THE PERFECTIVE FORM IN ARUSA – A COGNITIVE-GRAMMATICALIZATION MODEL

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The present paper studies the semantics of the so-called perfective (PFV) form in Arusa (Maasai), using the model of the dynamic (one- and two-dimensional) semantic maps. The analysis demonstrates that PFV is a broad, semi-advanced resultative-path gram. It spans large sections of the two sub-paths of the resultative path: the anterior path (present perfect, perfective and non-perfective past, as well pluperfect and future perfect) and the simultaneous path (present stative). However, the PFV form is incompatible with the input sense of the resultative path (a resultative proper present) and the most advanced stages of the two sub-paths (non-stative present and progressive past). If the information related to prototypicality is included, the map adopts the shape of a wave with the prototypicality peaks located in the area of a perfective past and, to a lesser degree, a present perfect. The senses of a non-perfective past and a stative present are less prototypical. Other senses (pluperfect, future perfect and counterfactual *irrealis*) are non-prototypical, contributing minimally to the gram's semantics.
Keywords: Maasai, TAM verbal semantics, maps, cognitive linguistics, grammaticalization

1. Introduction

Arusa is an under-researched eastern Maasai language of the Nilotic family, spoken in Tanzania in the area near the Mount Kilimanjaro. The present paper deals with one aspect of this language, namely the semantics of the "Perfective"

gram(mmatical construction), henceforth, referred to as PFV.[1] In our analysis, we use the model of a two-dimensional dynamic map (the so-called wave model), which has been developed at the interfaces of cognitive linguistics and grammaticalization theory (for detail, see section 2. 2).[2]

In order to achieve this goal, the paper will be organized as follows: To begin with, in section 2, we will present the background of our study and familiarize the reader with the framework underlying this research. Subsequently, in section 3, we will introduce empirical evidence. We will illustrate the various senses exhibited by the PFV form, discussing the context of their use and relationships to other meanings and forms found in the Arusa language. In section 4, this evidence will be analyzed within the adopted theoretical framework. First, the meaning of the PFV gram will be explained as a wave. Second, this definition will be contrasted with (a few) available diachronic and/or comparative facts. Lastly, in section 5, main conclusions will be drawn and lines of future research proposed.

2. Preliminaries

2.1. PFV – Its Formal Characteristics and Scholarly Tradition

The PFV form is marked in a variety of manners in Arusa. Two principal types of marking depend on the class of verb. In Class I, PFV is typically encoded by two morphemes, namely the affix **-tV-** and a vowel suffix, e. g. **a-ti-sir-a empalai** 'I wrote the letter' or **a-ta-bol-o** 'I opened'.[3] In most cases, the vowel of the affix **-tV-** is analogous to the vowel of the stem. However, exceptions

[1] The use of this label partially frees us from equalling the form in question with any meaning. That is, even though the label PFV may be seen to be an abbreviation of 'perfective' (thus referring to an aspect), it should be taken as a mere symbol with no intrinsic semantic content.

[2] ANDRASON, A. *A Complex System of Complex Predicates: Tense, Taxis, Aspect and Mood in Basse Mandinka from a Grammaticalization and Cognitive Perspective*; ANDRASON, A. From Vectors to Waves and Streams: An Alternative Approach to Semantic Maps. In *Stellenbosch Papers in Linguistics*, 2016, Vol. 45, pp. 1–29.

[3] The morpheme **-tV-** has a wider application in Arusa, being also found in the Subjunctive, Imperative and Infinitive, see LEVERGOOD, B. J. *Topics in Arusa Phonology and Morphology*, p. 35. For a similar situation in other Maasai varieties consult: TUCKER, A. N., MPAAYEI, J. T. O. *A Grammar of Maasai with Vocabulary*; KONIG, C. Aspekt im Maa; KOOPMAN, H. On the Homophony of Past Tense and Imperatives in Kisongo Maasai. In *UCLA Working Papers in Linguistics*, 2001, Vol. 6, pp. 1–13.

occur, as demonstrated by the verb **rem** 'poke, stub', which exhibits the element **-ta-**, **átaremo** 'I poked'. The suffix can be either one of the three vowels **-a**, **-o** or **-e** (as in **e-irrag-a** 'he slept', **e-ipot-o** 'he called him' and **e-irug-e** 'he bent') or a diphthong (**-yie** or –**yio**; for instance **e-ita-yio** 'he removed' and **e-iŋura-yie** 'he looks at him'). The distribution of the vocalic variants often depends on the quality of the radical vowel. The suffix **-a** is found after the radical vowels **a** or **u**, the suffix **-o** appears after **o**; and the suffix **-e** is used after **i**.[4] However, a considerable number of counter-examples to these tendencies are also found. The suffixes **-yie** and **-yio** are employed if the root ends in a long vowel or a diphthong, e. g. **-aa** and **-ai**. Class II is only marked by suffixes. These suffixes can, again, take form of a vowel (**-a**, **-o** or **-e**) or diphthongs (**-yie** or **-yio**). Their distribution is identical to that found in Class I. Additionally, in the Middle and Reflexive constructions, the regular marker of PFV is the suffix **-e** which can complement the morpheme **-tV-** (Class I) and/or replace the suffixes **-a**, **-o**, **-yie** or **-yio**, for instance, **e-ta-bol-e** 'it opened', **e-iŋol-e** 'it mixed', and **a-isuj-e** 'I washed.[5] There is also a group of irregular verbs that use suppletive forms to mark the PFV form: **a-lo** 'I go' – **a-ʃomo** 'I went' or **a-ɲa** 'I eat' – **ataama** 'I ate'.[6]

The semantics of the PFV form in Arusa has not been researched in depth. The gram has been briefly described in two studies dedicated to the Arusa language, being defined as a past tense[7] or, more recently, as a perfective aspect.[8] In another Tanzanian variety of Maasai, Kisongo, the equivalent form has been viewed as a past tense of a participial origin.[9] The understanding of PFV in Kenyan (more standard) Maasai and its dialects is similar. Tucker and Mpaayei argue that PFV is a past tense that corresponds to two verbal

[4] Compare with TUCKER, A. N., MPAAYEI, J. T. O. *A Grammar of Maasai with Vocabulary*, p. 56.

[5] Compare PAYNE, D., OLSEN, D. Maa (Maasai) Nominalization: Animacy, Agentivity and Instrument. In MATONDO, M. et al. (ed.). *Selected Proceedings of the 38th Annual Conference on African Linguistics. Somerville: Cascadilla Proceedings Project*, 2009, p. 155.

[6] KARANI, M. *The Syntactic Categories and Argument Structure in the Verbal Complex*. For a detailed description of formal properties of PFV, in other Maasai varieties consult TUCKER, A. N., MPAAYEI, J. T. O. *A Grammar of Maasai with Vocabulary*; KONIG, C. *Aspekt im Maa*; KOOPMAN, H. On the Homophony of Past Tense and Imperatives in Kisongo Maasai. In *UCLA Working Papers in Linguistics*, 2001, Vol. 6, pp. 1–13.

[7] LEVERGOOD, B. J. *Topics in Arusa Phonology and Morphology*.

[8] KARANI, M. *The Arusa Verb System*.

[9] KOOPMAN, H. On the Homophony of Past Tense and Imperatives in Kisongo Maasai. In *UCLA Working Papers in Linguistics*, 2001, Vol. 6, pp. 1–13.

constructions in English: the Past and the Perfect.[10] In a study of the Camus dialect of Kenya, Konig defines PFV as a perfective aspect and the Maasai language in general as aspect-prominent.[11] Konig devotes much attention to the interaction between the PFV morpheme(s) and verbal Aktionsart, and identifies the following correlations: in PFV, action verbs express a completed action; telic verbs indicate the final or terminative stage of the action; and inchoative-stative verbs acquire an inchoative sense. In contrast, "totally stative" verbs are incompatible with the PFV morpheme. The aspectual view proposed the Camus dialect has posteriorly been extrapolated to other, typically Kenyan, Maasai varieties[12] – the Maasai being viewed as an aspectual language.[13]

2.2. Framework

In the present study, in order to analyze and explain the meaning of the PFV form in Arusa, we will use the model of a dynamic semantic map.[14]

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[10] TUCKER, A. N., MPAAYEI, J. T. O. A *Grammar of Maasai with Vocabulary*, p. 61. This position may already be found in HOLLIS who identifies PFV with the English Perfect and Past, see HOLLIS, A. C. *The Masai. Their Language and Folklore*, p. 58.

[11] KONIG, C. *Aspekt im Maa*.

[12] See PAYNE, D., HAMAYA, M., JACOBS, P. Active, Passive, and Inverse in Maasai. In GIVÓN, T. (ed.). *Voice and Inversion*, 283–315; HAMAYA, M. Vowel Harmony in Maasai. In *Linguistics*, 1997, Vol. 607, pp. 1–30; PAYNE, D., OLE-KOTIKASH, L., OLE-LEKUTIT, K. M. A Frame Semantics Approach to Lexemic Structure: Uncovering the Truth about Maa a-síp. In *Journal of African Languages and Linguistics*, 2001, Vol. 22, pp. 1–23; PAYNE, D., OLSEN, D. Maa (Maasai) Nominalization: Animacy, Agentivity and Instrument. In MATONDO, M. et al. (ed.). *Selected Proceedings of the 38th Annual Conference on African Linguistics. Somerville: Cascadilla Proceedings Project*, 2009.

[13] In a narrative discourse, the so-called N-tense is used in the past when describing events in a sequence, see TUCKER, A. N., MPAAYEI, J. T. O. *A Grammar of Maasai with Vocabulary*, p. 61. This form consists of an Imperfective (IPFV) headed by the relativizer **n-**. Such sequential events may be perfective or perfectal, e.g**. Etaara ɔlarro, neyieŋ, neya aaŋ** 'He killed a buffalo, slaughtered it, and took home'. However, N-tense may apply to all time frames, including present and future. The temporal interpretation of the N-tense usually depends on the reference time of the first verb in the sentence.

[14] HASPELMATH, M. The Geometry of Grammatical Meaning Semantic Maps and Cross-linguistic Comparison. In THOMASELLO, M. (ed.). *The New Psychology of Language*, pp. 211–242; HASPELMATH, M. Coordinating Constructions: An Overview. In HASPELMATH, M. (ed.). *Coordinating Constructions*, pp. 1–40; JANDA, L. Cognitive Linguistics in the Year 2015. In *Cognitive Semantics*, 2015, Vol.

Semantic maps build on the fact that grams are synchronically polysemous and that this synchronic polysemy is internally coherent, all the senses being connected historically and conceptually. Historically, each sense emerges gradually from another sense and gives rise to yet another sense. Conceptually, the above-mentioned emergence of a sense from another sense is always motivated by human cognitive mechanisms, such as metonymy, metaphor, context induced reinterpretation, and analogy.[15] The graphic portrayal of such historical and conceptual connections delivers a map. In this map, each node represents a sense and each linking line symbolizes its historical and conceptual foundation.[16]

It is evident that this type of map has an inherent dynamic dimension – the organization of the map reproduces the grammaticalization path that underlies the evolution of the form. The map defines the meaning of a form as a portion of a grammaticalization cline or a cluster of such paths. Depending on the level of granularity, it can appear as a cline or as a network. In this map, each component (a sense available synchronically) is correlated with a stage on the grammaticalization path along which the form has been travelling.[17]

Frequently, due to the pervasiveness of the certain grammaticalization paths, the range of senses exhibited synchronically by a gram is sufficient to postulate a map. That is, the map is posited because the senses offered by a form match one of the (nearly universal) grammaticalization templates.[18] This property is

1, pp. 131–154; ANDRASON, A. *A Complex System of Complex Predicates: Tense, Taxis, Aspect and Mood in Basse Mandinka from a Grammaticalization and Cognitive Perspective*; ANDRASON, A. From Vectors to Waves and Streams: An Alternative Approach to Semantic Maps. In *Stellenbosch Papers in Linguistics*, 2016, Vol. 45, pp. 1–29.

[15] JANDA, L. Cognitive Linguistics in the Year 2015. In *Cognitive Semantics*, 2015, Vol. 1, pp. 131–154.

[16] HASPELMATH, M. The Geometry of Grammatical Meaning Semantic Maps and Cross-linguistic Comparison. In THOMASELLO, M. (ed.). *The New Psychology of Language*, pp. 211–242; HASPELMATH, M. Coordinating Constructions: An Overview. In HASPELMATH, M. (ed.). *Coordinating Constructions*, pp. 1–40.

[17] HASPELMATH, M. The Geometry of Grammatical Meaning Semantic Maps and Cross-linguistic Comparison. In THOMASELLO, M. (ed.). *The New Psychology of Language*, pp. 211–242; HASPELMATH, M. Coordinating Constructions: An Overview. In HASPELMATH, M. (ed.). *Coordinating Constructions*, pp. 1–40; ANDRASON, A. *A Complex System of Complex Predicates: Tense, Taxis, Aspect and Mood in Basse Mandinka from a Grammaticalization and Cognitive Perspective*; ANDRASON, A. From Vectors to Waves and Streams: An Alternative Approach to Semantic Maps. In *Stellenbosch Papers in Linguistics*, 2016, Vol. 45, pp. 1–29.

[18] HEINE, B., CLAUDI, U., HÜNNEMEYER, F. *Grammaticalization. A Conceptual Framework*; HEINE, B. *Cognitive Foundations of Grammar*; HASPELMATH, M. The

particularly useful in cases where direct diachronic evidence, which could corroborate the grammaticalization path travelled by a gram, is scarce or unavailable. Nevertheless, direct or indirect diachronic proofs can importantly validate a map and/or render it more precise. This verification becomes crucial in instances where more than one evolutionary scenario (and hence more than one map) is possible. Overall, a map is always "gram specific". That is, even though it is based on typological templates, it reflects the actual grammaticalization cline of a form. It shows how the senses of the form have been acquired. Therefore, divergences from canonical (nearly universal) paths are possible.[19]

Overall, the semantic coherence of a form does not stem from its invariant or abstract meaning, which is subsequently modulated in specific contexts where that form is used. Senses available synchronically do not emerge from a shared semantic core. The semantic coherence rather reflects the diachronic reiteration of the meaning-extension process.[20] The unity of a gram lies in the path – the gram's meaning being the map itself. In other words, a gram exhibits synchronically a range of senses that co-exist simultaneously along the path. Some of them were originally pragmatic meaning extensions that have gradually been semanticized, and that have prompted further extensions.[21] Crucially, all the senses (i.e. components of the map) are connected to each other through family resemblance. This means that even though each sense shares some properties with its predecessor and successor, two distant senses may not share any properties at all, or the properties they share may be trivial.[22] Therefore, although the map is coherent in its totality, the actual semantic

Geometry of Grammatical Meaning Semantic Maps and Cross-linguistic Comparison. In THOMASELLO, M. (ed.). *The New Psychology of Language*, pp. 211–242.

[19] ANDRASON, A. *El sistema verbal hebreo en su contexto semítico: una visión dinámica* [*The Hebrew Verbal System in its Semitic Context: A Dynamic Perspective*]; ANDRASON, A. *A Complex System of Complex Predicates: Tense, Taxis, Aspect and Mood in Basse Mandinka from a Grammaticalization and Cognitive Perspective*.

[20] BYBEE, J. *Language, Usage and Cognition*.

[21] ANDRASON, A., LOCATELL, C. The Perfect Wave. In *Biblical and Ancient Greek Linguistics*, 2016, Vol. 5, pp. 7–122.

[22] COUSSÉ, E. Lexical Expansion in the HAVE and BE Perfect in Dutch – A Constructionist Prototype Account. In *Diachronica*, 2014, Vol. 31, pp. 159–191; COUSSÉ, E. Grammaticalization, Host-class Expansion and Category Change. In NORDE, M., VAN GOETHEM, K., COUSSÉ, E., VANDERBAUWHEDE, G. (eds.). *Category Change from a Construction Grammar Perspective*; JANDA, L. Cognitive Linguistics in the Year 2015. In *Cognitive Semantics*, 2015, Vol. 1, pp. 131–154; ANDRASON, A., LOCATELL, C. The Perfect Wave. In *Biblical and Ancient Greek Linguistics*, 2016, Vol. 5, pp. 7–122.

similarity only involves adjacent senses. For two distant senses, there may be no direct conceptual relation. Their connection emerges from the reiteration of conceptual relations of adjacent senses.[23] This implies, in turn, that the increase of distance on the path is inversely proportional to cognitive proximity (and/or derivability) – adjacent senses can be related psychologically by speakers while distant senses cannot.[24]

Since a map represents senses as consecutive stages emerging from one another, it is directional and can be understood as a vector. This vector informs one about the direction of diachronic meaning extensions. It tells us not only what the form is but also by which types of dynamics it is governed: where it came from and where it is heading to. The synchronic state ceases to be static, but becomes dynamic. Synchrony is no longer equivalent to stasis – it has become a process.[25]

Most maps, reshaped as vectors, are qualitative and pay equal importance to all the components, i.e. senses or stages. However, although a form exhibits many senses, not all of them are equally relevant. Some are prototypical, others are not. The concept of a vector is, therefore, sometimes expanded to accommodate some type of quantitative information related to prototypicality.[26] That is, the horizontal *x* axis representing the vector of meaning-extension is accompanied by the vertical *y* axis that specifies the degree of prototypicality.

[23] ANDRASON, A., LOCATELL, C. The Perfect Wave. In *Biblical and Ancient Greek Linguistics*, 2016, Vol. 5, pp. 7–122.

[24] In the case of distant senses, any attempt to determine an invariant or shared meaning is unsatisfactory. An archetypal example can be the forms **ran** (Past tense) and **can** (Present tense of Preterite-Present verbs) in Germanic languages, which both derive from the same morphology, still visible in Modern Icelandic. For contemporary speakers of English there is no relation between these two senses and forms even though they evolved from the same input. In English, the conceptual distance is so extensive that the Preterite-Present verbs (which are morphologically Past tenses) have been included in the paradigm of the Present tense. The invariant and/or shared meaning of these forms (if postulated) would be trivial, see ANDRASON, A., LOCATELL, C. The Perfect Wave. In *Biblical and Ancient Greek Linguistics*, 2016, Vol. 5, pp. 7–122.

[25] ANDRASON, A. *A Complex System of Complex Predicates: Tense, Taxis, Aspect and Mood in Basse Mandinka from a Grammaticalization and Cognitive Perspective*; ANDRASON, A. From Vectors to Waves and Streams: An Alternative Approach to Semantic Maps. In *Stellenbosch Papers in Linguistics*, 2016, Vol. 45, pp. 1–29.

[26] ANDRASON, A. *A Complex System of Complex Predicates: Tense, Taxis, Aspect and Mood in Basse Mandinka from a Grammaticalization and Cognitive Perspective*; ANDRASON, A. From Vectors to Waves and Streams: An Alternative Approach to Semantic Maps. In *Stellenbosch Papers in Linguistics*, 2016, Vol. 45, pp. 1–29; ANDRASON, A., LOCATELL, C. The Perfect Wave. In *Biblical and Ancient Greek Linguistics*, 2016, Vol. 5, pp. 7–122.

When the arguments of the former are correlated with the values of the latter, the model of meaning receives a two-dimensional form of a wave. The wave specifies not only the range of semantic potential and its coherence (as the vector does) but also the prototypical zone visualized as the wave peak. This peak indicates the most semanticized and cognitively active part of the semantic potential. The senses located outside the wave peak are non-prototypical. Usually, they are (more) pragmatically driven or archaic.[27]

Certainly, prototypicality constitutes a difficult concept and depends on various factors: frequency, saliency, productivity, constraints, relations to other forms and their meanings, etc. Frequency itself is complex, as it usually gives different results in different types of text, genres or contexts. It can also be driven semasiologically (what sense of a form is the most frequent?) or onomasiologically (what form is the most common expression of a sense?). In this study, the degree of prototypicality will be deduced from native speakers' perception (which sense is first to come to mind?), the sense's productivity (compatibility with roots) and the absence of constraints (acceptability in all typologically possible contexts in which a given sense may be activated).[28]

Overall, the procedure adopted in this paper will consist of the following: 1) the identification of all possible senses the PFV form can express and the determination of their prototypicality; 2) the organization of these senses into a map that is compatible with a common grammaticalization path (or a set of related paths) and, by introducing the information related to prototypicality, the presentation of this map as a wave; and lastly 3) corroboration of the bi-dimensional map by certain diachronic and comparative fact.

[27] The idea of a wave makes reference to the dynamics underlying the form as it travels along the grammaticalization path. The form advances not only with respect to the scope of its semantic potential (it becomes compatible with new senses), but also with respect to its prototypicality (further senses of the path become prototypical). ANDRASON, A. *A Complex System of Complex Predicates: Tense, Taxis, Aspect and Mood in Basse Mandinka from a Grammaticalization and Cognitive Perspective*; ANDRASON, A. From Vectors to Waves and Streams: An Alternative Approach to Semantic Maps. In *Stellenbosch Papers in Linguistics*, 2016, Vol. 45, pp. 1–29; ANDRASON, A., LOCATELL, C. The Perfect Wave. In *Biblical and Ancient Greek Linguistics*, 2016, Vol. 5, pp. 7–122.

[28] Compare ANDRASON, A. *A Complex System of Complex Predicates: Tense, Taxis, Aspect and Mood in Basse Mandinka from a Grammaticalization and Cognitive Perspective*. This approach mainly stems from the absence of written texts and larger corpora in the Arusa language. This methodological limitation may soon be overcome as the authors of this paper currently develop a research project specifically dedicated to the documentation of oral literature in Arusa.

3. Evidence

The PFV form in Arusa is compatible with a number of perfectal (or taxis) senses, i.e. senses that are cross-linguistically associated with the category of a perfect. The most important and prototypical class of such values includes senses that belong to the semantic domain of a present perfect.

The PFV gram commonly expresses the value of a present perfect resultative. In this usage, it indicates that a dynamic event has already occurred and its effects are highly relevant for the current state of affairs.[29] This can be illustrated by (1. a) and (1. b) where the results of the two anterior actions (i.e. losing the keys and breaking the arm) persist unchanged – the keys are still lost and the arm is still unhealed.

(1) a. **ma-idim aatijiŋa aatua engaji ai, a-imin-ie ifungooni**
NEG.1SG-able INF.enter inside house my 1SG-loose-PFV PL.key
I cannot enter my house. I have lost the keys.

b. **mi-kii-ŋgum. A-ti-gil-a enkaina ai tenakata**
NEG-2>1-touch. 1SG-PFV-break-PFV arm my now
Do not touch me. I have just broken my arm.

Another perfectal sense compatible with PFV is the value of a present perfect experiential (see examples 2. a-b below). This sense portrays an action as an experience that has occurred at least once in the span of time ranging from the past till the present. The action itself occurred before the speech time, possibly long time ago. The exact time of its occurrence cannot, however, be specified overtly. The nuance of current relevance persists, although it relates to the general experience of the agent, rather than to the action itself. The resultative inferences of that anterior event are absent – the reality might have changed since the moment the event occurred.[30]

[29] MCCAWLEY, J. Tense and Time Reference in English. In FILLMORE, Ch. J., LANGENDOEN, D. T. (eds.). *Studies in Linguistics and Semantics*, pp. 96–113; BYBEE, J., PERKINS, R., PAGLIUCA, W. *The Evolution of Grammar*, pp. 61–62.

[30] COMRIE, B. *Aspect: An Introduction to the Study of Verbal Aspect and Related Problems*; DAHL, Ö. *Tense and Aspect Systems*, pp. 140–142; BYBEE, J., PERKINS, R., PAGLIUCA, W. *The Evolution of Grammar*, p. 62; DE HAAN, F. Typology of Tense, Aspect, and Modality Systems. In SONG, J. J. (ed.). *The Oxford Handbook of Linguistic Typology*, p. 457.

(2) a. **iʃomo aikata Nairobi?**
2-go.PFV ever Nairobi
Have you ever been to Nairobi?

b. **a-ta-dua ina sinema. A-iŋura-yie te enda jumaa naima**
1SG-PFV-see that movie 1SG-watch-PFV in that week past
I have seen that movie. I watched it last week.

Scholars distinguish a further subtype of present perfect, i.e. the present perfect inclusive, also referred to as continuing. This sense communicates that an action began in the past and continues into present time. That is, an activity or situation holds continuously from a moment in the past to the present.[31] The present perfect inclusive is expressed in Arusa in two manners depending on how the continuity of an action is construed. If the expression of *for how long* the action has been occurring is overt, a bi-clausal construction is used. The first clause contains the verb in PFV and the expression of duration. This clause, however, does not necessarily imply that the action has been continuing into present time. As will be evident from the subsequent discussion, it could also refer to a past time frame, denoting duration in the past. Therefore, an additional clause is needed in which the action is depicted as ongoing presently. This current ongoing-ness is usually communicated by means of an Imperfective (IPFV) or a Progressive (PROG) form (3. a). Additionally, the inclusive perfect may specify the starting point of the action, i.e. where it began to occur in the past (*since when*). In such instances, the IPFV or PROG forms are regularly used (3. b-c). If PFV was employed, it would imply that the action ceased and does not hold anymore.

(3) a. **a-iteŋenw-e enkutuk oo lMaasai too larin tomon.**
1SG-learn-PFV language of Maasai for years ten.
I was learning the Maasai language for ten years.
Ne-ŋorr ake a-iteŋenw-o
REL-not.yet still 1SG-learn-IPFV
And I am still learning it (i.e. I have been learning Maasai for 10 years).

[31] COMRIE, B. *Aspect: An Introduction to the Study of Verbal Aspect and Related Problems*; BYBEE, J., PERKINS, R., PAGLIUCA, W. *The Evolution of Grammar*, p. 62; NURSE, D. *Tense and Aspect in Bantu*, p. 154; DE HAAN, F. Typology of Tense, Aspect, and Modality Systems. In SONG, J. J. (ed.). *The Oxford Handbook of Linguistic Typology*, p. 456.

b. **a-isom-iʃo** **aiter** **ŋole**
1SG-read-PROG from yesterday
I have been reading since yesterday.

c. **a-maŋ-a** **ene** **aiteru** **1990**
1SG-live-IPFV here from 1990
I have been living here since 1990.

To sum up, the use of PFV in the function of a present perfect inclusive is highly limited. The PFV gram can only appear in one of the two senses associated with that category. Furthermore, even in the subtype in which it can be used, PFV must obligatorily be accompanied by IPFV or PROG.

PFV can also be employed with an explicit past reference, thus functioning as a definite past. This past reference may be of any distance from the speaker's now. There is virtually no limit for the range of the remoteness. That is, PFV tolerates both the most recent and the most distant points in time. To begin with, the past event can be temporarily recent or near, for instance hodiernal (today's past; 4. a) and hesternal (yesterday's past; 4. b).[32]

(4) a. **a-iŋaŋu-a** **engarim** **tena** **nasirie.** **E-itaʃ-o** **te** **ende**
1SG-buy-PFV car this morning. 3-stand-IPFV over there
I bought a car this morning. It parks over there.

b. **a-ta-leen-o** **elatia** **ai** **ŋole**
1SG-PFV-visit-PFV neighbor my yesterday
I visited my neighbor yesterday.

However, the action expressed by PFV may also be located in a more distant or even remote past. For instance, in example (5. a), the event occurred a year ago, while in (5. b), it took place many hundreds of years ago (5. b). Overall, the definite past uses of PFV are highly common, constituting one of the most prototypical values of this form.

(5) a. **a-idip-a** **ʃule** **tele** **ari** **oima**
1SG-finish-PFV school this year past
I finished the school last year.

b. **e-etuo** **ilmaasai** **Tanzania** **ilarin** **iip** **ooima**
3-come.PFV Maasai Tanzania years one.hundred past
The Maasai came to Tanzania a hundred years ago.

[32] BYBEE, J., PERKINS, R., PAGLIUCA, W. *The Evolution of Grammar*, p. 98.

As is already evident from the examples introduced previously, PFV frequently exhibits a perfective nuance when it is employed in a past time frame (see 4. a-b and 5. a-b). That is, PFV is compatible with past events depicted as punctiliar, bounded and complete. Additionally, PFV may encode actions that lack an internal event-structure, which is as another cross-linguistic characteristic of a perfective domain.[33]

Sentences in (6. a) and (6. b) are further examples of that perfective past sense. The past events of going to Dar es Salam and getting married are presented as punctiliar and complete, having occurred once in a precise and discrete moment on the time line:

(6) a.	**a-ʃomo**	**Darsalam**	**tele**	**áβa**	**oima**
	1SG-go.PFV	Dar es Salaam	this	month	past
	Last month, I went to Dar es Salaam.				
b.	**a-yam-iʃe**	**ilarin**	**tomon**	**ooima**	
	1SG-marry-PFV	year	ten	past	
	I got married 10 years ago.				

However, PFV may also express a range of nuances that are not punctiliar, unique, discrete and/or bounded. In all such cases, the gram fails to behave as a canonical perfective past. Two types of this non-perfective domain, compatible with PFV, can be distinguished: durative and iterative-habitual.

PFV can indicate definite past activities whose duration is profiled. Even though such actions are still bounded within a determined frame of time, they span larger periods of time and correspond to imperfective past grams in other languages (for instance in the Romance or Slavonic families). The duration may itself be bounded in two manners. First, the range of time within which the activity happened can be specified by stating its starting and ending points (i.e. *from when to when*; 7. a). Second, the duration may also be specified by expressing the temporal extent of the occurrence of the action (i.e. *for how long*; 7. b). It should be noted that in all such bounded durative examples, PFV does not necessarily imply that the action was completed or terminated (e.g. that a person actually learned Swahili completely; see examples 7. a-b), which approximates it to the category of an imperfective past (compare a similar behavior of the imperfective past in Romance and Slavonic).

[33] This distinguishes them from perfects, which are characterized by a bi-dimensional event-structure, i.e. prior cause (event) and posterior result (state or relevance). DAHL, Ö. *Tense and Aspect Systems*; BYBEE, J., PERKINS, R., PAGLIUCA, W. *The Evolution of Grammar*, pp. 54, 287; NURSE, D. *Tense and Aspect in Bantu*, pp. 134–135; DE HAAN, F. Typology of Tense, Aspect, and Modality Systems. In SONG, J. J. (ed.). *The Oxford Handbook of Linguistic Typology*, pp. 450–451.

(7) a. **a-iteŋen-we** **Kiswahili** **aiter** **2000** **me-tabaiki** **2005**
1SG-learn-PFV Kiswahili from 2000 SUB-till 2005
I studied Swahili from 2000 till 2005.

b. **a-iteŋen-we** **Kiswahili** **tiatua** **ilarin** **tomon,** **amaŋa** **Darsalam**
1SG-learn-PFV Kiswahili in years ten, 1SG.live.IPFV Dar es Salaam
I studied Swahili during 10 years, while I lived in Dar es Salam.

The other non-perfective class of uses of PFV concerns cases where the event expressed by the PFV form happened repetitively and/or habitually. In such instances, the gram conveys iterative and customary nuances. These nuances can be made overt by employing expressions such as **naleŋ** 'a lot', **kila olapa** 'every month' or **kat kumok** 'quite often':

(8) a. **ore** **ara** **kiiŋi,** **a-iguran-a** **naleŋ/kat kumok**
When 1SG.be.IPFV little, 1SG-play-PFV a lot/time many
When I was little, I played football a lot / quite often.

a. **a-ta-la-a** **kila** **olapa**
1SG-PFV-pay-PFV every month
I paid every month.

However, the use of PFV is ungrammatical with the word **kutwa** 'always; every day' which can be regarded as the most prototypical exponent of habituality. In such a context, it is the IPFV form that must be employed:

(9) a. **ore** **ara** **kiiŋi,** **a-iguran** **empira** **kutwa**
when 1SG.be.IPFV little 1SG-play.IPFV ball every day
When I was little, I played football every day.

b. **ore** **ara** **kiti,** **áa-joki** **yeyio** **kutwa**
when 1SG.be.IPFV little 3>1-tell.DAT.IPFV my.mother every day
When I was a kid, my mother always told me
páaku **enkerai** **sidai**
SUB.1SG.be child good
to be a good boy.

In cases where the nuance of past progressivity, or past ongoing-ness, needs to be conveyed, once more, IPFV must be used, PFV being ungrammatical:

(10) a. **ore** **ŋole** **too** **saan** **5. 15,**
when yesterday at hour 5. 15
Yesterday at 5. 15,
a-ilim-iʃo, **ne-lotu** **ɔlcɔre** **lai**
1SG-weed-PROG REL-come.IPFV friend my
while I was weeding, my friend came.

b. **ore** **a-iŋur-ita** **empire** **te** **enteleviʃen,**
when 1SG-watch-PROG ball on television,
While I was watching a football match,
ne-daŋa **enteleviʃen**
REL-break.IPFV television
the TV broke down.

The PFV form is also used as a pluperfect, which constitutes a past equivalent of the category of a present perfect. *Grosso modo*, PFV is compatible with two main subtypes of the semantic domain associated cross-linguistically with pluperfects. First, PFV can introduce an anterior event from a past perspective. That is, it can present a prior action from a mental space that is already located in the past. This type is particularly common in reported speech (11. a). Second, PFV can communicate anteriority in the past, denoting that an event had occurred before another past action – all of this construed within a single mental space (11. b). However, in this latter use, it is usually not the PFV form of the main verb that is used, but rather the PFV of the verb **idip** 'to finish' followed by the Infinitive (the so-called subjunctive-like B Infinitive),[34] e.g. **eidipa áatabaiki** 'he finished to visit' in (11. c).

(11) a. **e-te-jo** **ŋole** **e-tu-ŋayie**
3-PFV-say yesterday 3-PFV-leave
Yesterday he said that
enkitok **eŋe** **aiter** **enjumaa** **naima**
wife his from week past
his wife had left him a week ago.

b. **e-ewu-o** **itu** **a-lo**
3-come-PFV NEG 1SG-go.IPFV
He had come, before I left.

c. **ore** **eŋor** **e-itu** **e-lotu** **enatii** **ŋole,**
when before 3-NEG 3-come.IPFV to.me yesterday,
Before he came to me yesterday,

[34] TUCKER, A. N., MPAAYEI, J. T. O. *A Grammar of Maasai with Vocabulary*, pp. 66, 98–99.

e-idip-a **áatabaiki** **ŋotoŋe**
3-finish-PFV INF.visit his.mother
he had visited his mother.

The same analytical construction built around the verb **idip** 'finish' may be used to convey meanings other than pluperfect discussed in the previous paragraph. This usage corresponds to the semantic domains of a present perfect or a recent past. Rarely (if ever), it is compatible with the degree of remoteness that goes beyond a hesternal past. In all such uses, the construction expresses the idea of prior completed-ness of an event its termination or total accomplishment:

(12) a. **taama** **endaa!**
IMPR.eat food
Eat food!
a-idip-a **áataama** **endaa!**
1SG-finish-PFV INF.eat food
I have just eaten!

b. **kanu** **i-loito** **aa-baiki** **yeyino**
when 2-go.PROG INF-visit mother.your
When are you going to see your mother?
a-idip-a **aatabaiki** **ŋole!**
1SG-finish-PFV INF.visit yesterday
I visited her yesterday.

The sense of anteriority, commonly associated with the PFV gram in Arusa, is not limited to the present and past time frames, where the gram functions as a present perfect or a past perfect (pluperfect), respectively. The nuance of anteriority may also apply to the future. In such instances, PFV approximates the category of a future perfect. Nevertheless, this usage is relatively limited in Arusa, as the future perfect use of PFV is only found in reported speech. In such cases, PFV introduces an anterior event from a future temporal perspective or mental space (13. a). In other uses that are typical of future perfects cross-linguistically, IPFV (13. b) is usually employed, being sometimes additionally headed by the relativizer **n-** (13. c).

(13) a. **e-el** **enkaji** **taisere,**
3-paint house tomorrow
He is going to paint the house tomorrow.
a-yelo **ncere** **ajo** **aa-joki taisere** **e-ela** **enkaji**
1SG-know for.sure that 3>1-tell tomorrow 3-paint.PFV house

I am sure he will tell me tomorrow that he has painted the whole house.

b. **te-ne-idip** **ne-lotu**
if-REL-finish REL-come
As soon as he has finished, he will come.

c. **a-idip** **ena** **itu** **i-lo**
1SG-finish this NEG 2SG-go.IPFV
I will have this finished before you go.

While with most verbs, the PFV form typically conveys dynamic, perfectal or past, senses (the latter ones being perfective or, less commonly, non-perfective), with various static verbs, the meaning of PFV is present (14. a-c). In this usage, the PFV form of a static verb seems to be synonymous to IPFV of the same root. For instance, the sentence with a PFV verb in (14. a) is fully equivalent to the sentence with an IPFV verb in (14. d). There are at least some 90 verbs that allow for this type of use. This constitutes circa 20% of the total number of basic roots in Arusa (i.e. roots that are not extended by derivational suffixes).[35] Even though relatively numerous, the class of verbs whose PFV form functions as a present seems to be close. If a new verb is coined in Arusa, or if it is imported from another language, it adjusts to the more common pattern exhibiting dynamic senses (perfect, perfective or past) in PFV. As a result, the present meaning of the PFV gram can be regarded as non-productive.

(14) a. **a-ta-naur-e**
1SG-PFV-be.tired-PFV
I am tired.

b. **a-ta-rapoʃ-e**
1SG-PFV-be.satisfied-PFV
I am satisfied.

c. **a-ta-gor-e**
1SG-PFV-be.angry-PFV
I am angry.

d. **a-naur-a**
1SG-be.tired-IPFV
I am tired.

[35] Further examples are: **idimu** ‘be able’, **iroʃi** ‘be heavy’, **moruo** ‘be old (of animate beings)’, **boita** ‘be together’, **seja** ‘be sick’, **borr** ‘be polite’, **iborr** ‘be white’, **to** ‘be try’, **eron** ‘be thirsty’. Interestingly, the root **moi** ‘be sick’ cannot be employed in this manner, for details see KARANI, M. *The Syntactic Categories and Argument Structure in the Verbal Complex*.

In order to express the idea of a state in the past, the IPFV form of given stative verb is used, e.g. **anaura (nakata)** 'I was tired (that time)'. Since the same form typically implies present reference time (**anaura** usually means 'I am tired'), overt past-time expressions must be used (15. a). If an explicit past temporal adverb or locution is absent, the past reference should be recoverable from the general context. This behavior of stative verbs is similar to the use of IPFV of all the other verbs, as such forms may refer both to the present and past time frame (15. b-c). In case of dynamic verbs, IPFV typically expresses habitual or progressive nuances (15. d).

(15) a. **a-naur-a** **ŋole**
1SG-be.tired-IPFV yesterday
I was tired yesterday.
b. **a-yielo** **(tenakata)**
1SG-know.IPFV (now)
I know it (now).
c. **a-yielo** **ŋole**
1SG-know.IPFV yesterday
I knew it yesterday.
d. **a-itibir-iʃo** **ŋole**
1SG-work-PROG yesterday
I was working yesterday.

Even though the PFV gram of various static verbs most commonly conveys the idea of a present state, the same form can also be used with a dynamic ingressive reading. As explained, this dynamic interpretation is a rule in case of all the other verbs, which function as a present perfect or a past in PFV. In this usage, PFV of a static predicate communicates the action of *getting* into the state rather than the state itself. This dynamic use is limited to a recent past sphere, being ungrammatical if the temporal reference exceeds hesternal past and, in particular, if it is distant or remote (compare a similar time span of the analytical construction with the verb **idip** 'to finish' discussed previously):

(16) **kaŋoo** **pe-itu** **intibirr**
why SUB-2.NEG 2.do.IPFV
Why didn't you do it?
a-ta-naur-e **ŋole**
1SG-PFV-be.tired-PFV yesterday
I got tired yesterday.

The PFV gram can also be used in unreal counterfactual conditional periods, both in protases and apodoses. In such instances, PFV introduces events or actions that are contrary to the situation that is (or was) actually observed in the real world and that, moreover, cannot be altered. In this usage, PFV approximates the category of past *irrealis*:

(17) **te-ne-mutu i-ta-raŋ-a ŋole a-nata i-ta-yelo osingolio**
If-REL-have 2-PFV-sing-PFV yesterday 1SG.would 2SG-PFV-know song
If you had sung yesterday, you would have known the song.

In contrast, if the conditional period is aimed to convey the meaning of real factuality (which corresponds to present *realis*), the IPFV form is regularly used. In protases, IPFV is typically linked to the conditional conjunction by means of the relativizer **n-**. In this function, the use of PFV is ungrammatical:

(18) **te-ni-tum impesai, ni-kiwuo osokoni taisere**
if-REL-get money REL-go shop tomorrow
If you get the money, we will go to the shop tomorrow.

In some languages, forms that are compatible with various perfectal functions may also express a resultative proper sense from which they historically derive. The resultative proper sense is an internally complex value. It communicates the idea that the current state has resulted from a prior action, both elements (i.e. the prior action and the posterior state) being equally relevant. Forms that express the resultative proper meaning (so-called resultative proper grams) are typically intransitive and/or de-transitive, exhibiting cross-linguistic convergence with passives (e.g. **it is written** in English). These two properties distinguish a resultative proper sense/gram from the category of a present perfect resultative, which is dynamic and transitive. That is, perfects focus on the dynamic action (the resulting state, even though inferable, being secondary) and exhibit the same valency pattern as the underlying root.[36]

[36] NEDJALKOV, V., JAXONTOV, S. The Typology of Resultative Constructions. In NEDJALKOV, V. (ed.). *Typology of Resultative Constructions*, pp. 3–62; MASLOV, J. Resultative, Perfect and Aspect. In NEDJALKOV, V. (ed.). *Typology of Resultative Constructions*, pp. 96–113; NEDJALKOV, V. Resultative Constructions. In HASPELMATH, M. et al. (eds.) *Language Typology and Language Universals: An International Handbook*, Vol. 2, pp. 928–940.

In Arusha, the use of PFV with a resultative proper sense is ungrammatical. The resultative proper sense in a present time frame is regularly expressed by the passive IPFV gram, or, more accurately, the impersonal IPFV form (19. a). The "bare" PFV form of a dynamic (transitive) verb never exhibits a resultative proper value. If the impersonal form is inflected in PFV, it expresses the TAM nuances that are fully consistent with the uses of PFV discussed above. That is, the construction is used as a passive perfect or past (perfective or non-perfective; 19. b).

(19) a. **e-duŋ-o** **olcani.** **E-perr** **te** **enkop**
3-cut-PFV tree 3-lay.IPFV on ground
The tree is cut. It lies on the ground.
b. **e-tu-duŋ-o-ki** **olcani**
3-PFV-cut-PFV-IMP tree
The tree was / has been cut.

As is evident from the previous discussion, the PFV gram exhibits a wide range of semantic potential. All these senses are, however, restricted to positive (affirmative) contexts. In contrast, the PFV form fails to be employed in the negative. The negative equivalent of PFV is expressed by a complex construction built of the element (*e*)*itu* and the lexical verb inflected in IPFV. This construction applies to all the semantic variants of PFV discussed previously in this section, be it perfect (present perfect, past perfect and future perfect; 20. a), past (perfective and non-perfective; 20. b) or stative present (20. c). This same holds true for modal (counterfactual) uses.

(20) a. **itu** **aikata** **a-ɲa** **olmaembei**
NEG never 1SG-eat.IPFV mango
I have never eaten a mango.
b. **itu** **a-lot-ie** **olbasi** **ŋole**
NEG 1SG-go.IPFV-INST bus yesterday
I didn't travel by bus yesterday.
c. **itu** **a-naura**
Neg 1SG-be.tired.IPFV
I am not tired.

This negative construction is also employed in cases where one wants to indicate that an action occurred before another event, either in present, future (21. a) or past (21. b):

(21) a. **wou** **eton** **itu** **a-lo**[37]
come before NEG 1SG-go.IPFV
Come before I go (come, I haven't gone yet).
b. **e-ewu-o** **yeyio** **itu** **a-lo**
3-come-PFV my.mother NEG 1SG-go.IPFV
My mother had come, before I left.

In the negative construction discussed above, the element **(e)itu** is a PFV verbal form.[38] Its exact origin is, however, unknown.[39] In Arusa, this verbal element is still inflected appearing as **itu** in the 1st and 2nd person (singular and plural), and **eitu** in the 3rd person (singular and plural).

4. Discussion

The qualitative evidence provided in the previous section demonstrates that PFV is compatible with the following semantic domains: present perfect, definite past, pluperfect and future perfect. In the domain of a present perfect, PFV is compatible with resultative and experiential nuances. In the domain of a definite past, it communicates any degree of remoteness from the speaker's now, and introduces both perfective or non-perfective (durative and repetitive-habitual) events and/or activities. With static roots, PFV expresses present states. However, static roots may also be used dynamically in the sense of a present perfect or recent (hodiernal/hesternal) past. Lastly, PFV appears in conditional protases and apodoses where it communicates the idea of unreal counter factuality.

Having identified the components of the semantic potential of PFV, the question arises as for how to organize it into a map. This question relates to the following query: what typologically viable grammaticalization path may have driven the PFV form to acquire the array of senses observed in Arusa? As will be evident from the subsequent discussion, the conceptual and diachronic coherence of PFV can be achieved by matching the semantic potential of this form with the resultative path and paths that are related to it.

A resultative path is a complex evolutionary scenario. It models the lifecycle of constructions that emerge as resultative proper grams, showing the order in

[37] TUCKER, A. N., MPAAYEI, J. T. O. *A Grammar of Maasai with Vocabulary*, p. 102.
[38] KOOPMAN, H. On the Homophony of Past Tense and Imperatives in Kisongo Maasai. In *UCLA Working Papers in Linguistics*, 2001, Vol. 6, p. 4.
[39] TUCKER, A. N., MPAAYEI, J. T. O. *A Grammar of Maasai with Vocabulary*, p. 101.

which such grams acquire new senses.[40] The resultative path consists of two sub-paths: an anterior path (which leads towards a past sense/gram) and a simultaneous path (which leads towards a present sense/gram).[41]

By travelling along the anterior path, grams whose original sense is a resultative proper present acquire senses of a present perfect and subsequently of a definite past. The acquisition of the perfectal values typically begins with an inclusive sense and ends with an experiential sense, passing through the sense of a resultative present perfect.[42] When used as a definite past, the gram commonly expands its temporal distance from less distant (e.g. immediate > hodiernal > hesternal > recent) to more distant (general > remote).[43] In some languages, an aspectual development within the definite-past domain is observed, the form being first compatible with perfective and next with non-perfective senses: durative, iterative-habitual, and progressive.[44]

[40] Sometimes completives are considered as a separated sub-type, see BYBEE, J., PERKINS, R., PAGLIUCA, W. *The Evolution of Grammar*. Even though the meaning of lexical sources of completives is distinct from the meaning of resultative proper constructions, their acquisition of perfectal, perfective and past senses is analogous to that exhibited by resultative proper grams (on completives, see further below in this section).

[41] ANDRASON, A. From Resultatives to Present Tenses – Simultaneous Path of Resultative Constructions. In *Italian Journal of Linguistics*, 2014, Vol. 26, No. 1, pp. 1–58; ANDRASON, A. *A Complex System of Complex Predicates: Tense, Taxis, Aspect and Mood in Basse Mandinka from a Grammaticalization and Cognitive Perspective*; ANDRASON, A. From Vectors to Waves and Streams: An Alternative Approach to Semantic Maps. In *Stellenbosch Papers in Linguistics*, 2016, Vol. 45, pp. 1–29; BYBEE, J., PERKINS, R., PAGLIUCA, W. *The Evolution of Grammar*.

[42] ANDRASON, A. From Resultatives to Present Tenses – Simultaneous Path of Resultative Constructions. In *Italian Journal of Linguistics*, 2014, Vol. 26, No. 1, pp. 1–58; ANDRASON, A. *A Complex System of Complex Predicates: Tense, Taxis, Aspect and Mood in Basse Mandinka from a Grammaticalization and Cognitive Perspective*.

[43] BYBEE, J., PERKINS, R., PAGLIUCA, W. *The Evolution of Grammar*.

[44] NEDJALKOV, V., JAXONTOV, S. The Typology of Resultative Constructions. In NEDJALKOV, V. (ed.). *Typology of Resultative Constructions*, pp. 3–63; BYBEE, J., PERKINS, R., PAGLIUCA, W. *The Evolution of Grammar*, pp. 55–57, 98, 104–105; SQUARTINI, M., BERTINETTO, P. M. The Simple and Compound Past in Romance Languages. In DAHL, Ö. (ed.). *Tense and Aspect in the Languages of Europe*, pp. 406–407, 414–417, 422; DAHL, Ö. The Tense and Aspect Systems of European Languages in a Typological Perspective. In DAHL, Ö. (ed.). *Tense and Aspect in the Languages of Europe*, p. 15; NEDJALKOV, V. Resultative Constructions. In HASPELMATH, M. et al. (eds.) *Language Typology and Language Universals: An International Handbook*, Vol. 2, pp. 928–940; HEINE, B., KUTEVA, T. *The Genesis of Grammar: A Reconstruction*, p. 151; ANDRASON, A. *A Complex System of Complex Predicates: Tense, Taxis, Aspect and Mood in Basse Mandinka from a Grammaticalization and Cognitive Perspective*.

In contrast, by travelling along the simultaneous path, a gram used as a resultative proper present acquires the sense of a stative present and, later, a non-stative present.[45]

The anterior path principally operates for dynamic verbs, while the simultaneous path tends to be travelled by static verbs and by verbs that easily lend themselves for stative interpretations (e. g. sensory verbs). However, the anterior path may gradually attract all predicates, be they dynamic or static.[46] This is related to a greater cross-linguistic pervasiveness of the anterior path if compared to the simultaneous path.

Resultative proper grams can also start their grammatical evolution within a past and future time frame. This gives rise to past perfect (pluperfects) and past stative values, on the one hand, and future perfect and future stative values, on the other. Subsequently, grams that express these two senses may lose their perfectal and stative nuances and become acceptable in the function of a remote past and simple future, respectively.[47]

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[45] MASLOV, J. Resultative, Perfect and Aspect. In NEDJALKOV, V. (ed.). *Typology of Resultative Constructions*, pp. 70–71; BYBEE, J., PERKINS, R., PAGLIUCA, W. *The Evolution of Grammar*, pp. 74–78; DRINKA, B. The Evolution of Grammar: Evidence from Indo-European Perfects. In SCHMID, M., AUSTIN, J., STEIN, D. (eds.). *Historical Linguistics 1997*, p. 120; ANDRASON, A. From Resultatives to Present Tenses – Simultaneous Path of Resultative Constructions. In *Italian Journal of Linguistics*, 2014, Vol. 26, No. 1, pp. 1–58; ANDRASON, A. *A Complex System of Complex Predicates: Tense, Taxis, Aspect and Mood in Basse Mandinka from a Grammaticalization and Cognitive Perspective*.

[46] ANDRASON, A. From Resultatives to Present Tenses – Simultaneous Path of Resultative Constructions. In *Italian Journal of Linguistics*, 2014, Vol. 26, No. 1, pp. 1–58; ANDRASON, A. *A Complex System of Complex Predicates: Tense, Taxis, Aspect and Mood in Basse Mandinka from a Grammaticalization and Cognitive Perspective*. The evolution of one category in both directions can be illustrated by a great number of languages see, ANDRASON, A. *El sistema verbal hebreo en su contexto semítico: una visión dinámica* [The Hebrew Verbal System in its Semitic Context: A Dynamic Perspective]; ANDRASON, A. From Resultatives to Present Tenses – Simultaneous Path of Resultative Constructions. In *Italian Journal of Linguistics*, 2014, Vol. 26, No. 1, pp. 1–58; ANDRASON, A. *A Complex System of Complex Predicates: Tense, Taxis, Aspect and Mood in Basse Mandinka from a Grammaticalization and Cognitive Perspective*; ANDRASON, A., LOCATELL, C. *The Perfect Wave*. One of the most evident case is provided by Germanic languages, where the original "perfect" or "resultative" category travelled the resultative path in both direction, i.e. toward the past tense (see the Preterite **ran**) and the present tense (see the class of Preterite-Present verbs such as **can**; compare footnote 24).

[47] ANDRASON, A. *El sistema verbal hebreo en su contexto semítico: una visión dinámica* [The Hebrew Verbal System in its Semitic Context: A Dynamic Perspective]; ANDRASON, A. From Resultatives to Present Tenses – Simultaneous Path of

Additionally, original resultative grams – which subsequently acquire perfectal, perfective and/or past senses – may develop certain modal values. This typically occurs due to the process of modal contamination. In course of this process, because of being persistently used in clearly modal contexts, indicative constructions adopt modal meanings characteristic of such environments as their own.[48] Modal contamination constitutes a type of 'conventionalization of implicature',[49] 'context-induced reinterpretation',[50] or 'semantization'.[51] One of the most prototypical environments of modal contamination are conditional protases and apodoses.[52]

The semantic potential exhibited by the PFV form matches the different stages of the resultative path to a great extent. The senses of a present perfect, perfective past and non-perfective past can be accommodated by the anterior path. The present stative sense can be connected to those values by means of the simultaneous path. The senses of pluperfect and future perfect are also fully consistent with this mapping. Their position is analogous, the path (and, possibly, the original resultative proper input) being located in a past or a future time frame. The values of unreal counterfactuality may be linked to the indicative semantic sphere of PFV by means of a modal contamination path that has arisen in an overt modal environment of conditional periods.

As a result, by being organized into a vectored map of related senses, the qualitative semantic potential of the PFV gram can be grasped in its totality. As explained, the relation of the components of the map is both conceptual and diachronic. The following model illustrates this profound adequacy between the semantics of PFV and the stages of the resultative path:

Resultative Constructions. In *Italian Journal of Linguistics*, 2014, Vol. 26, No. 1, pp. 1–58; ANDRASON, A. *A Complex System of Complex Predicates: Tense, Taxis, Aspect and Mood in Basse Mandinka from a Grammaticalization and Cognitive Perspective*.

[48] ANDRASON, A. *El sistema verbal hebreo en su contexto semítico: una visión dinámica* [The Hebrew Verbal System in its Semitic Context: A Dynamic Perspective]; ANDRASON, A. A *Complex System of Complex Predicates: Tense, Taxis, Aspect and Mood in Basse Mandinka from a Grammaticalization and Cognitive Perspective*.

[49] DAHL, Ö. *Tense and Aspect Systems*; BYBEE, J., PERKINS, R., PAGLIUCA, W. *The Evolution of Grammar*, pp. 25–26, 296.

[50] HEINE, B., CLAUDI, U., HÜNNEMEYER, F. *Grammaticalization. A Conceptual Framework*, pp. 71–72.

[51] HOPPER, P., TRAUGOTT, E. *Grammaticalization*, p. 82.

[52] BYBEE, J., PERKINS, R., PAGLIUCA, W. *The Evolution of Grammar*.

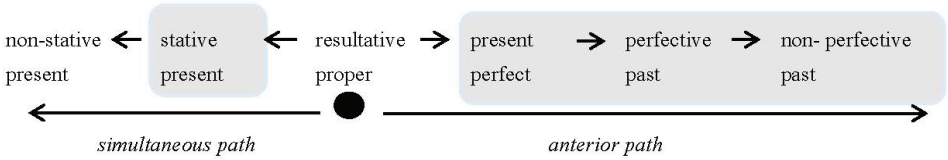

Figure 1: Map of PFV as a vector[53]

Even though PFV is compatible with all the senses mentioned above and its qualitative map spans a large portion of the resultative path, the relevance of these senses and their contribution to the gram's semantic potential are not equal. Some senses are prototypical, while others are semi-prototypical or even non-prototypical. The most prototypical sense is a perfective past and a present perfect. However, one should bear in mind that, within the present-perfect domain, PFV fails to be compatible with the idea of an inclusive present perfect. This suggests a slightly lower degree of prototypicality of the domain of perfect in comparison to the value of a perfective past. The non-perfective past uses may be regarded as semi-prototypical. On the one hand, the PFV gram can express duration and most cases of iterativity and habituality. On the other, it is incompatible with the adverb 'always, everyday' (the most exemplary adverb of habituality) and with progressive readings. The sense of a present stative is also semi-prototypical – it applies to circa 20% of the roots. Its prototypicality seems to be even lesser than that of a non-perfective past, given that the use of static roots in PFV is not productive, and that such roots may also exhibit present perfect and perfective past (albeit only hodiernal/hesternal) values in PFV. The pluperfect sense is non-prototypical. The PFV gram is only commonly used in one of its variants, i.e. when the anterior event is introduced from a past metal-space perspective. In the other pluperfect function, it is usually reformulated into an analytical construction built around the PFV form of the auxiliary verb 'finish' (see further below in this section). The future perfect exhibits a similar behavior, being fully restricted to a future mental-space perspective of the reported speech.

If this non-prototypicality of the past perfect and future perfect senses is combined with certain limitations on the present perfect uses (see above in this paragraph), the domain of taxis (i.e. all the perfectal senses in the three temporal spheres) can be viewed as less prototypical than the perfective past. This, in turn, suggests a semi-advancement of PFV on its grammaticalization path and

[53] The shaded grey areas indicate senses with which the PFV form is currently compatible. The black dot makes reference to the conceptual and diachronic source of the path.

its similarity with the category of "old perfects" in Bybee, Perkins and Pagliuca's terminology[54] – i.e. (perfective) past grams with common perfectal uses. In other words, if PFV was a canonical perfect, one would expect it to appear with no restrictions with a past and future temporal reference (i.e. as a pluperfect and future perfect), not only with a present reference (as a present perfect). However, as the gram is profoundly associated with the function of a definite past, a new, more explicit construction has been derived in order to introduce anterior actions in the past. This construction explores, itself, a common morpho-syntactic pattern of completives, which are the other type of grams that "feed" the resultative path, especially its anterior subtype.[55] It is built around the verb 'finish', the most frequent lexical source of completives cross-linguistically.[56] As explained in section 3, in Arusa, this analytical gram is not restricted to pluperfect uses but may also be used as a present perfect and immediate, hodiernal and hesternal past. Overall, it arguably constitutes a new (second) wave of resultative-path grams in Arusa. Having been derived after the time where the PFV gram was coined, it is a "younger" construction. Therefore, it has travelled the path to a lesser extent and exhibits a less advanced profile than PFV, being prototypical in perfectal (taxis) senses.

The semi-advancement of PFV is also consistent with the previously explained split between static and dynamic verbs, which is synchronically typical of grams analyzed in various languages as perfects and/or perfectives.[57]

The modal unreal counterfactual uses are overall non-prototypical, being limited to one modally marked environment – conditional periods. However, in this environment, the PFV form is the most common gram that is used to communicate unreal counterfactual nuances. In general, the exclusive compatibility with the modal value of unreal counterfactuality – and hence the incompatibility with real factual ideas – is coherent with the semi-advanced grammaticalization stage of PFV and its primary association with the idea of perfective past and definite past.[58]

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[54] BYBEE, J., PERKINS, R., PAGLIUCA, W. *The Evolution of Grammar*.

[55] BYBEE, J., PERKINS, R., PAGLIUCA, W. *The Evolution of Grammar*, p. 105.

[56] BYBEE, J., PERKINS, R., PAGLIUCA, W. *The Evolution of Grammar*, p. 58–61

[57] BYBEE, J., PERKINS, R., PAGLIUCA, W. *The Evolution of Grammar*; see also BOTNE, R. On the Notion 'Inchoative Verb' in Kinyarwanda. In JOUANNET, F. (ed.). *Le kinyarwanda, études linguistiques*; BOTNE, R. *On the Nature of Tense and Aspect. Studies in the Semantics of Temporal Reference in English and Kinyarwanda*; BOTNE, R., KERSHNER, T. Time, Tense and the Perfect in Zulu. In *Africa und Übersee*, 2000, Vol. 83, pp. 161–180; BAR-EL, L. *Aspectual Distinctions in SKWXWU7MESH*; FLEISCH, A. *Lucazi Grammar. A Morphosemantic Analysis*.

[58] Compare BYBEE, J., PERKINS, R., PAGLIUCA, W. *The Evolution of Grammar*; ANDRASON, A. (2013b). Against Floccinaucinihilipilification of the Counterfactual

Given the range of senses and their degree of prototypicality, the qualitative-quantitative map of the PFV form adopts the following wave shape:[59]

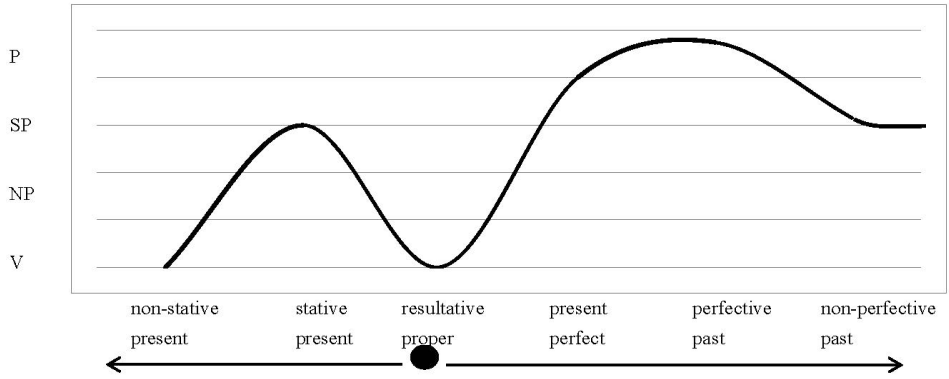

Figure 2: Map of PFV as a wave

So far, the definition of the PFV gram in terms of a semi-advanced resultative-path gram has been proposed on a synchronic and typological ground. That is, the variation of senses exhibited currently by PFV has been matched with a typologically pervasive grammaticalization path and understood as a language-specific manifestation of that path. The cross-linguistic "universality" of the resultative path enabled us to postulate the mapping even though the actual evolution of the form has not been studied.[60]

Presently, scholars do not have access to direct diachronic evidence that could show how the PFV form has emerged and developed in Arusa and Maasai (e.g. texts attested as different historical periods). Nevertheless, the proposed

Tense of the BH Suffix Conjugation – or an Explanation of Why the "Indicative" *Qatal* Expresses Conditions, Hypotheses and Wishes. In *Old Testament Essays*, 2013, Vol. 26, No. 1, pp. 20–56; ANDRASON, A. *A Complex System of Complex Predicates: Tense, Taxis, Aspect and Mood in Basse Mandinka from a Grammaticalization and Cognitive Perspective*.

[59] In this paper, four values of prototypicality have been distinguished: prototypical (P), semi-prototypical (SP), non-prototypical (NP) and void (V). Certainly, more fine-grained distinctions are possible, especially if exact quantitative data are collected, i.e. frequency. In such cases, the degree of prototypicality would range from 0% to 100% through any level of granularity (see Andrason 2016b).

[60] Compare HEINE, B. *Cognitive Foundations of Grammar*.

mapping of PFV may be corroborated by certain structural and systemic properties that indirectly reveal the diachronic origin of this form.

It has been suggested that in Maasai, PFV and the Imperative share, to an extent, their origin, having derived from the same "syntactic substructure", some type of a participial form.[61] That is, the shared properties of PFV and the Imperative and their systematic patterning are not accidental but reveal a possible shared "ancestor" of the two constructions.[62] These similarities involve: (a) morphological homonymy – i.e. the use of the affix **-tV-** for Class I verbs; (b) equivalent use of suppletive forms – i.e. both categories employ identical stems in case of suppletive verb; and (c) incompatibility with negation – i.e. PFV is negated by auxiliary **(e)itu** and the IPFV form of a lexical verb, while the Imperative is negated by a negative subjunctive.[63]

The relationship between PFV and the Imperative, and their possible participial origin as reconstructed by Koopman[64] harmonize with our mapping. This stems from the following cross-linguistic observation: grams of the resultative path (such as PFV) are in various languages derived from some type of participial constructions and exhibit connection with the category of imperative or with imperative uses.

To be exact, examples of resultative-path grams that have been derived from participial constructions (in particular passive, patientive, resultative or perfect participles) are fairly abundant cross-linguistically. Such grams are especially common in Indo-European languages where they have arisen independently, for instance, in Romance, Germanic, Slavonic, Greek and Indo-Iranian.[65] They are also well attested in the Semitic family, e.g. in Akkadian, Hebrew, Arabic and

[61] KOOPMAN, H. On the Homophony of Past Tense and Imperatives in Kisongo Maasai. In *UCLA Working Papers in Linguistics*, 2001, Vol. 6, pp. 1, 5, 6.
[62] Ibid., p. 2.
[63] Ibid., pp. 2, 4, 5. In Maasai, the Imperative is not the morphologically simplest (i.e. the most impoverished) form, as is common cross-linguistically. Rather than being a "true imperative", the Maasai Imperative is a "dependent form". It should be noted that in the Imperative, contrary to other verbal forms such as PFV, the pronominal morphemes do not precede but follow the verbal stem (KOOPMAN, H. On the Homophony of Past Tense and Imperatives in Kisongo Maasai. In *UCLA Working Papers in Linguistics*, 2001, Vol. 6, pp. 6–7).
[64] KOOPMAN, H. On the Homophony of Past Tense and Imperatives in Kisongo Maasai. In *UCLA Working Papers in Linguistics*, 2001, Vol. 6.
[65] BYBEE, J., PERKINS, R., PAGLIUCA, W. *The Evolution of Grammar*; ANDRASON, A. From Resultatives to Present Tenses – Simultaneous Path of Resultative Constructions. In *Italian Journal of Linguistics*, 2014, Vol. 26, No. 1, pp. 1–58.

Aramaic.[66] Further cases include Basque, Tucanoan family (Tucano) and the Dravidian family (Kui).[67] The relation between resultative-path grams and imperatives (and the semantic domain of orders) is also relatively pervasive cross-linguistically. That is, grams that function as indicative perfects, perfectives and pasts either exhibit an identical or similar shape to imperative-type constructions, or are themselves used to communicate orders and commands. This may be illustrated by Slavonic (Polish and Russian), Semitic (Akkadian, Hebrew, Arabic) and Mande (Mandinka) examples.[68] For example, in Polish the L and N/T past senses (**napisał** 'he wrote' and **napisano** 'one wrote') can be used in commands: **Napisano mi to teraz!** 'Write it now!' and **Poszedł stąd!** 'Go away from here!'.[69]

To conclude, if the PFV gram originated in a participial input that also fed the Imperative form, our definition of PFV as a resultative-path gram is corroborated diachronically apart from being derived by matching the synchronic evidence with typological tendencies.[70]

5. Conclusion

The present paper studied the semantics of the PFV form in Arusa, using the model of dynamic semantic maps which emerges at the interfaces of cognitive linguistics and grammaticalization theory. Depending on the type of data included, the map surfaced as a vector or a wave. The former builds on qualitative data, while the latter draws both from qualitative and quantitative data. In this study, qualitative data corresponded to the senses that the PFV

[66] ANDRASON, A. *El sistema verbal hebreo en su contexto semítico: una visión dinámica* [The Hebrew Verbal System in its Semitic Context: A Dynamic Perspective].
[67] BYBEE, J., PERKINS, R., PAGLIUCA, W. *The Evolution of Grammar*.
[68] For a detailed discussion see ANDRASON, A. *El sistema verbal hebreo en su contexto semítico: una visión dinámica* [The Hebrew Verbal System in its Semitic Context: A Dynamic Perspective]; ANDRASON, A. An Optative Indicative? A Real Factual Past? A Cognitive-Typological Approach to the Precative *Qatal.* In *Journal of Hebrew Scriptures*, 2013, Vol. 13, No. 4, pp. 1–41; ANDRASON, A. *A Complex System of Complex Predicates: Tense, Taxis, Aspect and Mood in Basse Mandinka from a Grammaticalization and Cognitive Perspective*.
[69] ANDRASON, A. An Optative Indicative? A Real Factual Past? A Cognitive-Typological Approach to the Precative *Qatal*. In *Journal of Hebrew Scriptures*, 2013, Vol. 13, No. 4, pp. 1–41.
[70] Overall, our analysis of the PFV form and its definition as a resultative-path gram corroborates the reconstruction proposed by Koopman, see KOOPMAN, H. On the Homophony of Past Tense and Imperatives in Kisongo Maasai. In *UCLA Working Papers in Linguistics*, 2001, Vol. 6.

form conveys, whereas quantitative data referred to the degree of their prototypicality.

The analysis demonstrates that PFV can be defined as a broad resultative-path gram. PFV spans large sections of both the anterior and the simultaneous path. However, the input sense of the two paths (i.e. a resultative proper present) and their most advanced sections (i.e. a non-stative present and a progressive past) do not belong to the semantic potential of the gram. The former value (resultative proper) has likely been lost, whereas the latter values (non-stative present and progressive past) have not been acquired yet. If the information related to prototypicality is included, the map takes on the shape of a wave with the prototypicality peaks located in the area of present perfect and, especially, perfective past. The senses of a non-perfective past and a stative present are less prototypical – therefore, at these points, the wave is less raised. Other values are non-prototypical, contributing minimally to the gram's semantics. Although the vectored and waved maps were principally posited on the synchronic and typological grounds, they were also corroborated by certain structural and systemic properties. These properties relate to a participial origin of the PFV form, and its connection to the Imperative.

The results of this article may arguably contribute to the aspect-tense debate, pervasive in Maasai scholarship. This debate concerns the nature of PFV and the entire verbal system i.e. its aspectual, temporal or taxis (i.e. perfectal) foundation. In our view, "the one form – one meaning approach" should be replaced by a more nuanced and more empirically-grounded model of maps. That is, as any verbal gram, the PFV form is polysemous and draws from various domains. It is compatible with taxis, aspect and tense domains. However, the compatibility with each domain is found in different context and amounts to a different extent.

Our study has not answered all the questions related to the semantics of the PFV gram. In particular, the quantitative information specifying the degree of prototypicality of senses was coarse-grained. It was also relatively approximate and in some cases based on the intuition of native speakers. Certainly more, purely quantitative, frequency-oriented studies of large and diversified corpora are needed. Hopefully, the efforts of the two authors to stimulate literary production in Arusa will yield texts suitable for such quantitative analyses in the future.

Abbreviations

DAT – dative applicative;
IPFV – imperfective;

IMP – impersonal;
PFV – perfective;
PL – plural;
PROG – progressive;
SG – singular;
SUB – subjunctive.

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