An Instance of Paradigm Cell Filling Problem in Turkish

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In this talk...

- *Paradigm Cell Filling Problem*
- A paradigm gap in Turkish
- Analysis
- Discussion & Conclusion

Paradigm Cell Filling Problem (Ackerman et.al. 2009)

(1) Partial Nominal Paradigm of Classical Latin

Table 3. Classical Latin noun declensions

		I_F	II_M	II_N	$IV_{M/F}$	IV_N
Sg	Voc	*capra*	*lupe*	*bellum*	*manus*	*cornu:*
	Nom	*capra*	*lupus*	*bellum*	*manus*	*cornu:*
	Acc	*capram*	*lupum*	*bellum*	*manum*	*cornu:*
	Abl	*capra:*	*lupo:*	*bello:*	*manu:*	*cornu:*
	Dat	*caprae*	*lupo:*	*bello:*	*manui:*	*cornu:*
	Gen	*caprae*	*lupi:*	*belli:*	*manu:s*	*cornu:s*
Pl	Voc	*caprae*	*lupi:*	*bella*	*manu:s*	*cornua*
	Nom	*caprae*	*lupi:*	*bella*	*manu:s*	*cornua*
	Acc	*capra:s*	*lupo:s*	*bella*	*manu:s*	*cornua*
	Abl	*capri:s*	*lupi:s*	*belli:s*	*manibus*	*cornibus*
	Dat	*capri:s*	*lupi:s*	*belli:s*	*manibus*	*cornibus*
	Gen	*capra:rum*	*lupo:rum*	*bello:rum*	*manuum*	*cornuum*
		'goat'	'wolf'	'war'	'hand'	'horn'

(Plank 1991:9)

- Knowledge of declension class required.

Paradigm Cell Filling Problem

(2) Nominal Paradigm of Turkish

Table 1. Inflection of Turkish *el* 'hand'

		UnPoss	1sgPoss	2sgPoss	3sgPoss	1plPoss	2plPoss	3plPoss
Sg	Nom	*el*	*elim*	*elin*	*eli*	*elimiz*	*eliniz*	*elleri*
	Acc	*eli*	*elimi*	*elini*	*elini*	*elimizi*	*elinizi*	*ellerini*
	Gen	*elin*	*elimin*	*elinin*	*elinin*	*elimizin*	*elinizin*	*ellerinin*
	Dat	*ele*	*elime*	*eline*	*eline*	*elimize*	*elinize*	*ellerine*
	Loc	*elde*	*elimde*	*elinde*	*elinde*	*elimizde*	*elinizde*	*ellerinde*
	Abl	*elden*	*elimden*	*elinden*	*elinden*	*elimizden*	*elinizden*	*ellerinden*
Pl	Nom	*eller*	*ellerim*	*ellerin*	*elleri*	*ellerimiz*	*elleriniz*	*elleri*
	Acc	*elleri*	*ellerimi*	*ellerini*	*ellerini*	*ellerimizi*	*ellerinizi*	*ellerini*
	Gen	*ellerin*	*ellerimin*	*ellerinin*	*ellerinin*	*ellerimizin*	*ellerinizin*	*ellerinin*
	Dat	*ellere*	*ellerime*	*ellerine*	*ellerine*	*ellerimize*	*ellerinize*	*ellerine*
	Loc	*ellerde*	*ellerimde*	*ellerinde*	*ellerinde*	*ellerimizde*	*ellerinizde*	*ellerinde*
	Abl	*ellerden*	*ellerimden*	*ellerinden*	*ellerinden*	*ellerimizden*	*ellerinizden*	*ellerinden*

(Plank 1991:2)

- 84 distinct forms. No knowledge of declension class required.
- Knowledge of 10 exponents (case, number etc.) and phonological rules are enough to inflect a noun.

Paradigm Cell Filling Problem

- It is not plausible to think that we encounter all inflected forms when acquiring a language (Ackerman & Malouf 2016).
- Based on partial input, we make generalizations to produce or understand forms never heard before (Berko 1958).

> "Given prior exposure to at most a subset of forms, how does a speaker produce or interpret a novel form of an item?" (Ackerman et. al. 2009, p.55)

Desideratives

- Turkish has a desiderative construction:

(3) [Ben-im şarkı söyle -yesi -m] var.
1SG-GEN song sing -DESID -POS.1SG exist.cop
'I feel like singing'

- Possible matrix predicates:
var 'exist', *yok* 'not.exist', *gel-* 'come', *git-* 'go away', *kaç-* 'run away'-, *tut-* 'hold'.

Desideratives

(4) [Ben-im şarkı söyle -yesi -m] var.
1SG-GEN song sing -DESID -POS.1SG exist.cop
'I feel like singing.'

- Its subject is GEN, just like in nominalizations:

(5) [Ben-im git -me -m] lazım.
1SG-GEN go -NMLZ -POS.1SG necessary.
'I need to go.'

- Elsewhere: Genitive Subject → Possessive Agreement

> Therefore, we expect the agreement in the desiderative construction to come from the possessive paradigm.

Agreement Paradigm of Desideratives

- The expectation is met for 1st and 2nd persons.

(6)

a. Biz-im kahve iç -esi -miz var.
We-GEN coffee drink -DESID -POS.1PL exist
'We feel like drinking coffee.'

b. Sen-in kahve iç -esi -n var.
You(SG)-GEN coffee drink -DESID -POS.2SG exist
'You(sg) feel like drinking coffee.'

c. Siz-in kahve iç -esi -niz var.
You(PL)-GEN coffee drink -DESID -POS.2PL exist
'You(pl) feel like drinking coffee.'

The Irregularity in 3SG

- However, there is an irregularity in the 3SG desideratives.

(7) a. *Meryem-in kahve iç -esi -si var.
Meryem-GEN coffee drink -DESID -POS.3SG exist
Intended: 'Meryem feels like drinking coffee.'

b. Meryem-in kahve iç -esi var.
Meryem-GEN coffee drink -DESID.3SG exist
'Meryem feels like drinking coffee.'

What about 3PL desideratives?

3PL Desideratives - The Gap

- Speakers do not converge on a well-formed output for 3PL desideratives in pro-drop environments, where 3PL agreement is obligatory (Göksel & Kerslake 2005).

(8) a. ??(Çocuk-lar-ın) kahve iç -esi -leri var.
Kid-PL-GEN coffee drink -DESID -POS.3PL exist
'The kids feel like drinking coffee.'

b. ??(Çocuk-lar-ın) kahve iç -e -leri var.
Kid-PL-GEN coffee drink -DESID -POS.3PL exist
'The kids feel like drinking coffee.'

There is a gap in the 3PL cell of the desiderative paradigm.

The Puzzle

- Speakers agree about the forms in all the other cells in the desiderative paradigm.
- However, some speakers prefer the template V+AsI+IArI while others prefer V+A+IArI for 3PL desideratives.
- They tend to reject even the form they prefer. Hence, the gap.
- This gap is not lexically restricted unlike the gaps in other languages (Halle 1973, Boyé & Hofherr 2010, Löwenadler 2010, Sims 2015).

Why can't speakers confidently infer the form of 3PL desideratives based on the shared knowledge about the other forms? Why do they fail to solve the Paradigm Cell Filling Problem?

Frequency of forms in the Desiderative Paradigm

	SG	PL
1	59.2%	1.51%
2	3.06%	3.45%
3	32.7%	0.05%

Table: Frequency distribution of the forms in the desiderative paradigm.

	SG	PL
1	0.2%	17%
2	5%	2%
3	62%	15%

Table: Frequency distribution of the verb *pobedit'* 'to win'. (adapted from Sims (2015, p.226))

- **A real life wug-test:**

YAP 'do'	SG	PL
1	yap-asɪ-m	yap-asɪ-mɪz
2	yap-asɪ-n	yap-asɪ-nɪz
3	yap-asɪ	?

Possessive vs Desiderative Paradigms

	SG	PL
1	yap-ma-**m**	yap-ma-**mız**
2	yap-ma-**n**	yap-ma-**nız**
3	yap-ma-**sı**	yap-ma-**ları**

Table: Possessive Paradigm (-mA nominalization)

	SG	PL
1	yap-ası-**m**	yap-ası-**mız**
2	yap-ası-**n**	yap-ası-**nız**
3	yap-ası-∅ & yap-a-**sı**	yap-ası-ları & yap-a-ları

Table: Desiderative Paradigm

Implicative Relations

- Speakers can use implicative relations (Albright 2009) and solve the 4-part analogy for the 1PL desiderative form of, e.g., *yap* 'do' based on its 1SG form (exemplified with -mA nominalization):
  - yap-ma-m : yap-ma-mız :: yap-ası-m : ? = **yap-ası-mız**
- Same for 2SG and 2PL:
  - 2SG → yap-ma-m : yap-ma-n :: yap-ası-m : ? = **yap-ası-n**
  - 2PL → yap-ma-m : yap-ma-nız :: yap-ası-m : ? = **yap-ası-nız**

For 3PL?

Different Paths

- If analogy is made between the 1SG and 3PL, the predicted form of 3PL desiderative would be *yapasıları*:
  - yapmam : yapmaları :: yapasım : ? = **yapasıları**
- But, if analogy is made between 3SG and 3PL, the speaker would posit *yapaları*:
  - *yapması : yapmaları :: yapası : ?* = **yapaları**

Unresolvable Conflict

- Even though speakers can solve these analogical equations, they obtain different answers.
- Speaker variation is most likely due to the possessive agreement and/or desiderative forms they were exposed.
- There are only two possible forms. So, the entropy (uncertainty) would be close to 1 (like a fair coin toss) since it is only a choice between two forms (Ackerman et. al. 2009).
- Apparently, in languages like Turkish, where most of the forms are predictable based on another form in the paradigm, most speakers cannot tolerate a competition between two (more or less) equally likely forms.

Discussion

- A competition-based account (Albright & Hayes 2002, Gorman & Yang 2016) can potentially explain the emergence of the gap by assuming that there is no winner at the end of the process where the possible rules for deriving 3PL desideratives compete.

> However, it would be hard-pressed to explain why there is a gap instead of free variation.

- A model of language learning that is sensitive to frequency distributions like that of Daland et.al.'s (2007) can explain how the gap persists given the abnormal frequency distributions of desiderative forms.

> But, it would have no means to explain how and why the gap emerged in the first place.

Conclusion

- It is most likely that if one ever tries to produce a 3PL desiderative, it is a real-life wug test (Berko 1958).
- An experimental wug test is unavoidable. However, we can avoid a real-life wug test and we would avoid it if there is a high risk of failure.
- Optionality of 3PL agreement suffix in non-pro drop contexts and low base frequency of -AsI desideratives help us avoid it.

> Either we fail or we avoid failure.

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