Clause Structure and the Morphosyntax of Swahili Verbs

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1 Introduction

- Verb forms in many languages reflects clause structure. Depending on the facts, and your syntax-morphology interface, this relation may be:
    - direct: verb forms spell out particular functional heads.
    - indirect: verb forms spells out features that "come from" functional heads.

- **Persistent theoretical dilemma:** how much should we employ the narrow syntax in explaining the appearance of certain verb forms? Connected problems include . . .
    - What should the narrow syntax and a post-syntax / morphological component look like?
    - How do these components all relate to each other?

- Case in point: *impoverishment* - some distinctions are not encoded by all verb forms.
    - Examples: finite vs non-finite forms (participles, infinitives, gerunds) in IE languages; the former usually bear tense/subject agreement, the latter usually cannot.

- **Syntactic or post-syntactic impoverishment?**
    - Post syntactic impoverishment: morphosyntactic features can be deleted in certain contexts, or otherwise end up realising certain forms that do not express the featural distinctions.
    - Type I syntactic 'impoverishment': Functional structure and associated features can absent from a clausal structure. E.g. small(er) clauses
    - Type II syntactic 'impoverishment': Syntactic relations underlying morphological dependencies are blocked in certain structural configurations. e.g. adjunct clauses
    - Profile for syntactic impoverishment: extraction restrictions, ECM, atypical subject licensing, interpretative effects . . .

- Should we have a preference for syntactic or morphological solutions?
    - Certain approaches to impoverishment, like in Distributed Morphology, involve deletion of morphosyntactic features. This kind of solution is fairly explicitly ruled out in Minimalism, c.f. No Tampering.[1]
    - All minimalist conceptual arguments about evolvability and general simplicity apply to the post syntax too. The post-syntax shouldn't be a speakeasy offering a quick fix of processes prohibited under the Minimalist regime (Siddiqi, 2019).
    - Resorting to variation in clause structure, which seems more innocuous, saves us the trouble of needing special un-Minimalist mechanisms.

- **Today's focus:** 'impoverishment' in Swahili, a relatively well studied Bantu language spoken in East Africa.
    - To my knowledge, the facts we will discuss haven't been talked about in these terms.
    - Lack of agreement is a common kind of impoverishment, but in Swahili agreement is basically present everywhere (e.g. in periphrasis lexical and auxiliary verbs are both marked for subject agreement).
    - Agreement is camoflage for verb forms with unusual external distribution, interpretation and interactions with negation.
    - **Employing distinct clause structure for impoverished forms is worth exploring.**

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1. See Müller, 2017 for empirical/theoretical arguments for structure removal.

2 Core and Dependent Tense/Aspect marking

2.1 Background

- Swahili verbs are composed of two domains (Barrett-Keach, 1986, Myers, 1987 on Shona).

  (1) a. [_A_ Inflectional prefix complex]-[_B_ Macrostem]

      b. [_A_ *ni-na-*] [_B_*ku-penda*] / *ninakupenda*
         [_A_1S-Pres] [_B_-OM-love]
         'I love you'

Macrostem: root; extensions (Ext) marking valency, 'final vowel' (FV) and object prefix.	
Inflectional prefix complex: subject marking (SM), tense/aspect (TA) and negation (NEG).	

- Periphrastic constructions may indicate a certain amount of multifunctionality, e.g. Present *-na* seems to be found marking progressive aspect, or that some "tense" markers might really be aspect markers.

2.2 Core TA markers

- Verbs can be inflected for tense and aspect using the the Core TA prefixes, shown below. Combinations of tense and aspect are expressed using periphrastic constructions.

Core tense/aspect markers			
Present	Past	Future	Perfect
na-	li-	ta-	me-

  (2) a. *Ni-ta-kuwa   ni-me-ondoka*
         SM-Fut-Aux SM-Perf-leave
         'I will have left.'

      b. *A-me-kuwa   a-na-soma*
         SM-Perf-Aux SM-Pres-read
         'She has been reading.'

2.3 Dependent tense markers

- Clauses in certain contexts do not need to have their own independent temporal reference. They may receive temporal reference from another clause, or be 'anchored' in some other fashion.

Dependent tense markers			
Morpheme	ku-	ki-	ka
Verb form	ku-…	SM-ki-…	SM-ka-…

- **Distribution of Ku-marked forms:** Often called the "infinitive form", ku-marked verbs are found as complements to modal verbs (3ab), but not perception verbs (3c); in short-form adverbial clauses (3d) and seemingly coordinated with fully inflected verbs (3e). Compare with Italian infinitive forms.

  (3) a. *tu-na-taka   ku-soma*
         1P-Pres-want KU-read
         'We want to study'

      b. *Tom a-na-weza   ku-soma*
         Tom SM-Pres-can KU-read
         'Tom can study.'

      c. **Mimi ni-li-ona   John ku-imba*
         I   1S-Pst-see John 3S-sub-sing
         'I saw John sing.'

      d. *Wa-li-ondoka baada ya ku-pumzika*
         SM-Pst-go   after YA KU-rest
         'They left after resting'

      e. *tu-li-cheza   na ku-imba*
         SM-Pst-dance and KU-sing
         'We danced and sang.'

  (4) a. *Vogliamo studiare*
         want.1P study.INF
         'We want to study'

      b. *Tom può   studiare*
         Tom can.3S study.INF
         'Tom can study.'

      c. *Ho   visto   Gianni cantare*
         Aux.1S see.ptcp Gianni sing.INF
         'I saw John sing.'

      d. *Sono partiti dopo aver riposati*
         Aux.3P leave.ptcp after aux.INF rest.ptcp
         'They left after resting (lit. having rested).'

      e. **Abbiamo bailato   e   cantare*
         Aux.1P dance.ptcp and sing.INF
         Intended: 'We danced and sang.'

- **Distribution of Ki-marked forms:** These are found as complements of perception verbs (5a); in sentence fragments (5b)[2]; in periphrastic constructions (5c); and as marking verbs as being part of temporal / conditional adjunct clauses (5d).

(5) a. *Mimi ni-li-ona   John a-ki-imba*
        I   1S-Pst-see John 3S-KI-sing

    'I saw John singing.'

  b. *Harmonize jukwaan-i a-ki-imba   mbele ya Eto'o*
       Harmonize stage-loc   SM-KI-sing front of Eto'o

    'Harmonize on stage singing in front of Eto'o.'

  c. *ni-li-kuwa   ni-ki-soma*
       SM-Pst-Aux SM-KI-read

    'I was reading.'

  d. *U-ki-mu-ona   u-ta-m-penda*
       SM-**KI**-OM-see SM-Fut-OM-like

    'If/when you see her, you will like her.'

- **Distribution of Ka-marked forms:** Such verb forms denote an event that occurred in the past which was either the first in a series of events (6a), or after some other event (6b).

(6) a. *Hapo zaman-i, mfalme a-ka-oa   mke*
        there time-Loc king   SM-KA-marry woman

    'Once upon a time, a king married a woman . . .'

  b. *tu-li-kaa   chini tu-ka-ongea*
       SM-Pst-sit down SM-KA-speak

    'We sat down and conversed.'

3 Negation and clause structure

3.1 Primary and Secondary Negation

- **Primary Negation:** Precedes subject marking (7b), **Secondary Negation:** Follows subject/TA marking (7b). Similar facts are observed in other Bantu languages like Zulu (8).

(7) Swahili negation

  a. *tu-ta-soma*
      1P-Fut-read
      'We will read'

  b. ***ha**-tu-ta-soma*
      Neg-1P-Fut-read
      'We will not read'

  c. *Ni-na-taka   ku-to-soma*
      1S-pres-want KU-Neg-read
      I want to not read.

(8) Zulu negation

  a. *ka-cula*
      SM-sing
      'She sings.'

  b. ***a**-ka-cul-**i***
      Neg-SM-sing-**Neg**
      'She does not sing.'

  c. *U-funa   uku-**nga**-cul-**i***
      SM-want Inf-**Neg**-sing-**Neg**
      'She wants to not sing'   (Buell 2005; ex.128)

- Typological observation: A general pattern in Bantu (and wider Niger-Congo) involves primary negation being restricted to main clauses, and secondary negation to embedded clauses (Nurse, 2008; 23).

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2. A title of a YouTube video of an artist Harmonize performing: https://www.youtube.com/watch?v=YNHTUkE74Is

- **Interactions with Primary Negation:** The form of primary negation depends on subject phi-properties (9). Core TA markers (except future *ta-*) display alternative forms in the context of primary negation (10).

(9) Interactions with agreement

    a. ***si**-ta-soma*
       Neg.1SG-Fut-read.indic
       'I will not read'

    b. ***h**-u-ta-soma*
       Neg-2SG-Fut-read.indic
       'You will not read'

    c. ***h**-a-ta-soma*
       Neg-3SG-Fut-read.indic
       'He/she will not read'

    d.

Si-	h-	ha
Neg.1SG	Neg / _{2Sg, 3Sg}	Elsewhere

(10) Interactions with core TA marking

    a. ***ha**-tu-**ja**-soma*
       Neg-1P-perf.neg-read.indic
       'We have not read'

    b. ***ha**-tu-som-**i***
       Neg-1P-read.indic-Neg.Pres
       'We do not read'

    c. ***ha**-tu-ku-soma*
       Neg-1P-pst.neg-read.indic
       'We did not read'

    d.

	Pres	Pst	Perf
-Neg	*-na-*	*-li-*	*-me-*
+Neg	*-i*	*-ku-*	*-ja-*

3.2 Where do we find secondary negation?

- **Conditionals:** In addition to the ki- strategy of marking probable conditions, Swahili also displays the morphemes *nge-* (for improbable conditions) and *ngali-* (for unreal/counterfactual conditions).

  - <u>Negating conditionals</u>: secondary negator *si-*, (SM-Neg-Cond- . . .)

(11) a. *U-si-nge-mw-ona,   u-si-nge-m-penda*
       SM-Neg-Cond-OM-see SM-Neg-Cond-OM-like

       'If you saw him, you wouldn't like him.'

    b. *U-si-ngali-mw-ona,   u-si-ngali-mpenda*
       SM-Neg-Cond-OM-see SM-Neg-Cond-OM-like

       'If you had seen him, you would have liked him.'   (Mpiranya, 2014, pp.128)

- **Subjunctives:** The forms called "subjunctive" in the literature on Swahili usually display a final vowel -e and lack TA marking. Subjunctives forms are found expressing negative, weak and indirect requests. They also appear as complements to certain various verbs, sometimes alternating with ku-marked predicates.

  - <u>Negating conditionals</u>: secondary negator *si-*, (SM-Neg-. . .-e)
  - <u>Subjunctives can modify clauses like dependent tense marked verbs</u>: A negative subjunctive may function like contrastive coordination or *without* clauses.[3]

(12) a. *Wa-li-m-fuata   wa-si-m-pat-e*
       SM-Pst-OM-follow SM-Neg-OM-get-subj

       'They followed him but did not get him / without getting him.'

    b. *A-ta-anguka   a-si-umi-e*
       SM-Fut-fall.down SM-Neg-be.hurt-subj

       'He will fall down but he will not be hurt / without getting hurt.'   Mpiranya (2014, pp. 192)

  - <u>Subjects</u>: Ku-predicates only have a controlled subject, or distinct subject indicated by matrix verb object marking. In contrast subjunctive predicates only allow a subject distinct from that of the matrix clause; it may be be overt or indicate by SM on the subjunctive.

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3. Subjunctives can appear also with various adverbs/prepositions (e.g. *tangu* 'since', *mpaka* 'until').

(13) a. *ni-na-taka   ku-ruka*
    SM-Pres-want KU-jump

    'I want to jump.'

  b. *ni-na-ta-ka   u-ruk-e*
    SM-Pres-want SM.2S-jump-subj

    'I want you to jump.'

  c. *Ni-na-(m)-taka   mbwa a-ruk-e.*
    SM-Pres-(OM.1)-want 1dog SM.1-jump-subj

    'I want the dog to jump.'

                                     Mursell, 2018 ex. 25

(14) a. *A-li-(ni)-amuru   ni-ondok-e   /*
    SM-Pst-(OM.1s)-order SM.1s-go-subj

    ku-ondoka
    KU-go

    'He ordered me to leave.'

  b. *i-na-(tu)-pasa   tu-ondok-e   /*
    SM-Pres-OM.1pl-must 1P-go-subj

    ku-ondoka
    KU-go

    'It is necessary for us to leave.'

                           Mpiranya, 2014 pp. 89-90

- **Synthetic relatives:** Swahili relatives employ a morpheme REL co-varying in form with the head of the relative's noun class. In the absence of the complementiser *amba*[4], REL can appear at two different positions on the embedded verb: medial REL (SM-TA-REL-Macrostem) and final REL (SM-Macrostem-REL).

  - <u>Negating synthetic relatives:</u> Medial REL – Secondary negator *si-*, expression of TA is blocked: only a present tense interpretation is possible. Final REL – No negative form.

(15) a. *Kitabu a-li-cho-ki-ona   / a-si-cho-ki-ona   mtoto*
    7book SM-Pst-7REL-OM-see   SM-Neg-7REL-OM-see child

    'The book the child saw / doesn't see.'

  b. *Kitabu a-ki-ona-cho   mtoto*
    7book SM-OM-see-7REL child

    'The book the child sees.'

                           Demuth and Harford, 1999 ex. 17, 18

  - <u>Tense/Aspect expression:</u> In the affirmative form TMA expression is slightly restricted with medial REL: no perfective *-me*. With final REL, by contrast, TMA expression is heavily restricted to just a present tense interpretation.

  - <u>Subjects:</u> In object relatives, the subject of the relative is obligatorily post verbal with medial and final REL. In contrast relatives with the complementiser *amba* obligatorily have pre-verbal subjects.

- **Temporally dependent forms:** Recall that these are ku-, ki- and ka- marked predicates.

  - <u>Negating temporally dependent forms:</u> Temporally dependent forms: Incompatible with primary negation. Either they display some form of secondary negation, or they do not have a negative form.

-imba 'sing'	ku-	ki-	ka-
-Neg	ku-imba 'to sing'	a-ki-imba 'singing'	a-ka-imba 'sang'
+Neg	ku-to-imba 'to not sing'	a-sipo-imba 'not singing'	Ø

  - It's possible that *-sipo-* is actually not a negative form of *ki-* and reflects a different construction. There is a kind of locative / temporal relative which display *-po* instead of co-varying REL (16), otherwise with exactly the same distributional properties.

(16) a. *ni-na-penda meza amba-po   u-me-weka   maua*
    SM-Pres-like table Comp-PO SM-Perf-put flowers

    'I like the table on which you have put flowers.'

  b. *ni-na-penda meza u-me-po-weka   maua*
    SM-Pres-like table SM-Perf-PO-put flowers

    'I like the table on which you have put flowers.'

                            Mpiranya, 2014 pp.74

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4. Below is an example of the full-form relatives. They display primary negation and no restrictions on TMA expression.

(i) *kitabu amba-cho   mtoto a-li-m-ona   / h-a-ku-m-ona   jana*
   7book comp-7REL child SM-Pst-OM-see   Neg-SM-Pst.Neg-OM-see yesterday

 'The book the child saw / didn't see yesterday.'   Demuth and Harford, 1999 ex. 17, 18

- The medial PO type of clause can be interpreted like when-clauses (17). The medial *-po* displays secondary negation *si-*, forming sequences SM-*si-po-*... (17b).

(17) a. *tu-na-po-kaa*
    1P-Pres-PO-stay

    'When/where we stay ...'

    b. *tu-si-po-kaa*
       1P-Neg-PO-stay

       'When/where we don't say ...' Mpiranya, 2014 pp.75

3.3 Some generalisations

- The distribution of negation: doesn't correlate neatly with a main vs embedded distinction.

  - Primary negation: Matrix clauses, some embedded complement clauses.
  - Secondary negation: Mainly embedded (adjunct) clauses (setting aside relatives and conditionals)

- A neater correlation: secondary negation and lack of any negative forms correlate with reduced tense/aspect expression and interpretation.

  - Conditionals morphemes nge-/ngali- core TA marking: SM-si-Cond-...
  - Subjunctives lack core TA expression: interpretation controlled by matrix clause: SM-si-...-e
  - In synthetic relatives, core TMA expression/interpretation and negation compete: SM-si-REL-...
 - Ku-, ki- and ka- replace core TA marking, only Ku- / ki- can be negated: ku-to-...; SM-sipo-...

4 Impoverishment at a clausal level

4.1 Analysis

- **General proposal:** the choice of primary negation and core TA marking or secondary negation and impoverished tense/aspect is result of different clause structure derivations.

  - Ingredient 1: Two 'negative positions': one high and one low in the clause.
  - Ingredient 2: A mechanism ensuring primary and secondary negation are in complementary distribution.
  - Ingredient 3: A way for types of negation to track types of tense/aspect expression.

- **Two Neg positions:** There are several ways of implementing this idea.

  - Movement: Interpretative negation starts low and moves/cliticises to a higher position.[5]
    * Primary negation is the result of this movement.
    * Secondary negation appears when negation stays low given the lack of a suitable landing site.
  - Selection: The intuition is that loosely speaking, negation 'selects for' certain tense/aspect properties.
    * Two kinds of negative heads in the Swahili functional lexicon? One selects for the projection associated with Core TA, the other selects for the projection associated with impoverished TA.
    * Problem: Preventing both negative heads from appearing in the same clause.

- **Clause 'truncation':** The grammar of Swahili can follow a derivation D leading to clauses which lack both independent temporal reference and primary negation.

  - D does not contain step inserting a landing site for Neg movement.
  - D must contain steps merging an element with certain TA properties and not others.
    * D can't contain a Core TA projection. Otherwise we would incorrectly predict that secondary negation, i.e. lack of neg movement to be possible with Core TA markers.
    * D can contains whatever projections are associated with many of the Impoverished TA cases.

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5. See e.g. Pietraszko, 2017 and Pietraszko, 2018 on Ndebele and Buell, 2005 on Zulu for similar ideas.

– We need to admit a closely related derivation D', for the Impoverished TA cases which cannot be negated.
  ∗ D' also can't steps introducing Core TA projections.
  ∗ Unlike D, D' cannot contain steps introducing Negation.

- After the Voice layer is complete ...

  – Merging Y or Z blocks further negation and TA projections. <u>Verb forms: TA impoverished, lacking primary negation.</u>
  – Neg can externally merge before Y and T, but not Z.
    ∗ Clauses containing Z have no negation: **Ka-marked predicates.**
    ∗ Clauses containing Y can have secondary negation: **Ku-marked predicates.**
    ∗ Clauses containing T have primary negation: **Core TA predicates.**[6]
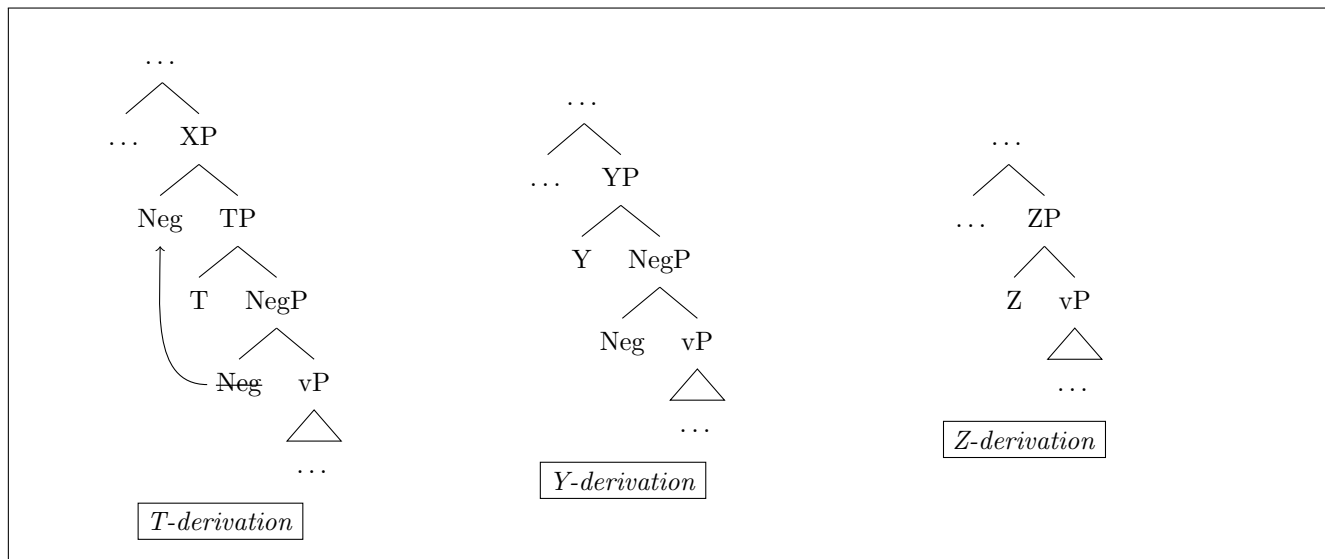
- **Extending the analysis to other impoverished TA forms ...**

  – <u>Ki-predicates:</u> Y or Z, depending on whether sipo- is a negative allomorph of ki- or not.
  – <u>Subjunctives:</u> These must be Y-derived, since they display secondary negation. Issue: how do we account for the absence of prefix in the TA-slot and the change in final vowel?
  – <u>Conditionals:</u> The presence of secondary negation, suggests Y-derived. Issue: How do we derive the difference in ordering of **secondary neg**, *si*-*nge*/*ngali* vs *ku*-*to*?[7]

- How can Y and Z effectively terminate further derivation in a verbal EP?

  – Option 1: changing the category of the EP.
    ∗ **'Adpositionalisation':** Gallego, 2010 suggests that various non-finite verb forms in Romance languages involve clause structures headed by PPs.
    ∗ The latter route is particularly attractive because a number of the temporally dependent verb forms function like adverbial clauses, which are headed by adpositions (Blümel, 2017).
    ∗ Ku-marked predicates have a distinctive distribution unlike the other impoverished TA forms: they cannot modify clauses without some additional overt element e.g. adposition/adverb, being the complement of a lexical/functional verb. These could be <u>nominalisations</u>.[8]
  – Option 2: the clausal functional sequence is composed of distinct 'pathways'.
    ∗ The merger Y/Z is associated with a particular set of subsequent derivational steps that are distinct from those that would follow the merger of T.

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6. Auxiliary assumption: some XP merged after T obligatorily triggers movement/cliticisation of Neg to some position local to XP.
7. It occurs to me that these conditionals resemble coordination. Some languages display 'polysyndetic coordination' giving special marking to each conjunct. Even in English we find dependencies like 'either ... or ...'.
8. Pietraszko, 2019 suggests that ku-marked predicates in Zulu always correspond to a clause with an outer layer of nominal structure.

* One conceptualisation: Y/Z is associated with its own mini-functional sequence.
* "Branching functional sequences" might lead to completely different end states: continuation vs termination of an extended projection.
* Alternatively they might result in minor detours, with derivations differing in some intermediate steps, before rejoining the same path.

- **A difficult case: synthetic relatives**

  - **Final REL:** substantial TA impoverishment, no negation. This is basically the profile of Z-derivation.
  - Issue: If Z-derivations involve the termination of the verbal EP, we shouldn't expect the appearance of a CP. However the CP layer is often plays an important role in the analysis of relatives.
  - Can we keep REL as a reflex of complementiser agreement, whilst assuming that TA impoverishment in final relatives is the result of clausal truncation? Maybe.
  - If we take a forking extended projections view, it would be possible to diverge away from taking most clausal structure but return "back on track" to get whatever high projections are needed in relatives.
  - **Medial REL:** substantial TA impoverishment in the context of negation, only secondary negation is possible.
  - How can we derive the competition between TA expression and negation? Unclear: perhaps a combination of truncation and traditional morphological impoverishment?

4.2 Crosslinguistic perspective: Turkish adverbial suffixes

- Swahili isn't the only language where verbs display TA impoverishment and adverbial clause like properties!

- Turkish verbs are normally richly inflected for valency, negation, TMA and agreement.

- A series of suffixes can replace TMA marking and agreement, giving verbs an adjunct-y distribution.

  - *-IncA* 'when ...'

  (18) *müdür   tatil-e   çık-ınca   ofis-i   kapa-dı-k*
        director vacation-Dat leave-Adv office-Acc close-Pst-1P

        'When the director went on holiday, we closed the office.'   (Kornfilt, 1997 ex. 281)

  - *-DIkca* 'whenever / as long as ...'

  (19) *Ankara-ya   dön-dükce   her   taraf-ın-ı   değiş-miş   bul-ur-um*
        Anakara-Dat return-Adv each side-3s-Acc change-Perf find-Aor-1S

        'Whenever I return to Anakara, I find it completely changed.'   Kornfilt (1997; ex.292)

  - *-(y)ArAk* Manner

  (20) *Hasan iste-mi-yerek   otur-du*
        Hasan want-Neg-Adv sit.down-Pst.3s

        'Hasan sat down without wanting to.'   Kornfilt (1997; ex. 750)

- **These verb forms aren't nominalisations!**

  - Subjects of nominalisations are marked for genitive case. Subjects of adverbial forms are not.
  - Nominalisations display nominal-paradigm subject agreement. Adverbial forms do not.
  - Nominalisations can be assigned structural and quirky case from other verbs. Adverbial forms cannot.

- Connection with adverbs: most adjectives and adverbs do not differ morphologically, but many manner adverbs display -cA. These adverbial are not always related to adjectives.

  (21) a. *yavaş* 'slow' *yavaş-ca* 'slowly'

        b. *ben* 'I' *ben-ce* 'in my opinion'

5   Concluding remarks

- Summary: the correlation between secondary negation and tense/aspect impoverishment can be captured using a truncated clause structure.

  - This truncation could be the result of the extended projection changing category, or a reflection of more intricate relation between extended projections and functional sequences.
  - Extending this to some impoverished cases like conditionals and synthetic relatives is not straightforward.
  - <u>More syntactic/phrasal diagnostics are needed to substantiate syntactic impoverishment.</u>

- A different perspective on the cartography adverbials

  - Work on the external syntax of adverbial clauses has claimed that some adverbial clauses are more closely integrated into clause structure (Valmala 2009, Haegeman 2012).
  - Various lines of reasoning place 'central adverbial clauses' in a layer in the very low inflectional field.
  - Cartographic reasoning usually tries to find morphological correlates of functional heads, in addition to phrasal elements hosted by those heads.
  - Adverbial verb forms much be just the thing! Could we connect this we coordination and converbs?

- The morphosyntax of agreement

  - Impoverishment does not seem to affect agreement in Swahili, unlike in Turkish.
  - It seems like that subject agreement appears at the top of the verbal extended projection, rather than being associated with just the core TA head.

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