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**WHAT DOES TIME DO? THE SPATIALIZATION AND THE
TRANSIENCE OF TIME IN ENGLISH, FINNISH AND HUNGARIAN**

TEZĂ DE DOCTORAT

Rezumat

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KEYWORDS: agent, causative verbs, cognitive linguistics, conceptual metaphor, conceptual metaphor theory, corpus, force, force dynamics, image schemas, linguistic metaphor, metaphorical entailments, motion event, motion verbs, ontological metaphor, path, source domain, spatialization, time, time metaphors, transience, universality.

SUMMARY

Such a universal, yet abstract concept as time shows variation in metaphorical language. This research focuses on metaphors within the framework of the cognitive metaphor theory, investigating time through a contrastive, cross-linguistic approach in three satellite-framed languages. By combining qualitative and quantitative methods, this study attempts to identify what time does in language in a metaphorical context, with a focus on motion verbs, (e.g. *time rushes*), as well as verbs in causative constructions, (e.g. *time heals*), through an empirical corpus-based study complemented by the lexical approach. The aim of the study is to investigate how the spatialization and the transience of time surfaces in time metaphors through verbs in a sample of three languages, with a focus on the following aspects: motion through space (Galton, 2011: 701), as well as creation or consumption by time (Galton, 2011: 702). The two main conceptual metaphors that are investigated in this study are TIME IS A MOVING ENTITY and TIME IS A CHANGER (mentioned by Lakoff and Turner, 1989: 86). While these two conceptual metaphors are expected to be frequent in all three languages, differences such as preference of a type of motion over another (dynamicity), or negative/positive asymmetry (polarity) are expected to be found. The primary objective is to explore such differences and see how they manifest and why, with a focus on cognitive underpinnings. The paper has two sections: a quantitative one, where the results are measured in scales, and a qualitative one, with a focus on image-based metaphors and other aspects of language, which are more difficult to quantify. The quantitative analysis assesses the most frequently used metaphorical expressions with time, as well as novel constructions.

This corpus-based study shows differences in how time appears in metaphorical language on the linguistic level, the figurative level, as well as on the conceptual level. We can agree that such abstract concepts as time are “difficult to define because they form part of the bedrock of our cognitive architecture” (Evans, 2004: 8). For this reason, when we speak about what time does, we often rely on metaphor or metonymy, in fact it is not easy to talk about time without linking it to something more familiar and concrete. Time is therefore often connected with concepts such as money (Lakoff, 1987: 210), an object (Evans, 2004: 253), a moving object (Lakoff and Johnson, 1980: 42) or even an entity that carries out actions. Time conceptualized as an agent is shared in the three languages in this study.

This research explores a specific mapping of time metaphors: the main focus is *time* as a personified entity, especially instantiations of time as an agent, usually found in ontological metaphors, in which a non-human entity seems to have human-like attributes (Lakoff and Johnson, 1980: 33). In the case of such time metaphors, time carries out motion or other actions, which show a certain degree of animacy and sentiency of a metaphorical agent. While other research studies time in its entirety e.g.,

all temporal nouns, tense etc. (e.g., Huumo, 2017), this research only analyzes the word *time* and verbs that it occurs with, because frequently quoted metaphors such as *We are approaching Christmas* or *Christmas is coming*, as well as the difference between Moving Ego and Moving Time metaphors have been already researched extensively (e.g., Lakoff and Johnson, 1980, 1999, Lakoff, 1993; Kövecses 2005, Huumo 2017, Evans, 2013a, b etc.).

To achieve the aims of the research, the following steps are taken: 1. creating a large database of verbs (primarily motion verbs and causative verbs) used in time metaphors, 2. comparing the metaphors at a linguistic level, at a figurative level, and at a conceptual level, 3. identifying cognitive mechanisms that metaphors are based on, 5. interpreting differences and similarities based on theories of cognitive linguistics.

The thesis has five main parts. The first chapter introduces the main research aims and presents the methodology. It also describes the sources of the data gathered for the study of metaphors in the three languages, as well as a short presentation of English, Finnish and Hungarian. This is followed by the second chapter, which presents the theoretical foundations that the research is based on, with a focus on the concept of time, as well as its connection to transience and spatialization. This section also discusses the main theoretical framework chosen for the research.

Chapter three is the largest section, it contains the comparative analysis of time metaphors; this chapter can be divided into three parts, first, it discusses contrastively motion verbs found in time metaphors in the three languages, then causative verbs in the same manner. Lastly, genitival components in time metaphors are discussed that capture the spatialization or the transience of time.

Chapter four briefly discusses a few examples of spatialization and transience in novel metaphors, with a focus on auditory as well as visual aspects that time is associated with in metaphorical language. Chapter five shows the results organized into scales, followed by conclusive remarks regarding the results of the quantitative and qualitative analysis.

The collection of motion verbs captures the spatial elements of time through the schema of path, and transience through the motion aspect as defined by Galton (2011). The overview of motion in time metaphors reveals some relevant factors. Among the 32 verb clusters (or in some cases individual verbs), 36 fixed expressions¹ are identified with a high Mutual Information score of over $4.00 \log_2$, based on motion verbs in the three languages; 14 in Hungarian, 9 in English (including 3 idioms) and

¹ Fixed expressions are those clusters of words, which have an MI score based on \log_2 that is higher than 4.00, as calculated in the *Stability Scale* (Chapter 5).

13 in Finnish. In addition, there are some other recurrent multiword expressions used with time, which have an MI score lower than $4.00 \log_2$, such as *time catches up with you*, *time gets away from you*, *time hangs heavy*, *time drags on*, as well as the Hungarian metaphor *elrepül felette az idő* and *hajlik az idő* used with the sublative or the illative case (e.g., *esté-re hajl-ik az idő*, evening-SUBL curve-3SG.PRS the time.NOM, lit. ‘time curves towards the evening’), and the Finnish *aika jättää*, ‘time leaves’. Other recurrent multiword expressions with motion verbs based on TIME IS A FINITE ENTITY are *time runs out*, *time winds down*, the Finnish *aika menee johonkin/vähiin/hukkaan/umpeen*, ‘time is used up/runs out/goes to waste’, and the Hungarian *rámegy/kárba megy az idő*, ‘time is used up/ time goes to waste’.

The difference patterns of metaphors with motion verbs (based on the model of Kövecses, 2005), show that the criteria most frequently subject to variation among the three languages is in literal meaning and the least variation in conceptual metaphor. Literal meaning differs 17 times, figurative meaning 8 times, the conceptual metaphor 4 times, and the type of motion event 8 times. The form differs 13 times because there are fixed expressions in only one or two out of the three languages within the given verb cluster, and not in all of them.

These results show that when three languages are compared, it is likely that lexically similar motion verbs show differences in certain aspects of motion, e.g. the presence or the absence of the Ground. Highly frequent motion verbs are more likely to be the building blocks of fixed expressions, but it is not always predictable which ones. It was expected that the conceptual metaphor varies the least in these expressions, because it was one of the criteria of metaphor selection. The figurative meaning is more likely to vary if there is a metaphor with a fixed form, which in some cases can also be an idiom. In these cases, the motion event can also show specific traits. The components of the motion event surface as follows in the moving time metaphors selected from the corpus: the Path is present in 14 verb clusters including fixed expressions; the Ground in 13 verb clusters including fixed expressions and the rate of motion in 7 verb clusters. This shows that the Path of motion is frequently present either encoded into a non-prototypical path verb or through satellites. The Ground appears in about one third of the selected metaphors.

A recurrent figurative meaning found in all three languages surfaces through the Finnish *ajaa* ‘drive’, and the Hungarian verbs *(el)jár* ‘walk’, *(el)halad*, ‘pass’, *(túl)lép* ‘step’ and *megy* ‘go’, although they differ lexically. All of these verbs appear in idioms where in addition to a motion verb the Ground and the Path of motion are present, and the meaning is growing old or becoming obsolete. Some other verbs that encode the rate of motion are occasionally built on the same pattern, e.g., the Finnish verb *rientää*, ‘run’. While the lexical items representing the Path differ in these metaphors,

(‘by’, ‘over’, ‘near’, ‘past’) the Vector is the same, based on the model of Talmy (2000b: 53-54), which is MOVE AWAY-FROM (ibidem).

Besides motion verbs, there are 30 verb clusters, or in some cases individual causative verbs, that are identified in the corpus in time metaphors. An overview of causation with time reveals some relevant factors: 24 fixed expressions are identified with causative verbs in the three languages; 3 in English, 10 in Finnish and 11 in Hungarian. Literal meaning differs 11 times, figurative meaning 3 times, and the conceptual metaphor 2. The form differs 11 times, because there are fixed expressions in only one or two of the languages within the given verb cluster, and not in all of them. Compared to the difference patterns in the analysis of motion, when it comes to causation, there are a similar amount of verb clusters, and approximately the same amount of variation in linguistic meaning and form. There is less variation in figurative meaning as well as conceptual metaphor.

In addition to the fixed expressions, there are some other recurrent multiword expressions used with time, which have an MI score lower than $4.00 \log_2$, but are relevant, such as *time heals all wounds*, and *time will show* in English, *aika hoitaa asian/ongelman*, ‘time takes care of the issue/problem’, *ajan hammas syö*, ‘the tooth of time eats’ in Finnish, and *az idő mindent megold*, ‘time solves everything’, *megválaszolja az idő*, ‘time will answer’ and *ha úgy hozza az idő*, ‘if it happens that way’, in Hungarian.

Based on this overview, it also seems like there is more variation in this group regarding the conceptual metaphor than in the case of motion. This is true if we look at generic/specific level metaphors such as TIME IS A CHANGER or TIME IS AN ENTITY WITH TEETH/TIME IS A DEVOURER, as well as on the level of source external variation. Besides the more general metaphors that signal polarity, as the TIME IS AN ENEMY/ALLY dichotomy, other source domains that surface here are BURDEN, DARKNESS, DESTROYER, DEVOURER, EQUALIZER, EVALUATOR, FORCE, GUARDIAN, HELPER, HEALER, JUDGE, REVEALER, TEACHER, and THIEF.

The final results of the analysis show some interesting differences.

Time associated with motion in metaphors is more frequent in all three languages than time associated with causation. The reason why TIME IS A MOVING ENTITY metaphor prevails in all three languages over TIME IS A CHANGER can be explained by cognitive dynamism (Talmy, 2000a: 14) or the “cognitive bias towards dynamism” (Talmy, 2000a: 171). Time in language often appears as a dynamic object, a moving object or entity, as the corpus results suggest. This argument is supported not only by linguistic metaphors that express translational motion, but fictive motion and positional

verbs too. Such results bring further evidence that there is “the propensity to represent an otherwise static concept in terms of action” (Talmy 2000a: 15), in this case time. As it turns out, this dynamic aspect of time is not always evident in the same way, and it can surface differently in the three languages, as the rest of the results suggest.

Regarding types of motion, one aspect that stands out based on the frequency of certain verbs is that Finnish relies more on the cycle image schema than the other two languages, which results in more metaphors where time is associated with a circular movement or self-contained motion. In English, such motion verbs in time metaphors are quite rare, which suggests that the image schema of cycle is not relied upon as heavily. From a conceptual point of view this means that the image schema of cycle and through it the cyclic nature of time motivate figurative language frequently in Finnish, while in Hungarian and English only rarely. Image schemas can offer a common cognitive basis, but the amount that a language relies on these schemas, the rate at which they surface in any given language, can differ. Other differences in the manner of motion have to do with the medium: time moves through the air in metaphors more often in Hungarian, the medium of motion being much higher both in frequency and variety.

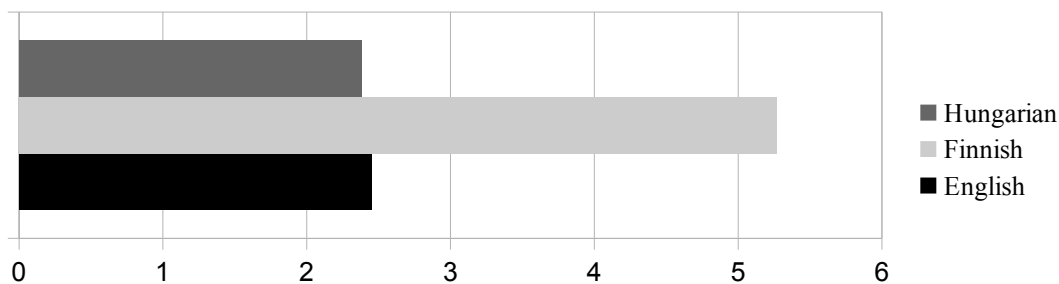


Chart 1. *Frequency scale based on the normalized frequency of causation*

Finnish has a higher frequency of causation linked with time than the other two languages, as the frequency scale shows, but the biggest discrepancies among the three languages are shown in the frequency scale of motion. What the scale, as well as the material gathered from the corpora suggests, is that the normalized frequency of TIME IS A MOVING ENTITY metaphors is significantly higher in English compared to Finnish and Hungarian. The frequency of such metaphors is double in English, which shows that there is a major difference in expressing the passing of time in these languages.

Moving time as a Figure ²	English	Finnish	Hungarian
Raw frequency (total number of occurrences)	6478	2603	3549
Normalized frequency (token number per 1 million words)	7.41	3.10	3.41

Table 1. Raw and normalized frequency of motion in time metaphors where time is a Figure

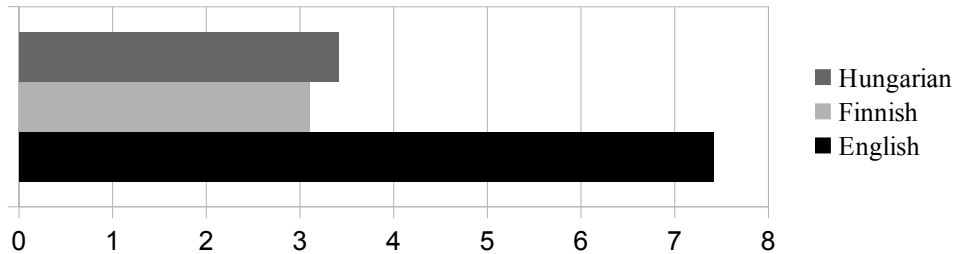


Chart 2. Frequency scale based on the normalized frequency of motion

The reason for this is that in English the passing of time is expressed prevalingly through motion verbs: in English *time passes* and *time goes by*, and besides these high frequency metaphors there are other frequent ones that express this concept. In fact, the normalized frequency of *time passes by* and *time goes by* is considerably higher than any motion verb that is used with time in Finnish or Hungarian. In these two languages this is expressed in a different manner. In both Finnish and Hungarian, the passing of time is lexicalized primarily through verbs denoting change and not motion, as well as through a container metaphor in Hungarian. These verbs are *kuluu*, ‘wear on’ in Finnish, and *múlik*, ‘elapse’, as well as *telik*, ‘fill’ in Hungarian; neither of them are motion verbs.

In Hungarian the highest frequency verb in time metaphors that expresses the passing of time is *telik*, (*el*), (rf 3962), in metaphors like *tel-ik az idő*, (fill-3SG the time.NOM), ‘time fills/time gets filled¹¹²’. The Finnish *kuluu* has a similarly high frequency, and *múlik* also exceeds 1000 hits in the corpus in time metaphors. Besides being frequent, they have a high co-occurrence with time: *aika kuluu*, $\log_2 6.18$, (‘time wears on’), *múlik az idő*, $\log_2 6.59$, (‘time elapses’), and *telik az idő* $\log_2 8.04$ (‘time fills up’).

This significant discrepancy has implications not only at a lexical level, but also at a conceptual level: English relies primarily on TIME IS A MOVING ENTITY conceptual metaphor, rather than on other conceptual metaphors such as TIME IS A FINITE ENTITY (Hungarian, Finnish) or TIME IS A

² Only those metaphors are included into this calculation, where time is the Figure of motion. This table therefore includes such metaphors as *time flies*, *time marches*, *time crawls*, *time passes by* etc. but does not include such examples as *time stretches out*, *time flows*, *time turns* and so on.

CONTAINER (Hungarian). What qualitative analysis shows, is that Hungarian and Finnish are more likely to use verbs that capture the transience and not the spatial characteristics of time, while English relies primarily on motion verbs, which besides transience also link time to space.

The other implication could be that verbs like *kuluu* and *múlik* ('wear on, elapse') have a negative semantic prosody, while motion verbs such as *pass* or *go* do not; however, in the English metaphor *time runs out*, based on a motion verb, *run out* is associated with negative semantic prosody as well. This could imply that in all three languages there is a time metaphor, which is not linked to causation, but it captures a negative attitude towards the passing of time through verbs.

To sum up, time metaphors reveal differences in the profile of time through the following dichotomies: dynamism and staticism, activity or passivity. This is supported by the corpus results, which show that in English time appears frequently with motion verbs, thus in a dynamic context. In Hungarian and Finnish, the highest frequency verbs in time metaphors are non-motion verbs, expressing change rather than motion. It also seems that some previous metaphor comparisons in English and Hungarian show a similar result, "a more action-oriented versus a more passivity-oriented attitude to love and to life in general" (Kövecses, 2005: 158).

Results also show that the polarity of force in time metaphors is asymmetric and non-polar metaphors prevail over polar metaphors. There are some differences in the degree to which languages rely on certain polarities. There are twice as many metaphors on the negative polarity of the scale in Hungarian than in English and Finnish; they also show more variety (more types, not just more tokens). In Finnish, the frequency of metaphorical expressions on the positive polarity is more than double compared to the other two languages. There are overall a higher number of metaphors that link time with causation in Finnish, and less in English. It seems that all languages have predominantly positive or neutral metaphors for time as an agent, and metaphors on the negative end of the polarity are rarer and are often more frequent in literature. With other words, it seems that what time "does" in language is more often positive or neutral than negative, and this is true for Finnish, Hungarian as well as English.

Polarity of force		English	Finnish	Hungarian
Raw frequency (total number of tokens)	Positive polarity	291	1448	489
	Context dependent/non-polar	1795	2869	1708

	Negative polarity	57	113	284
Normalized frequency (token number per 1 million words)	Positive polarity	0.33	1.72	0.47
	Context dependent/non-polar	2.05	3.41	1.64
	Negative polarity	0.06	0.13	0.27

Table 2. Raw and normalized frequencies of the polarity of force

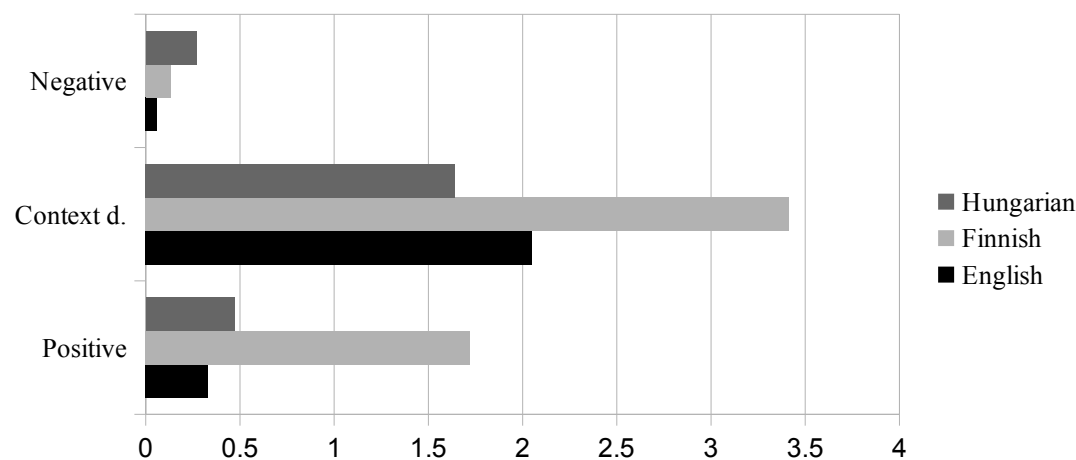


Chart 3. Polarity scale based on normalized frequency of polarity of force

The polarity of time metaphors is in correlation with the type of metaphor: negative polarity force patterns in time metaphors are more frequently novel, low frequency and emotionally charged; positive polarity, or neutral metaphors are often idioms or conventionalized expressions. Linguistic metaphors on the positive end of the scale tend to have a higher individual frequency in general, while the negative ones tend to be rare, more novel and original. This could suggest that when we speak about what time does, we rely on more creative and often highly figurative metaphors when the image of time is a negative one. On the other hand, the positive or neutral image of time is lexicalized usually through the same, recurring, conventionalized expressions, i.e., *time heals*. The fact that we tend to be more creative in language usage when we talk about something negative that has a profound effect on our lives can be explained by the negativity bias in language (Jing-Schmidt, 2007).

Another major difference regarding the causative nature of time can be found among metaphors, in which time appears as an evil entity. In Finnish, metaphorical blends of time having teeth are more frequent than in Hungarian, and not frequent in English at all. The explanation of these differences is the higher cognitive salience of certain concepts and instantiations of such concepts as fixed expressions as well as idioms among the collected metaphors.

There is a reason why most metaphors are context dependent or neutral. Certain aspects of gestalt psychology play a role in interpreting some of the results, such as the law of “regularity, symmetry, simplicity” (Koffka 1936: 109). These affect how we interpret the world: we tend to focus on these patterns and tend to interpret shapes that correspond to these factors (Koffka, 1936: 195). This could serve as an explanation to why neutral (or non-polar) causative constructions as well as the neutral (not fast, nor slow) motions verbs prevail in metaphorical language with time. Experiments suggest that what is normal, or with other words what is observed long enough, will “gradually become neutral” (Koffka, 1936: 121). The results show that experiences of time, which deviate from the norm, are reflected in metaphorical language too. What is different from the “normal” tends to stand out in language as well, with higher emotive impact, and novel metaphors prevail over dead metaphors. The same tendency can be observed when we talk about the slow or fast speed of time, compared to the neutral/average speed of time. We use conventionalized expression or metaphors more often for the “normal” or generic attributes of time, such as passing at a steady pace, etc. The Pollyanna effect predicts that positivity is more frequent in language, as well as conceptually: frequency in language can cause conceptual entrenchment (Jing-Schmidt, 2007: 423). This is substantiated by the metaphors collected from the corpus. At the same time, based on theories of Gestalt psychology, it seems that we focus and see first what is frequent, therefore usual for us, and what is not usual, but rare and different, has more emotive impact for this reason. These aspects engraved into cognition have evidence in language as well, and metaphorical language especially.

Metaphors on the polarity scale also show characteristics expected based on the negativity bias in language as well as the Pollyanna effect (as presented by Boucher and Osgood 1969, Jing-Schmidt, 2007, Baumeister et al, 2011, and Rozin and Royzman, 2001). This surfaces in several ways. Metaphors at the negative end of the scale contain lexical items as well as source domains, which suggests that there is an “asymmetrical entrenchment of emotions”, where “threat-relevant negative emotions are more entrenched than positive emotions” (Jing-Schmidt, 2007: 421). While these are not very frequent, they contain more images and novel connections on a conceptual level, which can be explained by the fact that we pay more attention to what is threatening (Jing-Schmidt, 2007: 420). Time in this research, especially at the polarity scale, has been conceptually linked with several negative entities that induce fear: TIME IS A DESTROYER, TIME IS A DEVOURER, TIME IS AN ENEMY, etc. Time is also linked with death and the unknown through metaphors such as the *mist of time*, *the mystery of time*, and others. It seems like it is the unknown entities that create fear and emotive intensification in language (Jing-Schmidt, 2007: 429), in this case time as a causative force.

To sum up the specificities, there is source-related variation in each language, which is most frequently source internal (through unique entailments), and less frequently source external (as specified by Kövecses, 2019b: 212). Source internal variation is more frequently based on the schema of path, thus spatialization, except in Finnish, while source external variation happens more frequently (type and not token frequency) based on the image schema of force and causation rather than on spatial schemas, such as path. Source external creativity is therefore more likely to capture the transience of time without the spatial aspect. Source internal variation is the most frequent in Hungarian and source external in Finnish.

The type of unique entailments discussed above are in congruence with the negativity/positivity asymmetry or bias (Baumeister et al, 2011, Jing-Schmidt, 2007) in language and cognition. New sources are more likely to emerge when talking about negative aspects (e.g., TIME IS DARKNESS, TIME IS A JUDGE, TIME IS A TRICKSTER etc.). Explicitly positive aspects of time surface as source internal variation instead of new sources (e.g., time covers with gold). Non-polar aspects of time are not found among the examples of variation, because they receive less focus through unique constructions in language and cognition, based on the negativity/positivity asymmetry (ibidem).

These figures show that variation occurs in frequent conventional expressions, not only rare, innovative metaphors. Although all the metaphors presented here are recurrent ones, some of the frequencies are quite low. This is not true however for all the cases, in fact some of them have a high to medium normalized frequency, e.g., *aika kultaa*, ‘time gilds’. What this suggests, is that there are a few metaphors in each language that show unique traits of source internal variation, through high frequency entrenched metaphorical expressions. New sources are rare, based on the number of new sources and their raw frequency: this means that in these three languages the sources are usually the same. The cross-linguistic differences thus show relevant frequency not through the uses of new source domains, but by bringing into evidence specific characteristics of these domains through unique entailments. This then also means that most of the metaphors are more similar than different in these three languages.

This study focuses on the spatialization and the transience of time as it emerges through verbs; both surface in all three languages. What quantitative analysis shows is that when talking about the passing of time, Finnish tends to rely more frequently on non-motion verbs that capture the transience and not the spatial characteristics of time, while English relies primarily on motion verbs, which besides transience also link time to space. Conceptually this suggests that in the particular metaphorical mappings discussed in this study there is a tendency to conceptualize time as a Figure which moves

along on a Path between two points in English, thus transience through motion; in Finnish on the other hand there is a higher likelihood for such mappings to emerge independently from “spatial representation” (Evans, 2013b: 395). The transience of time without the spatial element can be observed to a certain extent in Hungarian too, as well as through a different type of spatial aspect that is not typical for English or Finnish, where time is a meta-Figure or a substance-like mass entity. This has other implications as well. In typical lexicalization patterns of the passing of time in English, time tends to be a metaphorical agent, while in Finnish and Hungarian this aspect of time is less evident. This also implies that the source domain that time is connected with in English in the most frequent conventional expressions is more concrete, and in Hungarian and Finnish more abstract.

When talking about changes in time, one difference among the three languages has to do with preference of associating time with a negative or a positive aspect; Finnish stands out as having more frequent associations of time with a positive domain and Hungarian more with a negative one, compared to the other two languages. Moreover, some of the most frequent non-causative verbs that capture the transience of time in all three languages carry a negative semantic prosody. This shows a common tendency to associate time with a negative polarity through other types of verbs besides causatives.

The results confirm the hypothesis, there are differences in polarity and dynamicity that have quantifiable evidence in the three languages, but the variation surfaces in unexpected ways: substantial differences are less prominent and pivotal in dynamicity based on rate of motion, and more evident in the preference of non-agentive, transient time instead of moving time. Contrastive analysis of polarity reveals similar aspects: while there are measurable differences regarding the preference of positive, negative or non-polar framing of time, this surfaces in other types of verbs besides agentive time metaphors built on causative constructions. There are unexpected results as well: conceptually interesting findings that reveal differences in the most prominent conceptualizations of the passing of time are found in metaphors that initially were not considered as a primary focus of the study.

To sum up, there is evidence that time is frequently associated with space and motion, which is also visible in metaphorical language, but the image of time is not only derived from space, but metaphorically associated with other domains as well. Shared conceptual metaphors come from a shared experience of time: as time passes, we notice changes around us and all events happen in time; this can be linked with transience and spatialization, but the preference of one over the other exists. We can conclude based on the findings that Finnish and Hungarian in this sense show more similarities with each other, than either of them does with English. While this imbalance between the three

languages could surface in other ways in the languages overall, at this particular aspect the discrepancies can be substantiated both on a literal and conceptual level.

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