Syntax Colloquium

Institute for Linguistics, JWGU Frankfurt a.M.

Variable affix order on the surface: The case of Turkish

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(1)   a.   Gör-dü-**k**-Ø-se
           see-PFV-**1PL**-COP-COND
      b.   Gör-dü-y-se-**k**
           see-PFV-COP-COND-**1PL**
           'If we have seen'

Variable affix order in Turkish

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         see-PFV-**1PL**-COP-COND
     b. Gör-dü-y-se-**k**
         see-PFV-COP-COND-**1PL**
         'If we have seen'

(2) a. *Gör-üyor-**uz**-Ø-muş.
         see-IPFV-**1PL**-COP-EVID
     b. Gör-üyor-Ø-muş-**uz**.
         see-IPFV-COP-EVID-**1PL**
         'Apparently we see.'

Claim

- The patterns of free affix order and suspended affixation in Turkish have not been generalized correctly.
- We claim that both phenomena are surface-oriented.
- We discuss an analysis that reduces both phenomena to the same constraints.

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- **z- vs. k-markers**:
  In (finite) verbal structures, the **k**-paradigm (**Agr_k**) is chosen whenever the preceding TAM marker is **-DI** or **-sA** (**TAM_k**); all the other markers (**TAM_z**, e.g. **-Iyor** and **-mIş**) select the **z**-paradigm (**Agr_z**).

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- **Copula**:
  Finite verbal structures contain a copula, which is either null (after consonants) or *y* (after vowels) (Kabak (2006))

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Observation

Verbs in Turkish have two surface positions for the agreement suffix. The precopular position is highly restricted.

(3)	a.	✓i.	TAM_k	Agr_k	**Copula**	TAM_k	
		✓ii.	TAM_k		**Copula**	TAM_k	Agr_k
	b.	*i.	TAM_z	Agr_z	**Copula**	TAM_z	
		✓ii.	TAM_z		**Copula**	TAM_z	Agr_z
	c.	*i.	TAM_k	Agr_k	**Copula**	TAM_z	
		✓ii.	TAM_k		**Copula**	TAM_z	Agr_z
	d.	*i.	TAM_z	Agr_z	**Copula**	TAM_k	
		✓ii.	TAM_z		**Copula**	TAM_k	Agr_k
	e.	*i.	TAM_z	Agr_z	**Copula**		
		✓ii.	TAM_z		**Copula**		Agr_z
	f.	✓i.	TAM_k	Agr_k	**Copula**		
		*ii.	TAM_k		**Copula**		Agr_k

Two agreement positions

Agr$_k$ can occur in two positions

(1)	a.	✓i.		**TAM$_k$**	**Agr$_k$**	**Copula**	**TAM$_k$**	
		✓ii.		**TAM$_k$**		**Copula**	**TAM$_k$**	**Agr$_k$**

	a.	✓i.	Gör	-**dü**	-**k**	-**Ø**	-**se**	
			see	-PFV	-1PL	-COP	-COND	
		✓ii.	Gör	-**dü**		-**y**	-**se**	-**k**
			see	-PFV		-COP	-COND	-**1PL**
			'If we have seen'					

Agr$_z$ can only occur in one position

(1)	b.	*i.		**TAM$_z$**	**Agr$_z$**	**Copula**	**TAM$_z$**	
		✓ii.		**TAM$_z$**		**Copula**	**TAM$_z$**	**Agr$_z$**

	b.	*i.	Gör	**-üyor**	**-uz**	-Ø	**-muş**	
			see	-IPFV	-1PL	-COP	-EVID	
		✓ii.	Gör	**-üyor**		-Ø	**-muş**	**-uz**
			see	-IPFV		-COP	-EVID	-1PL
			'Apparently we see.'					

Mixed TAMs require postcopular Agr

(1)	c.	*i.		TAM_k	Agr_k	Copula	TAM_z	
		✓ii.		TAM_k		Copula	TAM_z	Agr_z
	d.	*i.		TAM_z	Agr_z	Copula	TAM_k	
		✓ii.		TAM_z		Copula	TAM_k	Agr_k

	c.	*i.	Oyna	-**sa**	-**k**	-**Ø**	-**mış**	
			play	-CNTF	-1PL	-COP	-EVID	
		✓i.	Oyna	-**sa**		-**y**	-**mış**	-**ız**
			play	-CNTF		-COP	-EVID	-1PL
			'Apparently if we had played.'					
	d.	*i.	Oyn	-**uyor**	-**uz**	-**Ø**	-**du**	
			play	-IPFV	-1PL	-COP	-PST	
		✓ii.	Oyn	-**uyor**		-**Ø**	-**du**	-**k**
			play	-IPFV		-COP	-PST	-1PL
			'We were playing.'					

Two agreement positions

With one TAM, Agr_k is precopular and Agr_z postcopular

(1)	e.	*i.		TAM_z	Agr_z	Copula	
		✓ii.		TAM_z		Copula	Agr_z
	f.	✓i.		TAM_k	Agr_k	Copula	
		*ii.		TAM_k		Copula	Agr_k

	e.	*i.	*Gel	-**iyor**	-**uz**	mu?	
			come	-IPFV	-1PL	Q	
		✓ii.	Gel	-**iyor**		mu	-**yuz**?
			come	-IPFV		Q	-1PL
			'Are we coming?'				
	f.	✓i.	Gel	-**di**	-**k**	mi?	
			come	-PFV	-1PL	Q	
		*ii.	*Gel	-**di**		mi	-**k**?
			come	-PFV		Q	-1PL
			'Have we arrived?'				

(Data from Good and Yu 2005, partially adapted)

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In suspended affixation configurations, some affixes in coordinate constructions only occur once and take scope over both conjuncts.

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[Stem -Aff$_1$ -Aff$_2$ & Stem -Aff$_1$ -Aff$_2$] - Aff$_3$ -Aff$_4$

(4)   [Zengin ve   ünlü   ] -y-**dü**-**m**.
          rich   and famous   -COP-PAST-1SG
        'I was rich and famous.'   (Lewis (1967))

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Observation

With the coordinator *ve* ('and'), only the block consisting of the copula and the postcopular suffixes can be suspended (Kornfilt 1996). Suspended affixation is always optional, but restricted.

(2)

a.	?i.	[TAM_k	Agr_k	& TAM_k	Agr_k]	-	**Cop**	TAM_k	
	*ii.	[TAM_k		& TAM_k	]	-	**Cop**	TAM_k	Agr_k
b.	✓ii.	[TAM_z		& TAM_z	]	-	**Cop**	TAM_z	Agr_z
c.	*ii.	[TAM_k		& TAM_k	]	-	**Cop**	TAM_z	Agr_z
d.	✓ii.	[TAM_z		& TAM_z	]	-	**Cop**	TAM_k	Agr_k
e.	✓ii.	[TAM_z		& TAM_z	]	-	**Cop**		Agr_z
f.	?i.	[TAM_k	Agr_k	& TAM_k	Agr_k]	-	**Cop**		

Restricted suspended affixation

No suspended affixation with precopular TAM$_k$ and postcopular Agr

(2)	a.	*ii.	[		**T$_k$**	&		**T$_k$**	]	- **C**	**T$_k$**	**A$_k$**
	c.	*ii.	[		**T$_k$**	&		**T$_k$**	]	- **C**	**T$_z$**	**A$_z$**

	a.	*ii.	[Çalış	**-tı**	ve	kazan	**-dı**	]	**-y**	**-dı**	**-k**
	c.	*ii.	[Çalış	**-sa**	ve	kazan	**-sa**	]	**-y**	**-mış**	**-ız**.

Suspended affixation in other cases

(2)										
a.	**?**i.	[	**T_k**	**A_k**	&	**T_k**	**A_k**]	- **C**	**T_k**	
b.	✓ii.	[	**T_z**		&	**T_z**	]	- **C**	**T_z**	**A_z**
d.	✓ii.	[	**T_z**		&	**T_z**	]	- **C**	**T_k**	**A_k**
e.	✓ii.	[	**T_z**		&	**T_z**	]	- **C**		**A_z**
f.	**?**i.	[	**T_k**	**A_k**	&	**T_k**	**A_k**]	- **C**		

a.	**?**i.	[Çalış	**-tı**	**-k**	ve	kazan	**-dı**	**-k**]	-**Ø**	**-sa**	
b.	✓ii.	[Çalış	**-ıyor**		ve	kazan	**-ıyor**	]	-**Ø**	**-muş**	**-uz**.
d.	✓ii.	[Çalış	**-ıyor**		ve	kazan	**-ıyor**	]	-**Ø**	**-du**	**-k**
e.	✓ii.	[Çalış	**-ır**		ve	başar	**-ır**	]	-**Ø**		**-ız**.
f.	**?**i.	[Çalış	**-tı**	**-k**	ve	kazan	**-dı**	**-k**]	mı?		

(Kabak (2007))

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(5) a. **Agreement**
   (i) **Agr$_k$** has to immediately follow a
        TAM$_k$-marker.
   (ii) **Agr$_z$** has to be in the postcopular position.
   (iii) **Agr$_z$** has to follow all TAM-markers.

Generalizations

(5) a. **Agreement**
    (i) Agr_k has to immediately follow a
         TAM_k-marker.
    (ii) Agr_z has to be in the postcopular position.
    (iii) Agr_z has to follow all TAM-markers.
  b. **Suspended Affixation**
    (i) Suspended material has to start with the
         copula (Kornfilt (1996), contra Kabak (2007)).
    (ii) Suspension is not possible in presence of a
          precopular TAM_k and a postcopular Agr.

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Assumptions:

- **Agr_z** is a clitic, which is a subject pronoun incorporated into the verb
- **Agr_k** is a suffix that enables an empty syntactic subject position,
- **TAM_k** can be added to a verb that already suffixes **Agr_k**, meaning, there is a recursion of the structure.
- **Agr_k** cannot be suspended since they are not independent signs.

(6)   *gör-dü-y-se-**k***
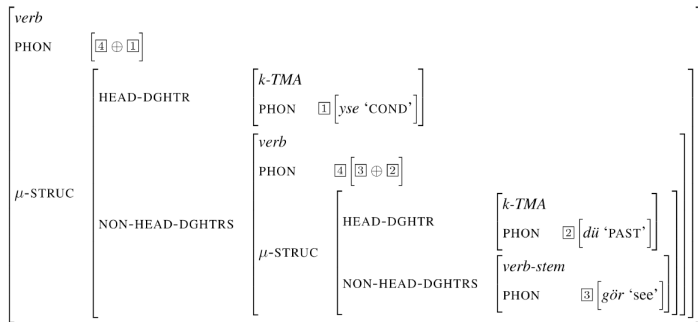
Problems:

- It is unclear why **Agr$_k$** cannot appear twice in Standard Turkish (in contrast to the Denizli dialect, see Sağ (2013) and the appendix). This would require an additional constraint.
- It is possible for **Agr$_k$** to be suspended (see (2-d)).

Assumptions:

- Turkish verbs have a biclausal structure: the copula embeds a clause-like structure.
- There is either a high nominal agreement head or a low verbal agreement head in each clause.
- The matrix Agr controls the embedded Agr. This ensures that both Agr have the same ϕ-features.
- Pronounciation of the embedded Agr is licensed by the closest c-commanding head, either the question particle *mi* or the copula.
- The realization of the embedded Agr depends on the presence of the question marker. It is unclear why this should be so.

(7)   *gör-dü-y-se-**k***

Problems:

- It is not entirely clear why it is possible to only pronounce the low Agr head.
- It is not entirely clear why a **z**-marker cannot be pronounced in the embedded clause.

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Assumptions:

- There is no structural difference between Agr_k and Agr_z.
- There is a distinction between suffixes that can terminate a morphological word and suffixes that cannot do so.
- TAM_k markers cannot terminate a morphological word.

Problems:

- He does not refer to the **TAM$_k$** markers **dI** and **sA** as a natural class.

- There is no account for the variable orderings in (1) (as these data were not discussed in the paper).
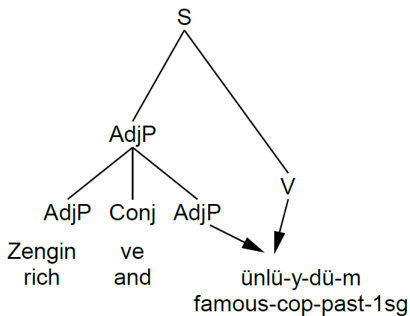
Assumptions:

- Parts of words can be shared.

(8) a. [Zengin ve   ünlü   ] -y-**dü**-**m**.
        rich   and famous -COP-PAST-1SG
        'I was rich and famous.'   (Lewis (1967))

b. Zengin ve ünlü-y-**dü**-**m**

Problems:

- Again, variable affix ordering is not mentioned.
- Data involving suspended affixations in verbs (2) are hardly discussed.
- The phrasal nature of these structures is ignored, see (9).

(9) a. [Hastane-ye gid-**iyor**-**sunuz**], [o-nu   gör-**üyor**-**sunuz**].
            hospital-DAT go-IPFV-2PL   3SG-ACC see-IPVF-2PL
      b. [Hastane-ye gid-**iyor**], [o-nu   gör-**üyor**] -**sunuz**.
            hospital-DAT go-IPFV   3SG-ACC see-IPVF -2PL
            'You (pl) go to the hospital and see him/her/it.'

                                                        (Good and Yu 2005:320)

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Minimize distance between TAM_k and Agr

Constraint

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- No structural differences between **Agr$_k$** and **Agr$_z$**

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- No structural differences between **Agr_k** and **Agr_z**
- The rules governing variable affix ordering and suspended affixation are surface-oriented, morphological constraints, rather than syntactic ones.

  (cf. e.g. Trommer (2001, 2008); Ryan (2010); Newbold (2013); Guseva and Weisser (2018))

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  (cf. e.g. Trommer (2001, 2008); Ryan (2010); Newbold (2013); Guseva and Weisser (2018))

- Turkish is thus another language that shows free variation with respect to affix order (Ryan (2010)), similar to languages like Chichewa, Mapuche, Tagalog, Dakar Wolof, and Chumbivilcas Quechua (Hyman (2003), Smeets (1989), Schachter and Otanes (1972), Buell et al. (2014), Muysken (1981), cited in Ryan (2010)).

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- Constraint-based framework: **parallel OT** (Prince and Smolensky (1993)) or, alternatively, Harmonic Grammar (Legendre et al. (1990*a,b,c*)).
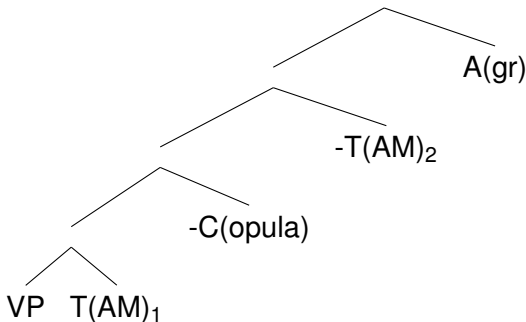
- Constraint-based framework: **parallel OT** (Prince and Smolensky (1993)) or, alternatively, Harmonic Grammar (Legendre et al. (1990*a,b,c*)).
- At least linearization is subject to optimization.

Syntactic structure and morphological realization I

- Verbs in Turkish are monoclausal.
- There is only one head that is realized as the agreement marker.
- There is no syntactic difference between **Agr$_k$** and **Agr$_z$**.

(10)   *Clause Structure (Simplified)*

```
                                    A(gr)
                          -T(AM)_2
                  -C(opula)
          VP   T(AM)_1
```

- *ve* conjoins full clauses, including Agr. Deletion applies during linearization.
- TAM markers have a respective feature marking them for either **TAM$_k$** or **TAM$_z$**.

Realizational morphology:
The choice of the agreement paradigm depends on the preceding markers:

(11)   a.   **Agr[1pl]** $\leftrightarrow$ **k** / X _____   X is **TAM$_k$**
           b.   **Agr[1pl]** $\leftrightarrow$ **lz** / X _____

Background:
Good and Yu (2000, 2005) claim that **Agr_k** is a suffix, while
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Main argument:
Agr_z-markers can also be used in the nominal paradigm:

(12)   a.   adam-**ız**
            man-1pl
            'We are men.'
    b.   *adam-**ık**   (Good and Yu (2005))

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(12)   a.   adam-**ız**
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Counterarguments:

- This falls out if the **z**-markers are extremely underspecified.
- In some dialects of Turkish, (12-b) is possible.

- Turkish presents a case of true optionality (Müller (2001)), which is the result of identical constraint profiles.

Linearization and constraints

- Turkish presents a case of true optionality (Müller (2001)), which is the result of identical constraint profiles.
- Two morpheme ordering constraints:
  1. precedence constraints (13-a,c)
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            Count a violation for every $\mathbf{TAM_z}$ marker that
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　　　　　Count a violation for every **TAM_z** marker that does not precede an Agr.

　　　b.　**T_k-A**:
　　　　　Count a violation for every morpheme that prevents a **TAM_k**-marker from immediately preceding an Agr.

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(13)   a. $T_z \prec^* A$:
              Count a violation for every TAM_z marker that does not precede an Agr.
        b. T_k-A:
              Count a violation for every morpheme that prevents a TAM_k-marker from immediately preceding an Agr.

(14) $T_z \prec^* A$ >> T_k-A

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(15)

I:	[[[[V-**T$_k$**]-C]-**T$_k$**]-A]	**T$_z$**≺****A**	**T$_k$-A**
☞ a.	V-**T$_k$**-C-**T$_k$**-**A**		**
☞ b.	V-**T$_k$**-**A**-C-**T$_k$**		**

(16)

I:	[[[[V-$\mathbf{T_z}$]-C]-$\mathbf{T_z}$]-A]	$\mathbf{T_z} \prec^* \mathbf{A}$	$\mathbf{T_k}$-$\mathbf{A}$
☞ a.	V-$\mathbf{T_z}$-C-$\mathbf{T_z}$-$\mathbf{A}$		
b.	V-$\mathbf{T_z}$-$\mathbf{A}$-C-$\mathbf{T_z}$	*!	

(17)

I:	[[[[V-**T$_k$**]-C]-**T$_z$**]-A]	**T$_z$ ≺* A**	**T$_k$-A**
☞ a.	V-**T$_k$**-C-**T$_z$**-**A**		**
b.	V-**T$_k$**-**A**-C-**T$_z$**	*!	

(18)

I:	[[[[V-T_z]-C]-T_k]-A]	$T_z \prec^* A$	T_k-A
☞ a.	V-T_z-C-T_k-A		
b.	V-T_z-A-C-T_k		*!*

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Suspended affixation in *ve*-coordination can only target the complex *-COP-TAM$_2$(-AGR)*.

Suspended affixation in *ve*-coordination can only target the complex *-COP-TAM$_2$(-AGR)*.

(19)   SUSAFF: Count a violation for every suspended affix that is not a suspended copula or that is not preceded by a suspended copula.

(20)

I:	[[[[V-T_k]-C]-T_k]-A] & [[[[V-T_k]-C]-T_k]-A]	SusAff	$T_z \prec^* A$	T_k-A
☞ a.	V-T_k-C-T_k-A & V-T_k-C-T_k-A			****
b.	V-T_k & V-T_k-C-T_k-A			*****!**

(21)

	I:	$[[[[V\text{-}T_z]\text{-}C]\text{-}T_z]\text{-}A]$ & $[[[[V\text{-}T_z]\text{-}C]\text{-}T_z]\text{-}A]$	SUSAFF	$T_z \prec^* A$	$T_k\text{-}A$
☞	a.	$V\text{-}T_z\text{-}C\text{-}T_z\text{-}A$ & $V\text{-}T_z\text{-}C\text{-}T_z\text{-}A$			
☞	b.	$V\text{-}T_z$ & $V\text{-}T_z\text{-}C\text{-}T_z\text{-}A$			

(22)

I:	[[[[V-T$_k$]-C]-T$_z$]-A] & [[[[V-T$_k$]-C]-T$_z$]-A]	SUSAFF	T$_z$≺*A	T$_k$-A
☞ a.	V-T$_k$-C-T$_z$-A & V-T$_k$-C-T$_z$-A			****
b.	V-T$_k$ & V-T$_k$-C-T$_z$-A			*****!**

(23)

I:	[[[[V-$\mathbf{T_z}$]-C]-$\mathbf{T_k}$]-A] & [[[[V-$\mathbf{T_z}$]-C]-$\mathbf{T_k}$]-A]	SusAff	$\mathbf{T_z} \prec^* \mathbf{A}$	$\mathbf{T_k}$-$\mathbf{A}$
☞ a.	V-$\mathbf{T_z}$-C-$\mathbf{T_k}$-$\mathbf{A}$ & V-$\mathbf{T_z}$-C-$\mathbf{T_k}$-$\mathbf{A}$			
☞ b.	V-$\mathbf{T_z}$ & V-$\mathbf{T_z}$-C-$\mathbf{T_k}$-$\mathbf{A}$			

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Pattern

With one TAM, Agr$_k$ is precopular and Agr$_z$ postcopular

(1)	e.	*i.	**TAM$_z$**	**Agr$_z$**	**Copula**	
		✓ii.	**TAM$_z$**		**Copula**	**Agr$_z$**
	f.	✓i.	**TAM$_k$**	**Agr$_k$**	**Copula**	
		*ii.	**TAM$_k$**		**Copula**	**Agr$_k$**

	e.	*i.	*Gel	**-iyor**	**-uz**	mu?	
			come	-IPFV	-1PL	Q	
		✓ii.	Gel	**-iyor**		mu	**-yuz**?
			come	-IPFV		Q	-1PL
			'Are we coming?'				
	f.	✓i.	Gel	**-di**	**-k**	mi?	
			come	-PFV	-1PL	Q	
		*ii.	*Gel	**-di**		mi	**-k**?
			come	-PFV		Q	-1PL
			'Have we arrived?'				

(24)

I:	[[[[V-T_z]-C]-A]	$T_z \prec^* A$	T_k-A
☞ a.	V-T_z-C-A		
☛ b.	V-T_z-A-C		

Add low-ranked precedence constraints that ban immediate precedence

(25)

I:	[[[[V-T_z]-C]-A]	$T_z \prec^* A$	T_k-A	*T_z-A
☞ a.	V-T_z-C-**A**			
b.	V-T_z-**A**-C			*!

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If suspended affixation and linearization happen simultaneously, the number of candidates in one candidate set gets bigger.

(26)

I: $[[[[V\text{-}T_k]\text{-}C]\text{-}T_k]\text{-}A]$ $\&\ [[[[V\text{-}T_k]\text{-}C]\text{-}T_k]\text{-}A]$	SusAff	$T_z \prec^* A$	$T_k\text{-}A$
a. $V\text{-}T_k\text{-}C\text{-}T_k\text{-}A$ $\&\ V\text{-}T_k\text{-}C\text{-}T_k\text{-}A$			***!*
b. $V\text{-}T_k\text{-}A\text{-}C\text{-}T_k$ $\&\ V\text{-}T_k\text{-}A\text{-}C\text{-}T_k$			***!*
c. $V\text{-}T_k\text{-}C\text{-}T_k\text{-}A$ $\&\ V\text{-}T_k\text{-}A\text{-}C\text{-}T_k$			***!*
d. $V\text{-}T_k\text{-}A\text{-}C\text{-}T_k$ $\&\ V\text{-}T_k\text{-}C\text{-}T_k\text{-}A$			***!*
e. $V\text{-}T_k$ $\&\ V\text{-}T_k\text{-}C\text{-}T_k\text{-}A$			***!****
☞/☛ f. $V\text{-}T_k\text{-}A$ $\&\ V\text{-}T_k\text{-}A\text{-}C\text{-}T_k$			**

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- We have shown that previous generalizations about free affix order and suspended affixation in Turkish are not sufficient. Instead we showed that the following generalizations hold:

(27) **Empirical generalizations:**

    a. Agreement

        (i)   **Agr_k** has to immediately follow a **TAM_k**-marker.

        (ii) **Agr_z** has to be in the postcopular position.

        (iii) **Agr_z** has to follow all TAM-markers.

    b. Suspended Affixation

        (i)   Suspended material has to start with the copula (Kornfilt (1996), contra Kabak (2007)).

        (ii) Suspension is not possible in presence of a precopular **TAM_k** and a postcopular Agr.

Summary III

- We further proposed an account that derives these generalizations implemented in parallel OT. The main idea is that the patterns of both phenomena in Turkish have the same underlying reason:

  (28)   *Constraint on TAM$_k$*
         The distance between **TAM$_k$** and **Agr$_k$** is minimal.

- Insertion of a second Agr marker should yield the optimal candidate. Doubling is indeed an option in the Denizli Dialect in Turkish (Sağ 2013).

  (29) a. oku-du(-**k**) mu-y-du-**k**
  read-PFV-**1PL** Q-COP-PFV-**1PL**
  'Was it the case that we read (it)?'

  b. oku-du-**k** mu-y-du
  read-PFV-**1PL** Q-COP-PFV
  'Was it the case that we read (it)?'

  c. oku-ca(*-**z**) mı-y-mış-**ız**
  read-FUT-(1PL) Q-COP-EVID-**1PL**
  'Apparently, will we read (it)?'

(30) a. [gör-dü-**k**   de beğen-di] -y-di-**k**
          [see-PFV-**1PL** and like-PFV] -COP-PFV-**1PL**
          'It was the case that we saw and (then) liked
          it.'

   b. *[gör-dü   de beğen-di] y-di-**k**
          [see-PFV and like-PST] -COP-PFV-**1PL**

   c. *[gör-dü-**k**   de beğen-di-**k**]
          [see-PFV-**1PL** and like-PFV-**1PL**]
          -∅-di-**k**
          -COP-PFV-**1PL**

- Structures with suspended affixation should in some cases be preferred to structures without suspended affixation if a problematic **TAM$_k$** is deleted.

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