra* ‘time’ and Ancient Egyptian [egy] *nw* ‘time/moment’ (Georgakopoulos & Polis, 2021, p. 389, 390).

One may wonder why the concept [MOMENT] is elaborated in terms of motion events. According to Evans (2004, p. 124), “for something to occur, it is often the case that motion is involved”. Further, [MOMENT] is both “temporally discontinuous” and “discrete, in the sense that it is punctual”, and it is by virtue of its punctuality that a moment can be said to occur (Evans, 2004, p. 124). Events involving deictic motion, such as when an object moves rapidly towards us, often results in a new experience. This correlation between experienced events and motion could be the reason why *time* selects for deictic motion verbs. A further reason to assume this correlation is evidenced in (10):

(10) ?? The time for a decision flies.

Here, the intended reading is [MOMENT], but the use of the non-terminal motion verb *flies* renders the sentence semantically anomalous. This is because moments are punctual and happen within a short interval of time, and must therefore be conceptualized as moving or approaching with respect to a deictic center, which is not the case in (10).

Georgakopoulos & Polis (2021, p. 390) associate [MOMENT] with “a (short) discrete interval of time”. Similarly, Chantrain (2020, p. 31) labels [MOMENT] as a *semanteme* (a distinct unit of meaning), with the following four semantic properties (written between forward slashes): “/portion of time /.../unbounded/.../intra-daily scale /.../brevity/”. In other words, [MOMENT] refers to a brief portion of time that is contained within a day (24 hours) and is not intrinsically bounded. Bounded in this case means that the *semanteme* is not associated with a specific amount, as compared to the bounded time expressions *hour* and *day*, for instance.

A definition of [MOMENT] as based on the literature described above is given in (11):

(11) [MOMENT] as a non-relational lexical concept references an unbounded, discrete, brief, point in time which may relate to the experience of new occurrences.

The relationship between [MOMENT] and the related cognitive models is visualized in Figure 2 below:

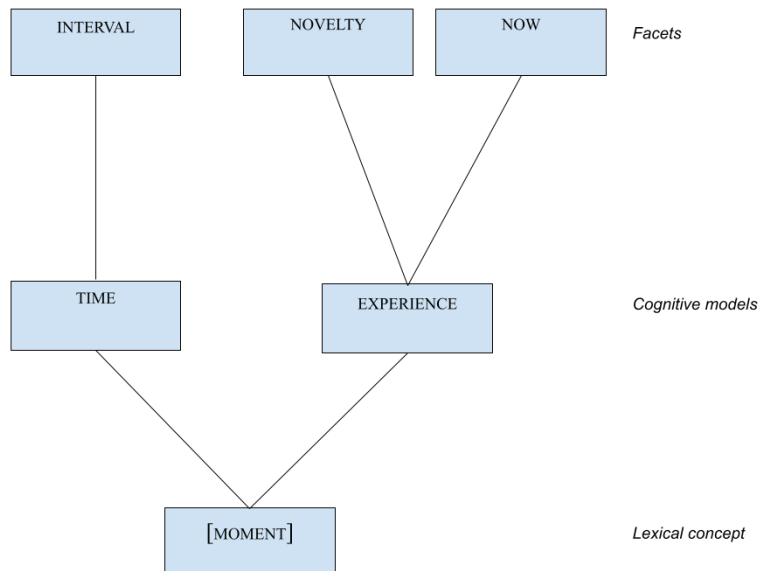


Figure 2 Cognitive models and facets thereof pertaining to [MOMENT] as a lexical concept in English

As shown in Figure 2, I consider TIME and EXPERIENCE as the two cognitive models that may be accessed by the lexical concept [MOMENT] in English. Consider (12):

- (12) a. I will leave in a moment.
b. I'm not available at the moment.
c. At that moment, I knew it was over.

In (12a), the lexeme *moment*, contained within a prepositional phrase functioning as an adverbial modifying the future tense predicate *will leave*, activates the INTERVAL facet of the cognitive model of time, as the subject of the sentence declares that they will leave after the passing of a brief interval of time. On the other hand (12b) is linked to the NOW facet of the cognitive model EXPERIENCE. In my view, NOW, the present moment of experience, is just that; a *moment*: a brief, discrete point in time. (12b) accesses the NOW facet of EXPERIENCE due to the presence of the definite article in the prepositional phrase, as definiteness in discourse indicates shared knowledge of a referent. The awareness of the ongoing lapsation of time at any given moment is always shared between two interlocutors. Further, a sentence such as (12c) accesses the NOVELTY facet of EXPERIENCE. Here, the distal demonstrative *that* references a specific point in time in which a new experience occurs. Symbolic deictic pointing by way of a distal demonstrative is, in my view, a prototypical collocation of the word *moment* in English, such as in (12c). Because all languages have demonstrative pronouns, it is interesting to investigate how common this is cross-linguistically. Lastly, as described previously, sentences involving the lexeme *time* as the subject of a sentence selecting for a deictic/terminal motion verb such as in (9) also reflect the NOVELTY facet of EXPERIENCE because it references the experience of a new occurrence. In sum, depending on the context in which *moment* occurs in English, different facets of the cognitive models related to the lexical concept [MOMENT] are activated.

Evans (2013, p. 248) distinguishes “primary” and “secondary lexical concepts”: the former arise from fundamental aspects of human cognitive processing, whereas the latter are often

culture-specific. Primary concepts “appear to arise from...the phenomenological level of temporal experience; they are representations grounded in temporal experience” (Evans, 2013, p. 248). Describing time in terms of a discrete point, such as [MOMENT], is thereby universal because the concept arises from common aspects of our cognition. Therefore, primary concepts are likely to be similar cross-linguistically. However, Evans (2013) does not provide any cross-linguistic evidence for the encoding of [MOMENT]. Nevertheless, secondary lexical concepts, on the other hand, are cultural constructs. An example of a secondary lexical concept within the time domain is what Evans (2013, p. 243) calls [COMMODITY], which is present in uses of *time* such as in (13):

- (13) a. I don't waste time.
b. I spend time with you.
c. My time is money.

This is a conception of time which involves treating time as a resource that can be manipulated. [COMMODITY] cannot be expected to be universal because the concept arises from cultural practices rather than common aspects of human perception and cognition.

While [MOMENT], defined as an unbounded, discrete, brief, point in time is a primary lexical concept and by extension universal according to Evans (2013, p. 248), there is no evidence that activation of the cognitive models associated with [MOMENT] as shown in figure 2 are done in the same way. In other words, the situated use of the lexical form associated with [MOMENT] in one language cannot be expected to activate the same (or even any) cognitive models in another language. For instance, consider the following sentence:

- (14) I'm writing at the moment.

The form associated with the lexical concept [MOMENT] - when determined by a definite article and acting as the complement of a locative prepositional phrase - refers to the present lapsation of time (activating the NOW facet of EXPERIENCE). However, in an example with a corresponding syntactic construction in Arabic, we find that it produces a semantically anomalous sentence:

- (15) Arabic [arb] (own data)

أنا	بكتب	في	اللحظة
<i>ana</i>	<i>baktib</i>	<i>fee</i>	<i>al-lahtha</i>
1SG	write.1SG.PP	PREP	DEF-moment

?? 'I am writing in the moment' (Semantically anomalous)

However, if a proximal demonstrative occurs between the preposition and the definite article, the NOW facet of EXPERIENCE is activated and the phrase has the same meaning as (14):

(16) Arabic [arb] (own data)

أنا	بكتب	في	هذه	اللحظة
<i>ana</i>	<i>baktib</i>	<i>fee</i>	<i>hathihi</i>	<i>al-lahtha</i>
1SG	write.1SG.PP	PREP	PROX.DEM.FSG	DEF-moment

‘I am writing at the moment’

In sum, different languages will convey cognitive models (EXPERIENCE) and facets thereof (NOW) pertaining to lexical concepts ([MOMENT]) by way of different situated uses (prepositional phrase with/without proximal demonstrative) of the expression associated with a given lexical concept (*moment* or *lahtha*).

Further, there is no cross-linguistic evidence that the lexical concept [MOMENT] necessarily is universally associated with NOVELTY or NOW as facets of EXPERIENCE. Considering a language in which a form that activates the cognitive model TIME as it pertains to [MOMENT] does not also activate NOW leads to an interesting question. Would such a language not have a way of conceptualizing NOW as a brief, discrete, point in time?

2.3.2 [MOMENT] as compared to other lexical concepts

To further define [MOMENT] it may be fruitful to contrast its selectional tendencies as compared to other temporal lexical concepts referenced by English *time*. This shown in the Table 1 below:

Table 1 Elaboration of temporal lexical concepts associated with *time* in terms of motion events (from Evans, 2004, p. 72)

Temporal lexical concept	Motion event	Examples
1. (Magnitude of) Duration:		
(i) ‘protracted duration’	Slow motion	<i>drag, move slowly, etc.</i>
	Stationariness	<i>stand still, stop, freeze, etc.</i>
(ii) ‘temporal compression’	Rapid motion	<i>move fast, fly, whizz, etc.</i>
	Imperceptible motion	<i>disappear, vanish, etc.</i>
2. Temporal Matrix	Non-terminal motion	<i>flow, move on, go on, etc.</i>
3/4. Temporal Moment/ Temporal Event	Deictic/terminal motion	<i>Come, arrive, approach, get closer, move up on, etc.</i>

In Table 1, it is clear that [MOMENT] (labelled Temporal Moment), like [EVENT] (labelled Temporal Event), specifically selects for verbs denoting deictic or terminal motion. On the other hand, [MATRIX], a conceptualization of time which Evans (2004, p. 247) defines as “an unbounded elapse conceived as the event subsuming all others”, selects for non-terminal motion verbs, thereby reflecting a different lexical concept entirely. The sentence in (17a), for example, entails a different conceptualization of temporality in comparison to (17b):

(17) a. Time flows on forever.

b. The time has arrived.

Moreover, [MOMENT] and [EVENT] are closely related in that they both involve deictic/terminal motion (e.g. *the time arrived*). However, "while the Moment Sense references a temporal point (within a particular temporal event-sequence), the Event Sense references an experiential point in an event-sequence" (Evans, 2004, p. 135). [MOMENT], thereby, "relates to a purely temporal event, i.e., an event defined purely in terms of its relation to a temporal event-sequence" (Evans, 2004, p. 137). This may seem a bit confusing, as [MOMENT] does not necessarily refer to an experiential point in an event-sequence like [EVENT], but it does presuppose a deictic center with respect to which the motion takes place. What is important to note is that [MOMENT] does not necessarily refer to "a particular external occurrence, which is to say, something that happens" (Evans, 2004, p. 137). Ultimately, an event sequence needs to be experienced by an entity to be categorized as EVENT, while, although very much a possibility, this does not necessarily hold for [MOMENT], as it only references the aspect of temporality with regards to an event-sequence.

Moreover, [MOMENT] is different from [DURATION] because it "presupposes a deictic center with respect to which the motion takes place...which often appears to coincide with the starting or ending point of the motion" (Evans, 2004, p. 124). [DURATION] does not necessarily presuppose such a deictic center, as it deals more with how long the motion event itself is. For example, in (18), *time* references [DURATION]:

(18) a. Time stood still.

b. Time whizzed by.

(18a) references the relative stationariness of motion, and (18b) references the relative rapidity of motion, with no respect to a salient deictic center.

The English word *moment* has its roots in Latin *momentum*, meaning 'movement, motion; moving power; alteration, change', which is ultimately derived from the Proto Indo-European root **meue-* 'to push away' (Harper, n.d.). The origin of the lexeme is thus in line with the idea of [MOMENT] referencing a temporal point in an event-sequence with respect to a deictic center. In contrast, talking about the concept [INSTANCE], Evans (2004, p. 134) states that "instances only have structure in so far as they are tokens of other types of experience and have no inherent structure beyond the experiences they are instances of". For example, (18) references the [INSTANCE] concept (Evans, 2004, p. 136):

(19) He did it five times in a row.

Here, the structure of the concept is defined solely through the repeated action. It does not reference a temporal point or a duration of any kind. Rather, it demonstrates iteration. The etymology of the lexeme *instance* is also in line with its description as a lexical concept, as it is ultimately derived from the Proto Indo-European root **sta-* 'to stand or be firm' (Harper, n.d.). This root does not imply a motion event and therefore does not intrinsically imply a change of any kind, nor necessarily temporality.

The properties of the various lexical concepts that have been discussed are shown in Table 2:

Table 2. Properties of various temporal lexical concepts as referenced by the lexeme *time* in English

(based on Evans, 2006)

Temporal Lexical Concept	Motion occurs with respect to salient deictic center?	Primary lexical concept?	References temporal point in event- sequence?	References experiential point in event- sequence?
[MOMENT]	Yes, necessarily.	Yes	Yes	Not necessarily.
[EVENT]	Yes, necessarily.	Yes	Yes	Yes, necessarily.
[DURATION]	Not necessarily.	Yes	No	No
[MATRIX]	No	No	No	No
[INSTANCE]	N/A	Yes	N/A	N/A

2.4 Semantic Maps

Semantic maps are used within lexical typology to illustrate the “patterns of multifunctionality” (Haspelmath, 2003, p. 213) of words and morphemes. Semantic maps provide a visual representation of the conceptual space that a certain word or morpheme occupies. “Semantic maps crucially rely on *cross-linguistic comparison*” (Haspelmath, 2003, p. 2013). Figure 3 is a semantic map representation of the network of functions occupied by English *to* in comparison to other functions of dative cases in case-marking languages:

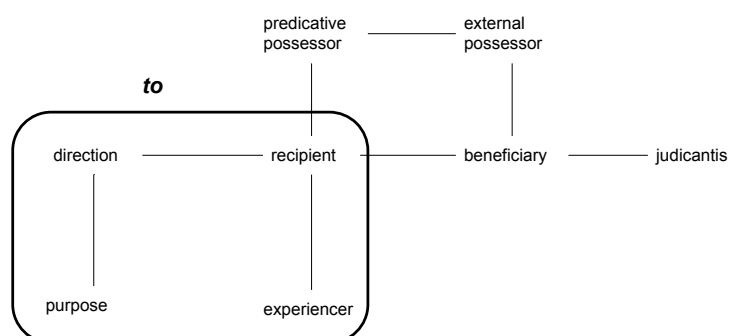


Figure 3. Semantic map of dative functions/the boundaries of English *to* (from Haspelmath, 2003, p. 213)

In Figure 3, it is made clear by the closed lines around the functions direction, recipient, purpose, and experiencer, that *to* in English assumes some of the typical functions of dative case-markers, but not all of them. “A function is put on the map if there is at least one pair of languages that differ with respect to a function” (Haspelmath, 2003, p. 217). English does not have different prepositions that differ between the direction and recipient function, as illustrated in Figure 2. However, in German [deu], *zu* is used for direction, whereas the dative case is used for the function recipient. This warrants an addition of this function to the semantic map.

Regarding placement of functions on the semantic map, Haspelmath (2003, p. 217) notes that “the functions must be arranged in such a way that all multifunctional grams can occupy a contiguous area on the semantic map”. Considering the multifunctional gram (a morpheme which assumes several functions) *to* in English, the functions direction, recipient, and purpose can be arranged in several ways, as illustrated in Table 3 (adapted from Haspelmath, 2003, p. 217):

Table 3. Possible arrangements regarding the functions of English *to*

- A purpose - direction - recipient
- B direction - purpose - recipient
- C direction - recipient - purpose

Considering French [fra] *à*, which expresses the functions recipient and direction, but not purpose, one concludes that option B is not viable; because semantic maps takes into account cross-linguistic data, the multifunctionality of *à* would eliminate option B because such an arrangement would not allow *à* to occupy a contiguous area on the semantic map. The preposition *à* does not express the function of purpose, and so one could not illustrate the boundaries of its multifunctionality in a semantic map without making two different bounded areas. Option C can be eliminated after considering German [deu] *zu*, as it does not express the recipient function. What we are left with is option A, which can be seen as part of table 3, where direction (a function shared by all three of the considered prepositions) is connected to both purpose and recipient.

Haspelmath (2003, p. 230) brings up several advantages of semantic maps, one of them being that “they ensure cross-linguistic comparability”, and another that “they lead to expectations about diachronic change”. Both functions prove useful to the current study.

First, taking Figure 4 as an example, through mapping the most typical functions of dative markers cross-linguistically within a conceptual space one is able to clearly visualize which of these dative functions English *to* assumes, and which it does not. As the current study is a cross-linguistic one, it is useful to be able to illustrate how languages carve out the functions of a certain conceptual space. Second, again looking at figure 4, one can make the prediction that if a direction marker (e.g. Latin *ad*) comes to express predicative possession (e.g. French *à*), it will have first been extended to the function of recipient. Further, semantic maps can encode the directionality in which the diachronic change happens. Applied to the functions of dative markers in Figure 2, the following semantic map includes the directionality of change that are attested cross-linguistically:

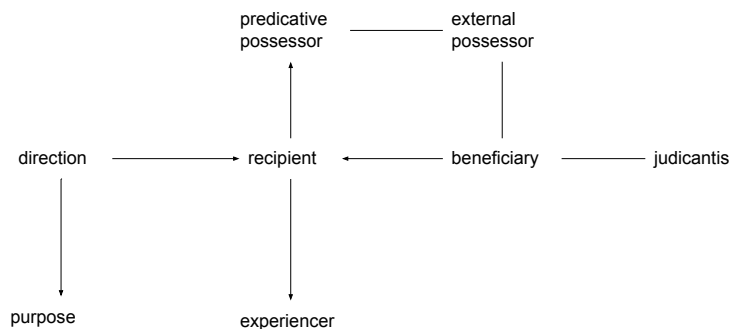


Figure 4. Directionality of typical dative functions (from Haspelmath, 2003, p. 234)

An arrow between two functions means that a dative marker in a given language can only extend its meaning in the direction in which the arrow is pointing. For example, the function of direction is often extended to both recipient and purpose, such as is the case historically with English *to*. On the other hand, semantic extension in the opposite direction, from recipient to direction or purpose to direction, has not been found in any languages.

Georgakopoulos & Polis' (2021) discuss the diachronic sources of time-related expressions in Ancient Greek [grc] and Ancient Egyptian [egy]. They rely on the Database of Cross-Linguistic Colexifications, also called *CLICS*³ (Rzymiski & Tresoldi, 2019) to select 18 concepts present within the semantic field of TIME. *CLICS*³ is an online database containing colexification patterns in thousands of language varieties of the world. Colexification is similar to multifunctionality in that it refers to the phenomenon in which a language encodes one or more distinct meanings using the same form in synchrony. However, it is different in that it refers to the polysemy of lexemes as opposed to grammatical markers. Colexification is “the capacity, for two senses, to be lexified by the same lexeme in synchrony” (François, 2008, p. 171). Hence, it follows that diachronic colexification entails how certain lexemes evolve to encode different concepts over time.

Georgakopoulos & Polis (2021) end up with a list of semantic extensions in the two languages from which they ultimately create a diachronic semantic map, a small part of which is shown in Figure 5 below:

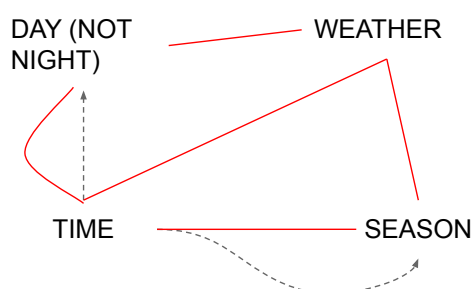


Figure 5. Diachronic and synchronic extensions of 4 time-related concepts in Ancient Greek and Ancient Egyptian (adapted from Georgakopoulos & Polis, 2021, p. 409)

In Figure 5, diachronic extensions are represented by grey lines, while synchronic extensions are represented by red lines. The diachronic semantic extension from the concept of TIME to DAY (NOT NIGHT), for example, is represented by the grey line extending from TIME. The fact that it is a dashed line means that the type of interaction is metonymical. Metonymy is a type of semantic shift that entails substituting an attribute related to a given concept for the name of the concept itself. This semantic shift is illustrated in (20) with the word *crown* substituting for *king*.

(20) I swear loyal to the king → I swear loyal to the crown

The current study deals with semantic shift pertaining to lexical concepts within the realm of temporality, rather than specific grammatical morphemes with various functions, such as dative markers. Two other types of semantic shift worth mentioning relevant to the current study are metaphor and specialization. Metaphor involves extending the meaning of a form to that of a concept that is somehow semantically similar or connected (e.g. *mouse* ‘rodent’ to *mouse* ‘computer device’). Specialization involves a new form having less of a general meaning than the one from which it evolved (e.g. Old English [ang] *mete* ‘food’ (Hall, 1916: n.p.) to English [eng] *meat* ‘animal flesh’).

2.5 Aims and research questions

The current study aims to shed light on the lexical semantics pertaining to the lexical concept [MOMENT] from a cross-linguistic perspective. Further, I investigate the conceptual sources of the expressions that I find and integrate them into a semantic map.

As stated in the introduction, the current study seeks answers to the following questions:

- 1) Do we find an encoding for [MOMENT] in the investigated languages as defined in (11) (see 2.3.1)? What is the morpho-syntactic status of the collected expressions?
- 2) Do these expressions tend to occur in similar contexts across languages?
- 3) Do these expressions exhibit similar conceptual sources?

The background section has introduced [MOMENT] as a lexical concept. Lexical concepts are units of meaning associated with certain forms in a given language. [MOMENT] is considered a primary, or universal, lexical concept by Evans (2013, p. 248). Concepts can be integrated into semantic maps to visualize their diachronic polysemy and/or the conceptual sources from which they have evolved.

3 Method

The current study combines aspects of both onomasiology and semasiology. On one hand, within the realm of onomasiology, it is concerned with exploring the universality of [MOMENT] as a primary lexical concept. A further aim is to describe how the concept, as described in (11) (see 2.3.1), of an unbounded, discrete, brief, point in time, is lexically encoded across languages. On the other hand, the study aims to explore potential patterns regarding the conceptual sources of lexemes expressing [MOMENT] across languages. The

method section gives an overview of the sampling procedure employed (3.1) and the data collection procedure (3.2).

3.1 Sampling

The sampling method chosen here aims for geographical spread and genetic diversity. The idea that languages can be categorized as belonging to different areas is presented in Dryer's (1989) article in which he proposes five linguistic macro-areas: North America, South America, Eurasia, Africa, and Australia-New Guinea. Dryer puts forth two criteria for areal inclusion: firstly, the macro-area should be able to "serve as a control for areal and genealogical effects", and secondly that "the areas should be roughly comparable in genetic and typological diversity" (Hammarström & Donohue, 2014, p. 169). Thereby, a linguistic area is an independent geographic area in which languages belonging to different families share common features which are due to historical contact between the speakers of the languages.

The World Atlas for Language Structures (Harnpaul et al., 2013, henceforth WALS) expands on Dryer's work and proposes the following six macroareas: North America, South America, Eurasia, Papunesia, Africa, and Australia. These were the macroareas considered when sampling the languages controlling for areal effects in the current study. Initially, seven languages from each of the WALS six linguistic macro-areas were selected for the language sample. However, the sample I eventually worked with displays a significant Eurasian bias. This is because more material exists in Parallel Tools (the corpus used for data collection to be discussed below), reference grammars, and lexicons in Eurasian languages, not to mention etymological dictionaries. However, it could be argued that certain languages within the Eurasian macroarea pertain to other proposed linguistic macroareas that WALS do not take into account, such as Vietnamese [vie] belonging to Mainland Southeast Asia (MSEA) (cf. Sidwell & Jenny, 2021; Enfield, 2005). Further, following the WALS classification, Eurasia comprises a very large area in the current sample, including languages in the Iberian Peninsula (Portuguese [por], Spanish [spa]), Greenland, (West Greenlandic [kal], an Inuit language closely related to the Inuit languages of Canada, perhaps more aptly categorized as part of the North America macroarea), MSEA (Mandarin Chinese [cmn], Vietnamese [vie]), and Eastern Russia (Chukchi [ckt], a Chukotko-Kamchatkan language, spoken about 500 kilometers inland from the Bering Strait). This, in my view, may warrant a Eurasian bias in terms of language sampling.

Ultimately, the languages selected constitute a convenience sample. Within each macro-area, I select languages belonging to different phyla (if not, languages belonging to different genera were preferred). Table 4 shows the macroarea, the number of languages, the number of phyla, and the number of genera used in the sample for the current study (see Appendix A for a complete list of the languages used for the sample):

Table 4. Number of phyla and genera in each macroarea, in accordance with WALS (2013) classification

Macroarea	Number of languages	Number of genera	Number of phyla
Africa	8	7	2
Eurasia	15	15	12
Papunesia	6	5	3
North America	3	3	3
South America	5	5	5
Australia	-	-	-
Total	37	35	25

As Table 4 shows, almost every language belongs to an individual genus (following the WALS (2013) classification). Two languages in the Papunesian macroarea were of the same genus, namely Maori [mri] and Tuvaluan [tv] (Oceanic), and two languages within the African macroarea belong to the genus Semitic, namely Arabic [arb] and Amharic [amh]. It may also be worth noting the low number of distinct phyla in the African macroarea. The languages sampled were either of the phylum Afro-Asiatic (3 languages) or Niger-Congo (5 languages). It is also worth noting that Niger-Congo comprises the largest of all phyla in terms of the number of distinct languages suggested to fall under its classification.

In terms of geographical spread, an attempt was made to select languages distantly spread apart within each macroarea. Figure 6 shows the approximate location of where each language is currently spoken in the world, with each dot representing a distinct language:

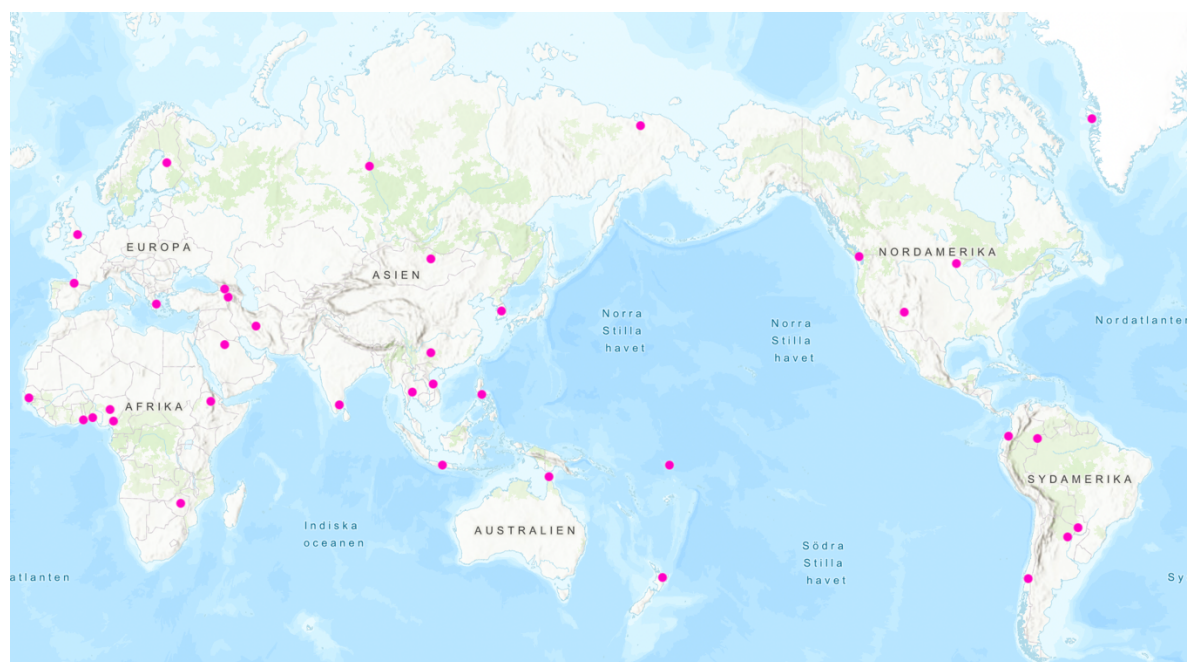


Figure 6 Locations of languages investigated

As can be seen in Figure 6, the languages selected for this sample are geographically spread across the globe, although there is somewhat of a West African bias, and unfortunately a lack of Australian languages. However, the cluster of West African languages that can be seen in the map all belong to distinct linguistic genera. This is also the case for Georgian [kat] and Armenian [hye], which are close in proximity in central Eurasia, but belong to distinct genera as well as phyla. What can also be seen is the proximity of West Greenland to Eastern

Canada, as well as the range of the Eurasian macroarea, as represented by West Greenlandic [kal] and Chukchi [ckt] in Eastern Russia.

3.2 Data

3.2.1 Sources

The primary source used for the onomosiological investigation of [MOMENT] is a corpus called Parallel Tools developed by Östling (2022) at Stockholm University. The software contains a collection of multiparallel corpora containing 1698 translations of the Bible. However, different versions of the Bible are present for each language. For example, over 30 different translations of the Bible exist in English (e.g. King James, Catholic, etc.). For other languages, such as Chukchi, only one translation is available. Unless otherwise stated, all available versions of the Bible in each language were used as sources. Secondary sources include lexicons and/or reference grammars of the investigated languages. Etymological dictionaries are used to investigate the etymology of the target expressions.

3.2.2 Collection procedure

Parallel Tools, programmed in Python, allows the user to identify sentences/verses in one or several source languages that match some criteria, specified using one or more regular expressions. Further, the software allows one to view the instances in which the regular expression is expressed within individual sentences in the Bible. Another capability of Parallel Tools is identifying the distribution of a regular expression in a source language and using the distribution of the source expression to search for possible equivalents in a target language, which can also subsequently be viewed. Parallel Tools also allows the researcher to search for equivalents in a target language matching the combined distribution of one regular expression in several languages (see Appendix B for a complete list of commands used, including examples). The average distribution of the English lexemes [eng] *moment*, Greek [ell] στιγμή *stigma*, and Arabic [arb] لحظة *lahtha* in all available versions of the Bible in each language, are used as search seeds. The program then looks for equivalents in a given target language. The equivalents may be a word, n-gram, or affix.

Parallel Tools provides several possible equivalents, each with a probability index which reflects how likely it is that the expression in the target language is a legitimate counterpart rather than determined by chance (see Section 5.1 in Östling & Kurfalı, 2023). A difficulty for the present study is determining an acceptable boundary for the probability index in order to be able to accept a counterpart in the target language as a legitimate translation. Due to this difficulty, the search is at times adjusted to match the distribution of only one seed expression, such as the English lexeme *moment*. In some cases, the probability index of the target expression increases significantly, which strengthens the confidence in the target expression being a legitimate counterpart.

Although the aforementioned English [eng], Arabic [arb], and Greek [ell] lexemes do, especially in the contexts in which they appear in the Bible, reflect the semantic properties of the concept [MOMENT], it is also true that these lexemes are polysemous. For example, *the decision was of great moment* reflects an alternative semantic property of the lexeme, namely one that has to do with the importance of a situation. However, this is not a frequent use of the word, neither in the Bible nor in everyday use. Likewise, in Arabic and Greek, the lexemes chiefly reflect the semantic properties of [MOMENT] as a concept: a discrete, brief, unbounded

point in time, again, especially in the investigated contexts which occur in the Bible. For this reason, the combined distribution of the three lexemes was used to search for possible counterparts. Further, the three source languages are relatively spread apart geographically and genealogically, which was taken into consideration in hopes of reducing family-based semantic bias of the source word.

The search based on these seeds does not always yield a reliable result. For example, in Maori [mri], Parallel Tools finds *hono* as an equivalent to the three source words, with a probability index of around 8. However, upon looking this word up, it is found that the word rather means ‘link’, or ‘connected’. Based on this, I conclude that a probability index of 8 was not high enough to claim that the target word was a legitimate counterpart. Further, for some languages, it is more fruitful to look for counterparts from other seed languages. Taking Desano [des] as an example, translations of English *moment* does not give any hits. However, counterparts to *momento* (searching in all available versions of the Spanish [spa] Bible in Parallel Tools) do. This is probably because the distribution of Spanish *moment* more closely resembles the distribution of the Desano counterpart, as it is most likely translated from Spanish, being an indigenous language of Colombia.

In all cases, whether a legitimate counterpart for the seed word(s) is found or not, a second source is used to either control the counterpart found by Parallel Tools or to find the target word. The second source is either a lexicon and/or a reference grammar. Depending on the source language used in the lexicon (usually either English [eng], French [fra], or Spanish [spa]), I searched for translations of *moment*, or *momento*. Further, a translation may provide *one* way of expressing the counterpart to *moment* in the target language, but it may not be the only way, nor the most frequent way of expressing it. This was also considered. In cases where several expressions were found to be used frequently to express [MOMENT], they are all recorded, but only the seemingly more salient expression in terms of frequency either in Parallel Tools or the secondary sources are ultimately selected for final analysis regarding the context in which it occurs and its conceptual source. Instances of the expression(s) found in the lexicon are then looked up in Parallel Tools to produce instances of the expression in context. A reference grammar is then consulted to gloss the relevant parts of the sentence in which the expression occurred.

When no translation equivalents for the words *moment* are found in either a lexicon or reference grammar, translations for the word *time*, *temps*, or *tiempo* are used as source words. In such cases, Parallel Tools is again used to check for the contexts in which the target word for *time* matches the distribution of the source words *moment*, لحظة *lahtha*, and στιγμή *stigma*. After all, [MOMENT] is a division of time, and, as discussed in 2.3.1., the lexeme *time* in English can be used to express the lexical concept [MOMENT] when it acts as the subject of the sentence. Moreover, the [MOMENT] concept can also be expressed as part of a prepositional phrase in which *time* is modified by an adjective denoting brevity such as in (21a):

- (21) a. English: *for a short time*
 b. Swedish: *under en kort tid* ‘for a short time’
 c. Greek: *gia mikró chronikó diástima* ‘for a short time’
 d. Arabic: *fee waqt qasir* ‘for a short time’

The same holds for Swedish [swe] (21b), Greek [ell] (21c), and Arabic [arb] (21d).

In accordance with Evans (2006, p. 523), as stated in 2.3, [MOMENT] is a non-relational concept. This means that it is encoded by nouns rather than verbs, adverbs, or adjectives. For that reason, adverbs forms similar to *now*, *then*, *suddenly* activating the EXPERIENCE cognitive model of [MOMENT] are not regarded as encoders of the lexical concept [MOMENT].

Once the target expressions are found, at least five sentences in which the expression occurs are collected from Parallel Tools or from the secondary sources that are described in 3.2.1. The purpose of this is to determine whether there are any patterns regarding the linguistic context in which these expressions are found, and whether this could contribute to the understanding of the semantics of the expressions. This, as discussed in 2.3, is based on Evans' (2006) article, which describes meaning in language as being reflected by lexical concepts which in turn are referenced by the situated use of words. Evans (2006, p. 498) states that "linguistic units are only ever realised as part of linguistic utterances, which are necessarily (i.e., by definition) situated, and thus part of an act of communication." Based on the idea of the selection tendencies of lexical concepts (see 2.3.1), data is collected regarding what verbs the collected expressions tended to select for, if any, when acting as the subject of the sentence.

Another semasiological aspect of the current investigation deals with exploring the diachronic semantic extensions leading to expressions for the [MOMENT] concept cross-linguistically to understand what concepts have been colexified with the concept [MOMENT]. Further, any available information regarding the synchronic derivation of a particular expression is collected. The expressions in each target language are then categorized according to either their diachronic semantic source, colexification, or synchronic derivation. The noun *ìṣẹ́jú* 'moment, minute' (Yai, 1996, p. 174) in Yoruba [yor], for example, is derived from the verb *ṣẹ́jú* 'to blink', is categorized as VISION, as the semantic source of the noun is a verb related to VISION. Etymological dictionaries are the main source for this part of the investigation, although, for expressions such as *ìṣẹ́jú* and other derived nouns, reference grammars were used.

4 Results

As stated in 2.5, the aim of this study is to conduct a typological investigation into which lexical expressions are used to express the concept [MOMENT]. Further aims are to investigate the morphosyntactic status/word class of the expressions found and the linguistic contexts in which they occur. Lastly, the study aims to examine the conceptual source(s) leading to an encoding of [MOMENT]. As stated in 2.5, the research questions are:

- 1) Do we find an encoding for [MOMENT] in the investigated languages as defined in (11) (see 2.3.1)? What is the morpho-syntactic status of the collected expressions?
- 2) Do these expressions tend to occur in similar contexts across languages?
- 3) Do these expressions exhibit similar conceptual sources?

Section 4.1 presents findings regarding which languages have an encoding of [MOMENT] and the morphosyntactic status of the expression found. In section 4.2, I talk about the various

contexts in which the expressions were observed to occur. In section 4.3, I present the findings regarding the conceptual sources of the expressions found. In 4.4 I give a summary of the results.

In the glossed examples provided below, the original orthography used in the given data source was preserved. If the data came from a specific Bible verse that I was able to identify, I added the name of the book, chapter number, and verse number in brackets.

4.1 Encoding of the lexical concept [MOMENT]

It cannot be concluded from the current investigation alone whether [MOMENT] is universal or not. The investigation found a distinct linguistic form encoding a brief, discrete, unbounded point in time in 27 of the 37 languages investigated. Thus, we can say that the concept has an encoding in around 73% of the investigated languages. In the remaining 10 languages, no form associated with [MOMENT] was found, although in most languages a form activating one or more of the facets related to the EXPERIENCE cognitive model associated [MOMENT] was found, which were usually adverbs. As stated in 3.2.2, because [MOMENT] is a non-relational concept, meaning it is encoded by nouns rather than adverbs or adjectives, forms strictly functioning as adverbs activating the EXPERIENCE cognitive model of [MOMENT] (adverbs similar to *now*, *then*, *suddenly*) were not regarded as encoders of the lexical concept [MOMENT].

The 27 languages in which an encoding for [MOMENT] was found is represented below in Figure 7:

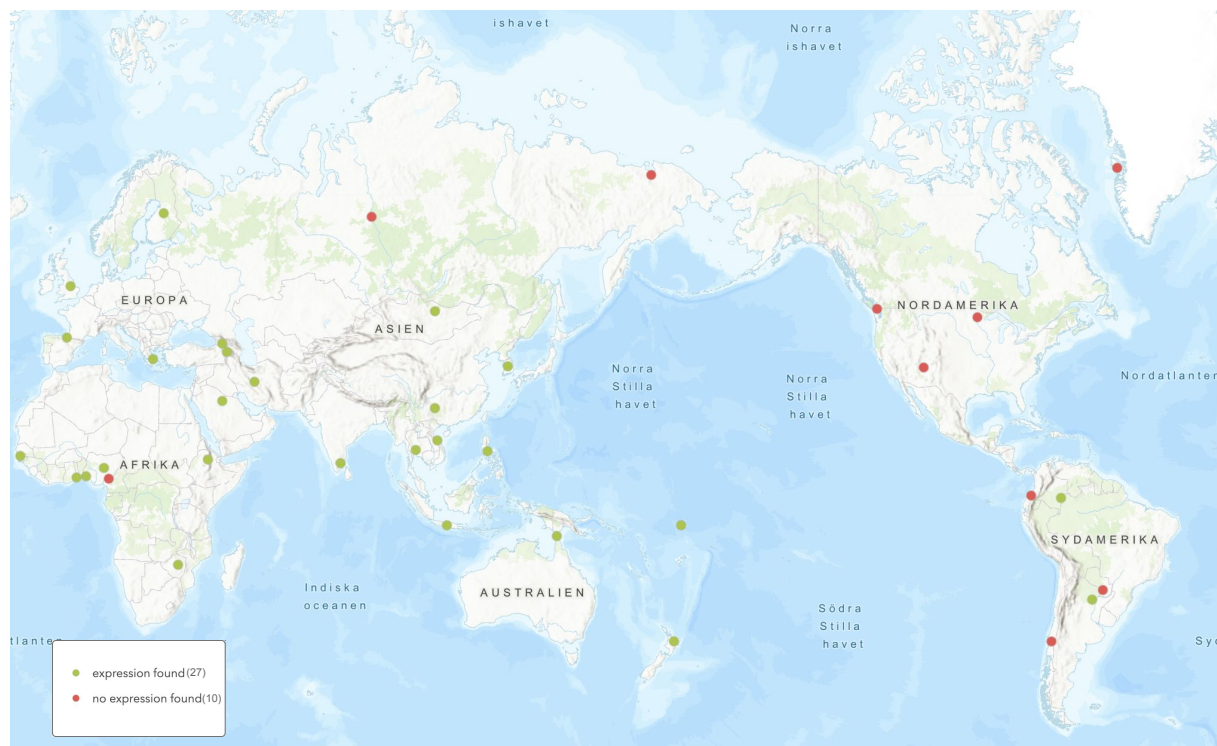


Figure 7. Languages encoding [MOMENT]

In Figure 7, green dots represent languages in which an encoding of [MOMENT] was found. Red dots represent languages in which an encoding of [MOMENT] was not found.

Below, Table 5 shows the number of languages in every macroarea in which an encoding of [MOMENT] was found (see appendix A for a complete list of the expression found in each individual language):

Table 5. Number of languages found to encode [MOMENT], divided by macroarea

Macroarea	# of languages	[MOMENT] encoding?	Percentage
Africa	7	6	86%
Eurasia	16	13	81%
Papunesia	6	6	100%
North America	3	0	0%
South America	5	2	40%
Australia	-	-	-
Total	37	27	73%

4.1.1 Nouns

Out of the 27 languages with expressions for [MOMENT], these expressions can be classified as nouns in 25 of them. Examples of such languages follow below:

- (22) Ewe [ewe] (Rongier, 1995, p. 272, my glossing)

Dzòdzó *fě* *yěyi-é* *nyé* *ésia*
 leaving? POSS **time-**? COP PROX:DEM

‘C’est le moment de partir.’ (‘It is time to leave.’)

- (23) Finnish [fin] (Parallel Tools [Job 20:5], my glossing)

ja *riettaan* *ilo* *on* *vain* *silmä-n-räpä-ys*
 and indecent..GEN.SG joy is only **eye-GEN.SG-blink-ABST**

‘And the joy of the godless is only for a moment’

(24) Vietnamese [vie] (Parallel Tools [Job 24:24], my glossing)

<i>Chúng</i>	<i>được</i>	<i>tôn</i>	<i>cao</i>	<i>trong</i>	<i>chốc</i>	<i>lát</i>
3PL	get	respect	exalted?	PREP	moment	slice
'They are exalted for a moment...'						

(25) Mocovi [moc] (Parallel Tools, my glossing)

<i>Ca</i>	<i>co'na</i>	<i>ỹovita</i>	<i>ca</i>	<i>laloqo</i>
then	when	arrive	DEM	time
'When the time came...'				

In (22), *dzódzó* ‘leaving’ (Ameka, 1991, p. 56) is a noun formed from the verb root *dzó* ‘leave’ (Ameka, 1991, p. 42) by reduplication. Moreover, in Ewe, *fě* marks possession, and is “interposed between the possessor and possessum” (Ameka, 1991, p. 7). Knowing that a possessor or a possessum must be an entity of some sort, one can conclude that *yèyiyi* ‘time’ is a noun, in this case possessed by *dzódzó* ‘leaving’. Thus, (22) references something akin to ‘the time of leaving’, a discrete moment relating to the point at which the person(s) in question should leave. In (23), the expression *silmänräpäys*, a compound noun composed of *silmän* ‘eye’ and *räpäys* ‘blink’ means ‘moment’, literally ‘blink of an eye’ (Kotimaisten kielten keskuksen, 2022) acts as the subject complement, referencing a brief, discrete, interval of time. In (24), *chốc lát*, ‘moment’ follows the preposition *trong* ‘in’ (Hyde, 2008, p. 809). In (25), [MOMENT] is referenced by the noun *laloqo* ‘time’, which follows the demonstrative pronoun *ca* (Grondona, 1998, p. 80).

4.1.2 Noun-like forms

In two languages, [MOMENT] was encoded by expressions that seemed neither to fit neatly into the noun category nor the adverb category.

In Desano, [MOMENT] is associated with the form *irisubu*. Silva (2012, p. 136) glosses this expression as a noun meaning ‘this time’, derived from the particle *iri*, a proximal demonstrative, prefixed to the morpheme *subu*, a classifier meaning ‘time’. According to Silva (2012, p. 94), “Desano does not have adjectives or adverbs as separate categories”. Rather, “words coding...adverbial expressions are derived from verbs and/or nouns” Silva (2012, p. 94). Further, “temporal adverbial expressions are expressed by nouns referring to time” (Silva, 2012, p. 97), and in (26), it seems that *irisubu* situates the predicate in a certain temporal circumstance. On the other hand, temporal verbal expressions derived from time nouns such as *irisubu* can be suffixed by “-de, which codes temporal adjuncts” (Silva, 2012, p. 97), but in (26), it is not affixed by -de.

(26) Desano [des] (Parallel Tools [Luke 12:12], my glossing)

<i>iri-subu</i>	<i>ta</i>	<i>Espiritu</i>	<i>Santo</i>	<i>mua</i>	<i>were-burire</i>	<i>muaare</i>	<i>were-gucumi</i>
DEM:PROX-time	EMPH?	spirit	holy	?	tell-?	?	tell-?

‘the Holy Spirit will teach you at that moment what you should say’

The other language falling under this category is Jola-Fonyi [dyo], a Niger-Congo language spoken in Senegal. Sapir (1965, p. 81) argues that *no* ‘at that time’ is a seminominal that is part of the “n-series”, a group of words that begin with the noun class marker *n* that refer to time. Seminominals are similar to nouns in that they “act as finite and infinitive verb complements”, but they are different in that they do not “function as finite verb subjects” (Sapir, 1965, p. 29). Hopkins (1995, p. 89) glosses *no* ‘a moment’ as being composed of the noun class marker *n* (C15, comparable to Sapir’s n-series) plus the pronoun *o*, ‘that’. In (27), *no* functions as a verbal complement or as a “postpositional circumstance” according to Hopkins (1995, p. 92), appearing after the verb *mat* ‘tend’, describing the predicate as occurring within a brief, discrete, point in time.

(27) Jola-Fonyi [dyo] (Hewitt, 1995, p. 94)

<i>...f-o</i>	<i>fu-mat-e-mi</i>	<i>n-o</i>	<i>si-ba-as</i>
C7-SUBST	C7-tend-HAB-ACT	C15-SUBST	C4-bovine-DEF

‘...lui, il gardait á ce moment-là les bouefs.’ (‘He is tending to the oxen at this moment’)

4.2 Context of the collected expressions

This section details the findings regarding the contexts in which the expressions occurred.

4.2.1 Adpositions and locative markers

As can be seen in Table 6, collocated adpositions functioning similarly to English ‘in’ or ‘at’, as well as affixation of locative markers was common. These are used as a way of creating temporal adjuncts denoting that a predicate occurs within a brief, discrete, unbounded period of time.

Table 6. Languages in which [MOMENT] is collocated with adposition or affixed by LOC, by macroarea

Macroarea	[MOMENT] encoding?	[MOMENT] encoder collocated with adposition/affixed by LOC?	Percentage
Africa	6	3	50%
Eurasia	13	12	92%
Papunesia	6	5	83%
North America	0	-	-
South America	2	0	0%
Australia	-	-	-
Total	27	20	74%

Table 6 shows that forms encoding [MOMENT] in the Eurasian macroarea are most likely to collocate with an adposition or exhibit locative case affixation. This was to a lesser degree common in Papunesian languages, and less still in the African macroarea. I will now turn to some examples.

In Yoruba [yor], the target expression *iṣẹju* was often found collocated with *ni*, ‘in, at’, a preposition that “normally occurs with nouns denoting place, time, manner, or circumstance” (Awobuluyi, 1978, p. 98):

(28) Yoruba [yor] (Parallel Tools [Job 34:20], my glossing)

Ni iṣẹju kan ni nwọn o kú

PREP moment ? ? 3PL ? die

‘In a moment they will die’

In Korean [kor], the locative case clitic *-e* a particle roughly similar to ‘in’, ‘on’, or ‘at’ (Sohn, 1994, p. 214) was suffixed to *sungan* ‘moment’:

(29) Korean [kor] (Parallel Tools [Matthew 8:13], my glossing)

그 순간=에 병-이 나왔다

geu sungan=e byeong-i naassda

DEM moment=LOC disease?-? healed?

‘At that moment, he was healed’

In Basque [eus], *une* ‘moment’ was observed to be suffixed by the proximal locative particle *tan*:

(30) Basque [eus] (Hualde & Urbina, 2003, p. 746)

Jon uneo-tan Ameriketan egonda

Jon **moments.-PROX.LOC** Americas.LOC be

‘With Jon being in America right now [in these moments]...’

In Tagalog [tgl], *sandali*, ‘moment’ may follow the preposition *sa*:

(31) Tagalog [tgl] (Parallel Tools [Job 34: 20], my glossing)

mangyari nga na sa sandali=ng

will.happen such? just? **PREP** **moment=?**

‘It will happen in a moment’

4.2.2 Determiners

A variety of determiners were also observed collocated with the collected expressions, as illustrated in Table 7:

Table 7. Number of forms found to encode [MOMENT] that collocate with DET

Macroarea	[MOMENT] encoding?	[MOMENT] encoder collocated with DET?	Percentage
Africa	6	1	43%
Eurasia	13	8	62%
Papunesia	6	5	83%
North America	0	-	-
South America	2	2	100%
Australia	-	-	-
Total	27	16	59%

Compared to the numbers presented in Table 6, Table 7 shows that collocations with determiners were not as common as collocations with adpositions or locative case markers. I will now turn to some examples of various determiners.

10 out of 27 forms were found to be collocated with articles, such as Armenian [hye];

- (32) Armenian [hye] (Dum-Tragut, 2009, p. 703)

Sayat'-Nova-n ergič'-banastelc-ě mi pah kang a²-av
 Sayat-Nova.NOM-the singer-poet.NOM-the INDEF moment stop-AOR.3.SG
 'Sayat'-Nova, the singer and poet, stopped a moment.'

12 out of 27 forms were found to be collocated with demonstratives, such as Indonesian [ind] and Farsi [pes];

- (33) Indonesian [ind] (Parallel Tools, my glossing)

pada sesaat itu
 PREP moment DEM:DIST
 'At that moment...'

- (34) Farsi [pes] (Parallel Tools, my glossing)

dar aan laze
 at that moment
 'At that moment...'

5 out of 27 forms were found to be collocated with distributive determiners, such as Khalkha [mon] and Arabic [arb];

- (35) Khalkha [mon] (Östling & Brosig, 2011, glossing by B. Brosig, personal communication, April 16, 2023)

Ödör бүр cag möč tutam ter tuxaj bod-ož baj-laa
 day every time moment every that about think-CVB AUX-DIR.PST
 'Every day, at every moment [I] am thinking about that.'

- (36) Arabic [arb] (own data)

في كل لحظة
fee kol lahtha
 in every moment
 'In every moment'

4.2.3 Modifiers

Adjectival modifiers were also found to be collocated with 7 out of the 28 forms associated with [MOMENT], as illustrated in Table 8:

Table 8. Number of forms found to encode [MOMENT] that collocate with adjective modifier

Macroarea	[MOMENT] encoding?	[MOMENT] encoder collocated with adjective modifier?	Percentage
Africa	6	1	16%
Eurasia	13	6	46%
Papunesia	6	0	0%
North America	0	-	-
South America	2	0	0%
Australia	-	-	-
Total	27	7	26%

As seen in Table 8, adjectival modifiers were not as common as collocations compared to determiners nor adpositions/locative markers, and were only present in languages belonging to the Africa and Eurasia macroareas. I will now provide a couple of examples.

In Shona, the expression *nguva pfupi* (literally ‘short time’) (Mawadza, 2000, p. 22) encodes [MOMENT]:

(37) Shona [sna] (Parallel Tools [Job 34:20], my glossing)

vanofa ne-nguva pfupi

die.3PL PREP-time short

‘In a moment they will die’

In Khalkha [mon], *zuur* ‘moment’ is found with *türgen* ‘short’:

(38) Khalkha [mon] (B. Brosig, personal communication, April 16, 2023, citing Bawden, 1997, p. 183)

türgen zuur-t

short while-DAT

‘In a flash...’

4.2.4 Selectional tendencies of collected expressions as subjects

As seen in section 2.3.1, [MOMENT] exhibits selectional tendencies in terms of deictic verbs when referenced by, for instance English *time* in subject position. Because of the limited amount of data and the nature of the type of text in the corpus, it was not common to find the target expressions in subject position. Forms associated with [MOMENT] in Mocovi [moc], Maori [mri], Khalkha [mon], Greek [ell], and Arabic [arb] were found in subject position. In most of those cases, the expressions also select for deictic/terminal motion verbs, like *time* does in English.

For example, “In Khalkha [mon], *möč* as subject repeatedly occurs with predicates *ojrt* ‘draw near’, *ir* ‘come’, *öngör* ‘pass’” (B. Brosig, personal communication, April 16, 2023):

- (39) Khalkha [mon] (Östling & Brosig, 2011, glossing by B. Brosig, personal communication, April 16, 2023)

<i>jerönxijlögč</i>	<i>Enxbajar-yn</i>	<i>dörwön</i>	<i>žil-ijn</i>	<i>ažl-yg</i>	<i>dügnex</i>	<i>möč</i>
president	Enkhbayar-GEN	four	year-GEN	work-ACC	evaluate	moment

<i>ojrt-ož</i>	<i>baj-na</i>
come.near-CVB	AUX-IM.PRS

‘The moment for evaluating the four years’ work of preident Enkhbayar is approaching/drawing near.’

In Maori [mri], *wa* was also found in what seems to be subject position:

- (40) Maori [mri] (Parallel Tools [Psalm 119:126], my glossing)

<i>kua</i>	<i>rite</i>	<i>te</i>	<i>wa</i>	<i>hei</i>	<i>mahi-nga</i>	<i>ma</i>	<i>Ihowa</i>
PRS.PRF	be	DEF	time	PREP	do-NMZ	GEN	Jehovah

‘The time has come for Jehovah to act’

In (40), *wa*, does not select for a terminal motion verb like *möč* does in (39). Instead, it seems that the arrival of the moment is expressed through the present perfect tense marker *kua* and the *rite* ‘be’, with *te wa* (the time) acting as the argument. According to my analysis, it seems that what follows *wa* is an adjunct starting with the preposition *hei*, followed by the verb stem *mahi*, ‘do’, to which the nominalizing *-nga* is suffixed (Bauer et al. 1993, p. 50). It seems the subject within the adjunct is Jehovah, appearing after the genitive marker *ma* (Bauer et al. 1993, p. 50).

Example (25) in section 4.1.1 shows Mocovi [moc] *aloqo* ‘time’ in subject position. Here, referencing [MOMENT], it selects for the terminal motion verb *ȳovita* ‘arrive’ (Araujo, n.d) to signify the arrival of a discrete point in time.

Lastly, in Arabic [arb], the verb حانت *hanat* ‘arrived’ is found with لحظة ‘moment’ acting as the subject of the sentence, such as in (41):

(41) Arabic [arb] (own data)

حانت ال لحظة

hanat *al-lahtha*

arrive.PST.F.SG DEF-moment

‘The moment arrived’

4.3 Conceptual sources of expressions

This section talks about the various conceptual sources leading to the expressions found to encode [MOMENT]. As illustrated in Table 9, I have labelled the expressions as belonging to one of five categories.

Table 9. Conceptual sources of expressions encoding [MOMENT]

Macroarea	VISION	INTERVAL	BREVITY	TIME	Other
Africa	2	0	0	4	0
Eurasia	6	3	1	1	2
Papunesia	0	0	1	4	1
North America	0	0	0	0	0
South America	0	0	0	2	0
Australia	-	-	-	-	-
Total	8	3	2	11	3

The categories in Table 9 are based on the concepts found to be in one way or another related to the expression found to be associated with [MOMENT].

The various conceptual sources used to encode [MOMENT] are presented in Figure 8 below:

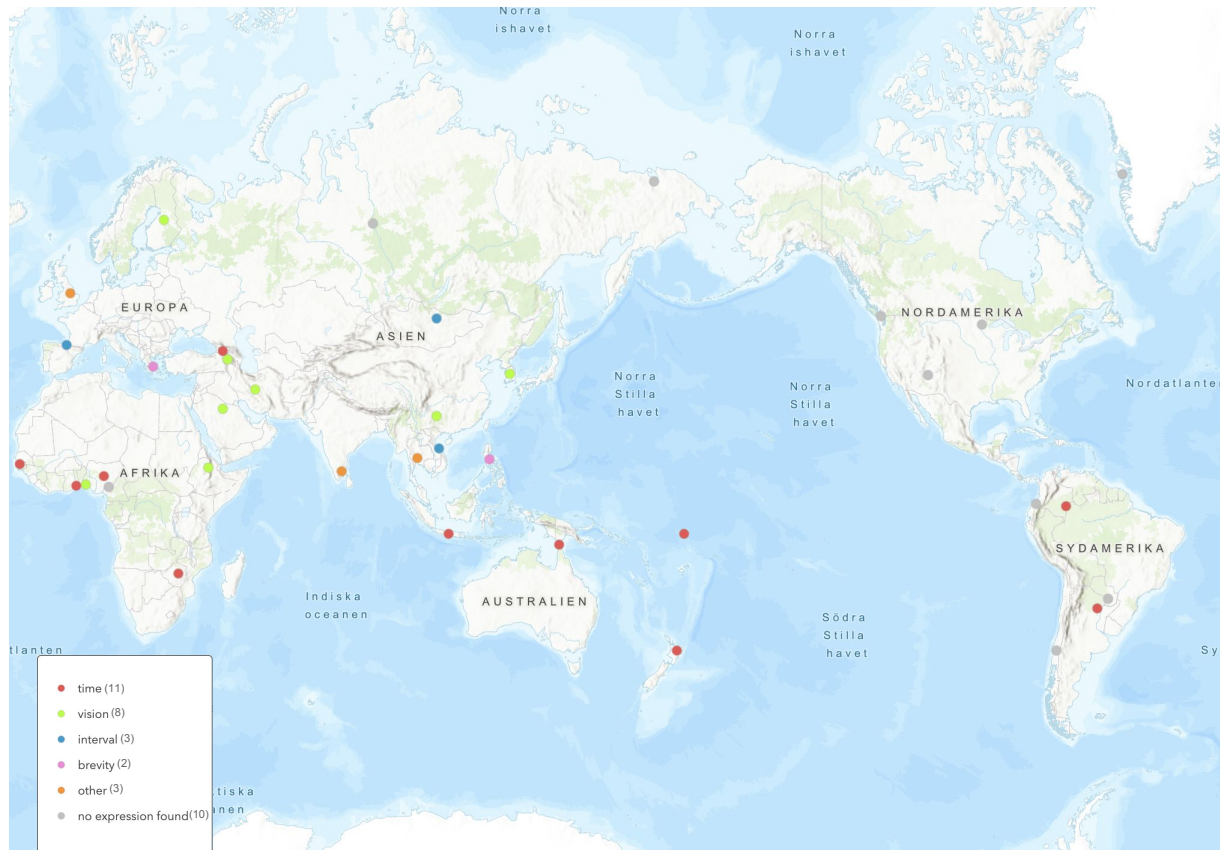


Figure 8. Conceptual sources of expressions encoding [MOMENT]

In Figure 8 above, each colored dot represents a language for which the expression (if attested) encoding [MOMENT] belongs to a specific conceptual source category. No conclusions regarding areal patterns can be drawn from this data, other than that TIME was attested as a conceptual source for one or more of the collected expressions in all macroareas.

4.3.1 VISION

Out of the 27 languages in which an encoding for [MOMENT] was found, 8 expressions (30%) displayed conceptual sources pertaining to the cognitive domain VISION.

Armenian [hye] *pah* ‘moment’, for example, is borrowed from Northwestern Iranian [xpr] *pahr* ‘watchpost’, a word related to Middle Persian [pal] *pas* meaning ‘to guard or watch’ (Olsen, 2011, p. 417). Ultimately, the Persian word comes from the Proto-Indo-European root **peh* ‘to guard’ (Ačariyan, 1926, p. 9). A semantic shift has thus been made from a verb meaning ‘protect, watch’, to ‘moment’.

Yoruba [yor] *iṣẹju* ‘minute, moment’ was also categorized as belonging to the VISION category as it is a noun derived from the verb *ṣẹjú* ‘blink’. In Yoruba [yor], the prefix *i-* derives abstract nouns from verbs (Agbeyangi et al., 2016, p. 8). In contrast to the semantic shift that has taken place over time regarding Armenian [hye] *pah*, *iṣẹju* is derived from a verb related to the cognitive domain VISION.

In Mandarin Chinese [cmn], 瞬間 *shùnjiān* ‘moment’ is composed of the glyphs 瞬 *shùn* ‘to blink’ (Lee & Fan, 2017, p. 488) and 間 *jiān* ‘interval, space’ (Lee & Fan, 2017, p. 104). Here we also see that the expression encoding [MOMENT] comes from an expression dealing with VISION. Similarly, Amharic [amh] ቅጽበ *qtsbt* ‘moment’ comes from the Semitic tri-

consonantal root *qasaba*, meaning ‘nod, beckon, wink, signal, hint, indicate, mock by winking’ (Leslau, 1991, p. 449). In Arabic [arb], another Semitic language, لحظة *lahtha* ‘moment’ comes from another Semitic root that has to do with vision, namely *lahatha*, meaning ‘to view, regard, perceive, notice’ (Wehr, 1976, p. 725). This word was borrowed into Farsi [pes], becoming *laze* ‘moment’ (Steingass, 1963, p. 1119).

As evidenced in this section, and as can be seen in Figure 8, the languages exhibiting VISION as a conceptual source for [MOMENT] are genealogically and geographically distinct. Based on the large proportion (30%) of expressions exhibiting this source, it seems VISION is a common conceptual source for the encoding of [MOMENT].

4.3.2 INTERVAL

Three out of the 27 expressions (11%) encoding [MOMENT] display conceptual sources pertaining to the cognitive domain INTERVAL.

In Vietnamese [vie], *chốc lát* ‘moment’, *lát* means ‘slice’ (Hyde, 2008, p. 423), signifying a small interval. In Khalkha [mon], *zuur* ‘moment’ evolved from the word **jaura* meaning ‘space between’ (Nugteren, 2011, p. 384), displaying a clear semantic evolution from a word related to the cognitive domain INTERVAL to a word meaning ‘moment’. In Basque [eus], *une* ‘moment’ evolved from the word *gune*, probably meaning ‘space’ or ‘interval’ (Michelena, 1961, p. 305).

Again, due to the fact that these three languages are genealogically and geographically distinct, INTERVAL may be a common conceptual source for the encoding of MOMENT.

4.3.3 BREVITY

Two of the 27 expressions (7%) encoding [MOMENT] were categorized as belonging to the category BREVITY.

Greek [ell] *stigmí* ‘moment’ comes from Ancient Greek [grc] *στιγμή* ‘point’, related to *στίζω stizo*, ‘to mark, to tattoo’, ultimately derived from Proto-Indo-European **(s)teig-* ‘to prick, sting’ (Beekes, 2009, p. 1405). Tagalog [tgl] *sandali* ‘moment’ is composed of *dali* ‘short, hasty’ (Panganiban, 1994, p. 108) and *san*, a prefix denoting wholeness.

4.3.4 TIME

11 out of the 27 of the expressions (41%) found were either synchronically or diachronically colexified with a word meaning ‘time’.

For example, Maori [mri] *waa* ‘time’ is used in combination with a proximal demonstrative to create an adverbial phrase similar to ‘at this moment’, referring to a short period of time that occurs in reference to a deictic center:

(42) Maori [mri] (Bauer et al. 1993, p. 380)

noo teenei waa

GEN this time

‘Just at this moment...’

In Georgian [kat], *dro* ‘time’, marked with the dative suffix -s, functions as the object of the sentence, encoding [MOMENT]:

(43) Georgian [kat] (Hewitt, 1995, p. 42)

dro-s (Ø-)i-xel+t-eb-d-a
time-DAT (it-)SV-seize-TS-IMPERF-X
‘X used to seize the moment’

Indonesian [ind] *saat* ‘moment’ (Sneddon, 1996, p. 221) is, like Farsi *laze* ‘moment’, an Arabic loanword. In Arabic [arb] *sa’a* means ‘hour’ or ‘time’.

4.3.5 Other categories

The three languages whose expressions I labelled as belonging to the ‘other’ category were Thai [tha], English [eng], and Tamil [tam]. The reason for including Thai in this category was that I was not able to find any conceptual source neither in synchrony nor diachrony for the Thai [tha] form *khruu* ‘moment’.

The other two expressions were Tamil [tam] *kaṇam* and English [eng] *moment*, of which the latter’s etymological source I have touched on in 2.3.2 and does not fit into the other three categories. *Kaṇam*, on the other hand, evolved from the Sanskrit [san] word *kṣaṇa*, ‘an extremely small portion of time’ (Grimes, 1996, p. 169). *Kṣaṇa* relates to a specific unit of time originally described in Vedic Hindu scriptures. The concept was also applied in Buddhism, and the Sanskrit word been borrowed into multiple languages in the MSEA macroarea, including Mandarin Chinese [cmn] (刹那 *chànà*), Vietnamese [vie] (*sát na*), Thai [tha] (กัณหา *kà-nà*), Khalkha [mon] (*agšín*), and Korean [kor] (찰나 *challa*), to name a few, as a result of linguistic and ethnoreligious contact.

4.3.6 Semantic map of conceptual sources for [MOMENT]

The findings in section 4.3 are presented in Figure 9, a semantic map over the conceptual sources evolving into the lexical concept [MOMENT]:

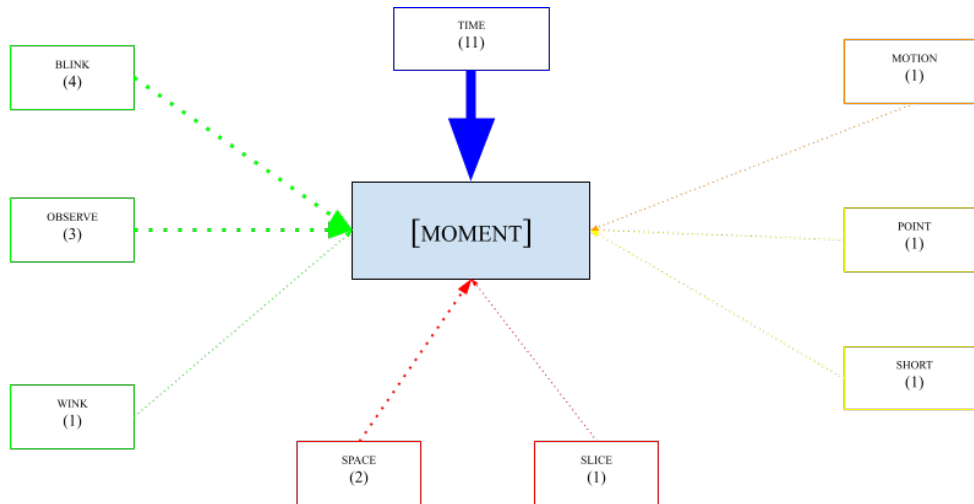


Figure 9. Semantic map over conceptual sources for [MOMENT] in investigated languages

In figure 9, arrows with dotted lines pointing from the conceptual sources to [MOMENT] indicate metaphorical semantic shift, while the full line extending from TIME indicates specialization. The thickness of the lines indicates how many extensions from the given concept that are attested in the current study. The number of attestations is given in parentheses under the name of the conceptual source. The color grouping of the sources indicates the four categories mentioned in the previous subsections, with green representing VISION, blue TIME, yellow BREVITY, red INTERVAL, and orange MOTION (the conceptual source for *moment* in English).

4.4 Summary of results

Based on the results, it can be concluded that a majority of the languages investigated (27/37=73%) display an encoding for moment, while an encoding of [MOMENT] as described in (11) (see 2.3.1) was not found in the remaining 10 investigated languages. However, this does not mean that [MOMENT] does not exist as a non-relational lexical concept in these 10 languages. It could be the case that there is a noun encoding [MOMENT] in one or more of the 10 languages that simply has not been found in the current investigation. See Appendix A for a list of the expression potentially considered to encode [MOMENT] in all investigated languages.

Of the 27 expressions found, 25 were nouns, and 2 displayed noun-like properties that, in my opinion, warranted considering them as encoders of [MOMENT]. Regarding the context in which the expressions were found, the most common collocations were adpositions or locative case markers (78%), followed by determiners (59%), and modifiers (26%). In four languages, not including English, the expressions were found in subject positions. In three of those languages, the expressions showed selectional tendencies for terminal/deictic verbs, similar to the lexeme *time* in English (see 2.3.1).

The conceptual sources of the 27 expressions found to encode [MOMENT] were divided into five categories: TIME (11 attestations), VISION (8 attestations), INTERVAL (3 attestations), BREVITY (2 attestations), and ‘other’ (3 attestations). The expressions belonging to TIME

display a semantic shift of specialization, while the ones belonging to VISION, INTERVAL and BREVITY display metaphorical semantic shifts.

5 Discussion

This section discusses the results (5.1), the method (5.2), and further research to be made on the topic of the lexical concept [MOMENT] (5.3)

5.1 Results discussion

The fact that 10 of the 37 investigated languages were not found to encode [MOMENT] does not necessarily mean that an expressions do not exist in the languages, nor that [MOMENT] is not necessarily a primary lexical concept (see 2.3.1).

Regarding these 10 languages, it is worth pointing out that most of them are polysynthetic, including Muskqueam [hur], West Greenlandic [kal], Mapuche [arn], Ojibwe [ciw], Chukchi [ckt], and Ket [ket] (Auwera & Ammann 2013). Further, Guarani [gug] is highly agglutinative, exhibiting “remnants of an extensive polysynthetic behaviour” (Estigarribia, 2020, p. 2), and Navajo [nav] also displays elements of polysynthesis. In polysynthetic languages, single words containing numerous morphemes expressing tense, attitude, argument structure, etc., express that which would require a whole sentence in English. Consider (44):

(44) West Greenlandic

- a. Fortescue (1984, p. 26)

unik-kalla-at
stop-**a.while**-2SG-IMP
'Stop a moment'

- b. Fortescue (1984, p. 10)

ilinniar-titsisur=mi suli atuarvim-miik-kallar-pa
teacher-what.about still school-be.in-**for.time.being**-3SG.INTER
'But is the teacher still in the school?'

The morpheme *kalla* in West Greenlandic [kal] seems to encode a brief, discrete, period of time. Fortescue (1984, p. 26) classifies *kalla* as “a derivational affix...[meaning] ‘a while/for the time being’”. Although I have not found any evidence that there doesn’t exist a noun that encodes [MOMENT], the possibility that [MOMENT] is encoded via a derivational affix doesn’t seem to be out of the question, as the language displays an “extremely rich system of recursive derivation by suffixation” (Fortescue, 1984: introduction). This is typical for polysynthetic languages, with some containing 200-400 lexical affixes (Dahl, 2004, p. 220). Further, due to the fact that West Greenlandic is polysynthetic and displays complex morphophonemics, “individual morphemes may appear in considerably varying guise according to the context” (Fortescue, 1984: Introduction). According to Sadock (2003, p. 45),

“for the most part, the scope of an affix within a word matches its semantic scope with respect to the meanings of the other pieces of the word”. This certainly presents difficulties for finding the counterparts of individual lexemes encoding [MOMENT] in seed languages using Parallel Tools. If it is the case that there is no individual noun-form encoding [MOMENT] in languages like West Greenlandic, would the notion of the encoding of non-relational lexical concepts have to be expanded to include derivational affixes, or would [MOMENT] rather no longer be considered a primary lexical concept?

Because Evans’ (2006) work is not a typological one, it may not be surprising that he does not outright mention the possibility that affixes like *-kalla-* could encode non-relational concepts. However, previous research by Mithun (1997) and Dahl (2004, p. 220) defines lexical affixes as “morphemes that are like grammatical affixes...but retain concrete meanings that would in most languages be connected with lexical items or stems”. This seems to be in line with what is encoded by *-kalla-* and what may be present in several of the investigated polysynthetic languages.

This brings me to another issue related to relational vs. non-relational lexical concepts. As stated in 2.3, the key difference between the two is that non-relational lexical concepts determine *what* conceptual knowledge (cognitive model) is activated, while relational lexical concepts affect *how* a cognitive model is activated. The semantic value of relational lexical concepts “includes information relating to the sorts of lexical concepts which the relational lexical concept can relate, i.e. ‘argument structure’ or ‘valence’” (Evans, 2006, p. 510). Further, relational lexical concepts “encode how the temporal structure of the relation is being accessed (Evans, 2006, p. 510). However, nouns and adverbs do not exist as separate word classes in all languages, such as Desano [des]. Hence, which type of lexical concept do forms such as the ones in Desano (see 4.2.1) belong? In Desano, “temporal adverbial expressions are expressed by nouns referring to time” (Silva, 2012, p. 97). Does the form *irisubu*, by virtue of its being a noun that encodes the temporal structure of a predicate, as presented in (7), encode a relational or non-relational lexical concept?

This, in turn, touches upon another issue regarding lexical concepts, which is that they rely on the notion of cognitive models. Cognitive models are psychological entities that would need to be supported by “a fully fleshed out psychologically-based account”, which does not exist at the moment of writing this paper (Evans, 2006, p. 530). Moreover, to answer the question regarding what type of lexical concept *irisubu* belongs to, one would need to investigate whether the form activates a cognitive model that represents an entity in itself, or whether it relates to the way in which a given cognitive model is activated.

Regarding the type of contexts in which the collected expressions were found, the fact that adpositions and locative case markers were the most common collocations could be due to the type of data collected, as the language in the Bible reflects specific genres of language use, including narration. Nevertheless, adpositions are attested in all investigated languages of the current study (Dryer, 2013), which excludes the possibility that adposition collocation was not attested in a language because it lacks the feature. Moreover, because a moment is a temporal concept, it may not be surprising that a majority of the forms associated with [MOMENT] were either attested as complements of adpositional phrases or affixed by locative case markers.

Regarding the conceptual sources of the collected expressions, it may not be surprising that a noun meaning ‘time’ was found to be the form that encoded [MOMENT] more than any other source. However, it must be borne in mind that there could indeed be forms that were not

collected during the current study that are not colexified with ‘time’ in the investigated languages also may encode [MOMENT]. Moreover, in several languages, [MOMENT] was observed to be encoded by both a form meaning ‘time’ as well as a form exhibiting a different conceptual source. In those cases, the form with a different conceptual source was included in the data at the expense of the ‘time’ form, as the latter obviously encodes a broader aspect of ‘time’ as a general concept and requires specific contexts to encode [MOMENT], whereas the temporal concept expressed by the former is restricted to [MOMENT]. For example, Arabic displays this discrepancy in (45):

(45) Arabic [arb]

a. Own data

<i>a'tee-ni</i>	<i>waqt</i>
give.IMP-1SG.ACC	time
‘Give me (some) time.’	

b. Own data

<i>a'tee-ni</i>	<i>lahtha</i>
give.IMP-1SG.ACC	moment
‘Give me a moment.’	

In (45a), *waqt* ‘time’ does not encode [MOMENT] in the same way it would had it selected a terminal motion verb such as *han* ‘arrived’. On the other hand, in (45b), *lahtha* ‘moment’ occurs in the same context and encodes [MOMENT]. In terms of temporality, *lahtha* cannot be applied to a more general sense of ‘time’.

The fact that VISION was, outside of TIME, the most common category in terms of conceptual sources for [MOMENT] can be explained by the fact that vision is our most dominant sense (Pocock, 1981; Stokes & Biggs, 2014). This is also reflected through language use. For instance, Viberg (1984) was the first to document the polysemy of sensory verbs, in which he discovers that vision verbs can undergo semantic extension to encode HEARING, but auditory verbs cannot be extended in the opposite direction to encode VISION. Similarly, Roque et al. (2015) investigate the frequency of vision verbs across 13 languages and cultures and find that vision verbs dominate other sense verbs in terms of frequency, suggesting that linguistic preference for vision is universal. As such, it may not come as a surprise that references to the concept [MOMENT] often coincide with or can be expressed through references to sight.

This phenomenon also reminds us that, as I propose in 2.3.1, [MOMENT] is associated with the cognitive model EXPERIENCE. This is further evidenced by the elaboration of [MOMENT] by terms of deictic motion (see 2.3.1 and 4.2.4), which has to do with the experience of new occurrences in time. After all, one could argue that the sequence of individual moments, however brief or long, are all we have access to in our present experience of time. The next biggest category of conceptual sources was INTERVAL. This conceptual elaboration has to do with the fact that a moment is a discrete point in time, meaning it is an brief interval within a larger interval of time. One may argue that Mandarin Chinese [cmn] 瞬間 *shùnjiān* ‘moment’ and the Korean [kor] cognate 순간 *sungan* ‘moment’ also belong to the

INTERVAL category on the basis of the meaning of the second glyph 間 *jiān* 'interval, space'. This is a fair critique. The reason they were included in the VISION category rather than the INTERVAL category was that the interpretation of the 'interval' glyph in relation to the 'blink' glyph was not clear. For instance, should 瞬間 *shùnjiān* 'moment' be interpreted as 'the space (time) in between two blinks', or 'within a blink (in the blink of an eye)', or in some other way? In any case, one could intuitively argue that the salient property of the expression is that [MOMENT] is elaborated in terms of a brief unit of time in which vision – and as an extension perception and experience – plays the biggest role.

Now turning to the BREVITY category, this conceptual source category relates to the notion that moments are brief rather than long time periods. Another intuitive argument one could make is that the four expressions exhibiting the conceptual sources BLINK and WINK (other than the aforementioned Mandarin Chinese [cmn] and Korean [kor] expressions, these are Finnish [fin] *silmänpäys* and Amharic [amh] *qtsbt*) should belong to the category BREVITY rather than VISION, as the evolution of the action of blinking/winking to mean 'moment' can be ascribed to the fact that the amount of time it takes for a human to blink is usually very short. Perhaps a better way of presenting the conceptual sources would be to label them as belonging to overlapping categories.

As stated in section 4.3.5, the Sanskrit [san] word *kṣaṇa* 'an extremely small portion of time' (Grimes, 1996, p. 169) has been borrowed into multiple languages in the MSEA macroarea as a result of linguistic and ethnoreligious contact. The origin of the term deserves to be expounded briefly. In the Vedas, the oldest known scriptures of Sanskrit literature and Hindu scriptures, various small units of time are given. In these texts, one *kṣaṇa* is said to be the equivalent of three *nimeṣa*, with *nimeṣa* being equal to 'a blink' (Gupta, 2010, p. 5). The concept of a *kṣaṇa* is also relevant in Buddhist thought: "physical objects and mental events that persist over time are posited in fact to be merely a collection of [*kṣaṇas*]" (Buswell & Lopez, 2017).

The results provide an example of how universal dominance of vision in human sense perception shapes language in terms of the semantic sources leading to forms that encode the lexical concept [MOMENT]. This source was found in genealogically and geographically distinct languages. Moreover, these findings support Evans' (2006) ideas regarding the connection between new experiences and [MOMENT]. Further, expressions falling under the VISION category are examples of how humans use bodily based, concrete experiences to encode abstract concepts. Ahrens & Huang (2002, p. 491), as stated in the introduction, consider this central to the cognitive linguistics paradigm. On the other hand, the results demonstrate that the division Evans (2006) makes between relational and non-relational lexical concepts can present difficulties when applied cross-linguistically, as not all languages demonstrate clear boundaries between nouns and adverbs.

5.2 Method discussion

In terms of sampling, one issue is that there is a Eurasian and African bias. Another issue is that languages from Australia have not been included due to time constraint. The investigated languages are part of a convenience sample. As a result, even in the case that forms encoding [MOMENT] were found in all the investigated languages, none of the results regarding the

cross-linguistic universality of [MOMENT] as a primary lexical concept would have been conclusive.

In terms of data collection, the sources used must be discussed. Firstly, using a parallel corpus based on the Bible has several issues. Firstly, the language used may not reflect the way that the expression encoding [MOMENT] is used in everyday speech. As mentioned in the previous section, there is a genre-based bias in terms of the language used in the Bible. Taking English as an example, the way that *moment* is used in (46) perhaps signifies an ongoing semantic extension of *moment* from encoding a brief period of time to encoding a period of time in which new, important, compelling events take place:

- (46) a. She's having her moment.
b. They need a big moment here!
c. The 1980's were a moment.

Although I cannot give any statistics regarding the frequency of *moment* used as the complement of a prepositional phrase in the English [eng], Arabic [arb], and Greek [ell] Bible (the seed languages used for searches in Parallel Tools), it seemed to be the most common use. Because of this prevalence, polysynthetic languages, which usually expressing temporal adjuncts with derivational affixes that display complex morphophonemics, were not easily identified using Parallel Tools. Further, Parallel Tools does not provide information regarding the Bible verse in which a given counterpart expression was found. This, made it difficult to compare specific verses in the target language and the seed language without having to consult further sources.

Another issue was the different amount of data available for each language in Parallel Tools. Some languages contained multiple versions of the Bible. For example, more than 30 different versions of the Bible translated to English are available in English, including New Readers, New Simplified, Catholic, Scriptures, etc. just to name a few. In other languages such as Chukchi, only one translation of the Bible is available. This has certainly impacted the results, as the languages that are spoken more widely also display a larger portion of Bible translations present in Parallel Tools, which increases the likelihood of finding instances of an expression for [MOMENT]. Although a secondary source apart from Parallel Tools was used in all cases, because Parallel Tools in many cases gave a reliable hint as to what the expression for [MOMENT] could be, the absence of the initial expression yielded by Parallel Tools was a disadvantage. Further, it was not possible to see in what version of the Bible a certain expression was written. This would have been useful in looking up exactly how different version of the Bible compare to each other.

On the other hand, the strength of Parallel Tools was the various search possibilities. Being able to combine the distribution of seed words from multiple metalanguages in search for a target language counterpart increased the probability of discovering an accurate counterpart. Another strength was the ability to search for instances of a form in a given language that corresponded with the distribution of a form encoding [MOMENT] in a metalanguage. For example, as mentioned in 3.2.2, the form *hono* in Maori exhibited a probability index score of only 8. Parallel Tools provides the possibility of searching for the instances in the English Bible in which *hono* corresponded with the distribution of *moment* in English. The result of

the search demonstrated that the distribution of *hono* matched the collocation *every moment* in English, as the word *hono*, turned out to be a verb meaning ‘to connect’ (Biggs, 1990, p. 28).

Regarding the secondary sources used, these did not always provide enough instances of the collected expression in context. For example, the Bafut word *nòò* ‘time’, was found on one occasion to seemingly encode [MOMENT] in collocation with the distal demonstrative pronoun *yii* (Tamanji, 2010, p. 198). However, there was not enough data to conclude that *nòò* indeed does encode [MOMENT]. Further, for some languages, the orthography in the Parallel Corpus did not always correspond with the orthography used in the reference grammar, which made it at times difficult to look up forms found in Parallel Tools within the relevant reference grammar.

Perhaps a more reliable method would be eliciting data by means of a questionnaire sent out to experts and/or native speaker of the target languages. In such a questionnaire, one could elicit specific information about the encoding of [MOMENT] such as in what contexts a speaker might use a given expression. This may provide the researcher with more information regarding selectional tendencies, collocations, relationships to different cognitive models, and semantic extensions pertaining to the expression. Such a method could be combined with the method described in section 3, as well as using monolingual corpora to be able to select and thereby control for certain genres.

5.3 Further Research

Priorities for further research on the lexical concept [MOMENT] would be to increase the number of investigated languages to be able to make broader claims about the status of [MOMENT] as universal, the contexts in which forms encoding [MOMENT] are used, and the conceptual sources of such forms.

Further, I suggest investigating how [MOMENT] is used in different genres of discourse. For instance, how does the way [MOMENT] is used in the Bible differ from everyday speech? Does the notion of [MOMENT] differ in terms of contextual use in religious/spiritual genres compared to genres such as sports commentating?

Another angle of investigation could be exploring the brevity aspect of [MOMENT]. As stated in (11) (see 2.3.1), [MOMENT] is a brief, discrete, but unbounded period of time. Using discourse analysis, for instance, can we reach a conclusion as to whether various linguistic cultures demonstrate significant differences regarding the length (brevity) of a [MOMENT]? If so, what factors might explain these differences?

Moreover, one could investigate the synchronic semantic extensions of forms encoding [MOMENT]. Are there any cross-linguistic patterns regarding how forms associated with [MOMENT] evolve to take on other meanings? For instance, Georgakopoulos & Polis (2021, p. 390), as stated in 2.1.1, find that *nw* ‘moment’ in Ancient Egyptian exhibits a semantic shift of generalization towards the hypernymic meaning ‘time’ in later attestations. Seeing as many of the collected expressions associated with [MOMENT] in this study evolved through specialization from words meaning ‘time’, how common is the generalization shift in the other direction?

Lastly, another possible research question would be whether the cognitive models associated with [MOMENT] in English presented tentatively in 2.3.1 are universal or not. If so, would the implication be that all languages across the world conceive of NOW as a brief, discrete, unbounded, point in time?

6 Conclusion

As stated in 2.5, the research questions going into the current study were:

- 1) Do we find an encoding for [MOMENT] in the investigated languages as defined in (11) (see 2.3.1)? What is the morpho-syntactic status of the collected expressions?
- 2) Do these expressions tend to occur in similar contexts across languages?
- 3) Do these expressions exhibit similar conceptual sources?

Out of the 37 languages investigated, 27 languages displayed an encoding of [MOMENT]. Out of these 27 expressions, 25 were nouns and 2 displayed certain properties that gave reason to suspect that the forms could be considered something other than nouns. The majority of the 10 languages in which no form associated with [MOMENT] was found were polysynthetic. The study does not present conclusive answers to research question 1), as it cannot be guaranteed that an encoding of [MOMENT] in any of those 10 languages does not exist.

Regarding the contexts in which the expressions were found to occur, 20 of 27 collected expressions were found functioning as part of adverbial phrases, either as result of affixation of a locative marker, or by acting as the complement of an adpositional phrase. Less common collocations were determiners (16 of 27 expressions) and modifiers (7 of 27 expressions).

Regarding question 3), it was found that 11 of 27 expressions were encoded by a form synchronically colexified with a word meaning ‘time’ in the investigated languages. 8 of 27 expressions were encoded by a form related to the concept VISION. Based on the large proportion (30%) of expressions exhibiting this source, it seems VISION is a common conceptual source for the encoding of [MOMENT]. 3 of 27 expressions were encoded by a form related to the concept INTERVAL. 2 of 27 expressions were encoded by a form related to the concept BREVITY. The conceptual sources for the remaining three languages did not fit into either of the categories mentioned.

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Appendices

Appendix A: Investigated languages and expressions found

Language	ISO 639-3	Macroarea	Phylum	Genus	Expression	Source
Amharic	amh	Africa	Afro-Asiatic	Semitic	ቅጽበ (qtsbt)	Leslau, 1991, p. 449
Arabic, Standard	arb	Eurasia	Afro-Asiatic	Semitic	لحظة (lahtha)	Wehr, 1976, p. 725
Armenian, Eastern	hye	Eurasia	Indo-European	Eastern-Western Armenian	սլոխ (pah)	Dum-Tragut, 2009, p. 703; Ačaryan, 1926, p. 9
Awa-Cuaiquer	kwi	South America	Barbacoan	Barbacoan	-	Curnow, T. J., 1997
Bafut	bfd	Africa	Niger-Congo	Wide Grassfields	nòò yii (?)	Tamanji, 2010, p. 198
Basque	eus	Eurasia	Basque	Basque	une	Hualde & Urbina, 2003, p. 746; Michelena, 1961, p. 305
Chukchi	ckt	Eurasia	Chukotko-Kamchatkan	Northern Chukotko-Kamchatkan	wiin (?)	Dunn, 1999, p. 121
Desano	des	South America	Tucanoan	Tucanoan	irisubu	Silva, 2012, p. 136
English	eng	Eurasia	Indo-European	Germanic	moment	own data
Ewe	ewe	Africa	Niger-Congo	Gbe	yeyiyi	Rongier, 1995, p. 272
Farsi	pes	Eurasia	Indo-European	Iranian	لحظه (laze)	Steingass, 1963, p. 1119
Finnish	fin	Eurasia	Uralic	Finnic	silmänräpäys	Kotimaisten kielten keskuksen, 2022
Georgian	kat	Eurasia	Kartvelian	Kartvelian	dro	Hewitt, 1995, p. 42
Greek	ell	Eurasia	Indo-European	Greek	στιγμή (stigmai)	Beekes, 2009, p. 1405
Greenlandic Inuktitut	kal	Eurasia	Eskaleut	Eskimo	-kalla- (?)	Fortescue 1984, p. 26; Sadock, 2003, p. 45
Guarani	gug	South America	Tupian	Maweti-Guarani	sapy'a (?)	Estigarribia, 2020, p. 137
Indonesian	ind	Papunesia	Austronesian	Malayo-Sumbawan	saat	Sneddon, 1996, p. 221
Jola-Fonyi	dyo	Africa	Niger-Congo	Jola	no	Sapir, 1965, p. 81; Hewitt, 1995, p. 89
Kala Lagaw Ya	mwp	Papunesia	Pama-Nyungan	Northern Pama-Nyungan	thonara	Parallel Tools
Ket	ket	Eurasia	Yeniseian	Yeniseian	tam-in (?)	Kotorova & Nefedov, 2015, p. 365
Khalkha	mon	Eurasia	Altaic	Mongolic	möc	Östling & Brosig, 2011

Korean	kor	Eurasia	Korean	Korean	순간 (<i>sungan</i>)	Parallel Tools
Mandarin Chinese	cmn	Eurasia	Sino-Tibetan	Chinese	瞬間 (<i>shùnjiān</i>)	Lee & Fan, 2017
Maori	mri	Papunesia	Austronesian	Oceanic	<i>wa</i>	Bauer et al. 1993, p. 380
Mapuche	arn	South America	Araucanian	Araucanian	-	Smeets, 2008
Mocovi	moc	South America	Mataco–Guaicuru	Qom	<i>laloqo</i>	Parallel Tools
Mupun	sur	Africa	Afro-Asiatic	West Chadic	<i>pée</i>	Blench et al., 2021, p. 114
Muskqueam	hur	North America	Salishan	Central Salish	<i>wəqéʔis ʔai</i> (?)	Suttles, 2004, p. 432
Navajo	nav	North America	Na-Dene	Athapaskan	-	Goossen, 1995
Ojibwe	ciw	North America	Algic	Algonquian	<i>pii</i> (?)	Rhodes, 1993, p. 331
Shona	sna	Africa	Niger-Congo	Bantu	<i>nguva pfupi</i>	Mawadza, 2000, p. 22
Tagalog	tgl	Papunesia	Austronesian	Greater Central Philippine	<i>sandali</i>	Panganiban, 1994, p. 108; Schachter & Otanes, 1972, p. 471
Tamil	tam	Eurasia	Dravidian	Dravidian	கணம் (<i>kaṇam</i>)	University of Madras, 1924-36, p. 1517
Thai	tha	Papunesia	Tai-Kadai	Kam-Tai	ᨶ᩠᩵ᩁ (<i>khruu</i>)	Haas, 1964, p. 47
Tuvaluan	tlv	Papunesia	Austronesian	Oceanic	<i>taimi</i>	Besnier, 2016, p. 587
Vietnamese	vie	Eurasia	Austroasiatic	Vietic	<i>chốc</i>	Hyde, 2008, p. 423
Yoruba	yor	Africa	Niger-Congo	Defoid	<i>ìṣẹju</i>	Yai, 1996, p. 174

(?) means the expression could be a potential encoding of [MOMENT], but it is not considered as such in the present study.

Appendix B: Commands used in Parallel Tools

Python3 command	Functions	Example
find_instances.py	<ul style="list-style-type: none"> • Finds instances in source language matching a regular expression followed by -e • -v prints the instances in context • eng specifies language based on ISO 693-3 	❖ python3 find_instances.py -v -e 'moment' eng
find_equivalents.py	<ul style="list-style-type: none"> • Must follow a find_instances.py command. • Searches for words or character sequences in the target language that correlate with the distribution of the sentences/verse found in find_instances.py • --features=... specifies whether the search should search for words, bigrams, subsequences, or all the above 	❖ python3 find_instances.py -v -e 'moment' eng python3 find_equivalents.py --features=words,bigrams,subsequences mri
find_instances.py -e find_instances.py -a -e	<ul style="list-style-type: none"> • Looks for counterparts based on average distribution of two or more separate words or character sequences in two or more languages • Can be used to look for counterparts in a target language to the average distribution of several words in seed languages. • Can also be used to look for instances of when the distribution of a target language form corresponds with the distribution of a seed language form. 	❖ python3 find_instances.py -e 'στιγμή' ell \ python3 find_instances.py -a -e 'لحظة' arb \ python3 find_instances.py -a -e 'moment' eng \ python3 find_equivalents.py --features=words,bigrams,subsequences mri
	<ul style="list-style-type: none"> • Can be used to look for counterparts in a target language to the average distribution of several words in seed languages. • Can also be used to look for instances of when the distribution of a target language form corresponds with the distribution of a seed language form. 	❖ python3 find_instances.py -e 'hono' mri \ python3 find_instances.py -a -v -e 'moment' eng

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