Quantifiers and person presuppositions in Greek and Bulgarian*

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Abstract A proper subset of null subject languages (including Modern Greek and Bulgarian) allow lexical subjects to co-occur with non-third person verbal agreement yielding an interpretation parallel to English adnominal pronoun constructions like *we linguists*. This unagreement phenomenon is also available with quantified subjects. I present a new observation suggesting that there is crosslinguistic variation concerning which part of a quantificational unagreement structure person presuppositions apply to. While Bulgarian enforces a nuclear scope presupposition, Greek allows a weaker restrictor presupposition. (3676 words)

Keywords: quantification, presupposition, person, variation, unagreement, Greek, Bulgarian

1 Introduction

Lexical noun phrases are widely assumed to have third person features, or even lack person features altogether (Benveniste 1971, Harley & Ritter 2002 a.o.). However, a proper subset of null subject languages (NSLs) allows definite plural subjects to co-occur with verbs marked for non-third person agreement. This phenomenon has been dubbed unagreement (Hurtado 1985, Ackema & Neeleman 2013, 2018, Choi 2014, Höhn 2016) and is attested, among others, in Spanish (Hurtado 1985, Ackema & Neeleman 2013), Greek (Choi 2014, Höhn 2016) and Bulgarian (Norman 2001, Osenova 2003), cf. (1).

(1) a. I fisik-i ex-ume/ ex-ete poli diavasma. *Greek*
the physicists have-1PL have-2PL much studying
'We/you physicists have to study a lot.'

b. Deca-ta otidox-me/ otidox-te v gradina-ta. *Bulgarian*
children-DET went.1PL went-2PL to garden-DET
'We/you children went to the garden.' after Osenova 2003: 665, (4)

* Thanks to my consultants, especially Krastina Arbova-Georgieva and Eleana Nikiforidou, and to Evangelia Adamou, Paraskevi Savvidou and Stavros Skopeteas for helpful comments.
Abbreviations: AOR = aorist, AUX = auxiliary, DEM = demonstrative, DET = determiner, FUT = future, NEG = negative, NOM = nominative, NSL = null subject language, NSP = nuclear scope presupposition, PL = plural, PST = past, RP = restrictor presupposition, SBJV = subjunctive, SG = singular.

However, this is not a general property of NSLs. While Standard Italian is a consistent NSL, it enforces third person agreement for definite lexical subjects (2).

(2) Gli studenti lavor-*iamo/-*ate/-ano molto. *Std. Italian*
DET.PL students work.1/2/3PL much
only: 'The students work much.' Höhn 2016: 547, (5a)

The availability of unagreement — in languages with articles — has been argued to depend on the presence of an overt definite article in adnominal pronoun constructions like *we linguists*, either due to a PF-requirement on *pro* licensing (Choi 2014) or due to a structural difference between languages with and without unagreement (Höhn 2016).[1] This squib focuses on semantic variation among languages with unagreement, showing that first person quantificational unagreement in Greek allows readings that are unavailable in Bulgarian.

The next section outlines the role of person presuppositions for the interpretation of (quantificational) unagreement. Section 3 discusses the proposed contrast between Greek and Bulgarian and Section 4 concludes with a tentative analysis and open questions.

2 Quantificational unagreement as presupposition trigger

Quantified subjects can occur with unagreement as illustrated in (3) for Bulgarian and Greek. The English translations are only approximations (see Section 3).

(3) a. … njakoi zheni sme rabotili po 24 chasa… *Bulgarian*
some women AUX.1PL worked for 24 hours
'… some (of us) women have worked for 24 hours…'[2]

b. Kapjes jinekes exume dhulepsi ja 24 ores. *Greek*
some women AUX.1PL worked for 24 hours
'Some (of us) women have worked for 24 hours.'

These examples entail that the speaker is a member of the restrictor set of the quantifier, i.e., a woman. Subsequent denial of this inference is infelicitous in either language, as is a continuation with a counterfactual like (4).

(4) #… An imouna jineka, tha dhiamartiromouna ke egho. *Greek*
if was.1SG woman SBJV protest.PST.1SG and I
'… If I were a woman, I'd protest, too.'

1 See Höhn (2016) for an overview of recent theoretical approaches to unagreement and Höhn, Silvestri & Squillaci (2016, 2017) and Höhn (2017: ch. 6) for discussion of some empirical challenges.
2 https://web.archive.org/web/20191116221943/https://petel.bg/Tova-e-Balgariya-na-Boyko--200-shivachki--rabotlivi-zheni--6-mesetsa-umirat-ot-glad-bez-zaplati---__119266; access 16/11/2019

The inference also projects under negation: (4) is also infelicitous as continuation of (5), the negation of (3b).

(5) Dhen isxii oti kapjes jinekes exume dhulepsi ja 24 ores…
NEG be.valid.3SG that some women AUX.1PL worked for 24 hours
'It is not the case that some (of us) women have worked for 24 hours…'

Projection under negation is a characteristic of presuppositions (Beaver & Geurts 2012) and I will assume that person features involved in quantificational unagreement trigger presuppositions requiring the inclusion of certain speech act participants.[3] In spirit, this follows Heim's (2008) analysis of first person as a partial identity function that is defined iff the denotation of its argument contains the author in utterance context C, see (6).

(6) $[\![\textbf{1st}]\!]^C = \lambda x_e{:}x \text{ includes } \text{author}_C.x$

However, since extending a partial function approach to presupposition projection in quantificational contexts raises certain problems (Sudo 2012: ch. 3), I adopt Sudo's (2012: ch. 5) proposal that presuppositions in quantified contexts are anaphoric to (parts of) the asserted content. He employs Dynamic Predicate Logic (Groenendijk & Stokhof 1991) to make variables accessible outside the scope of their binder, so $\exists x[A(x)] \wedge P(x)$ is semantically equivalent to $\exists x[A(x) \wedge P(x)]$. This enables presuppositions to use variables introduced by the assertion.

Leaving aside tense, the assertion of (3) is sketched in (7), stating that the intersection of the maximal set of women and of individuals having worked for 24 hours contains at least one individual. Sudo (2012: pp. 88–90) suggests that presuppositions in existential quantifiers can be anaphoric to the nuclear scope set (7a) — here requiring the author to be a woman and to have worked for 24 hours — or to the restrictor set (7b), in which case the author needs to be a woman, but does not need to have worked for 24 hours herself.

(7) **Assertion**: $\exists R \exists N[\max(\textbf{women})=R \wedge (\max(\textbf{work.for.24h}) \cap R)=N \wedge N \neq \emptyset]$

a. **Presupposition**$_{v1}$: $\text{author}_C \in N$ *nuclear scope presupposition*

b. **Presupposition**$_{v2}$: $\text{author}_C \in R$ *restrictor presupposition*

In contrast to the gender presuppositions discussed by Sudo's (2012), the nuclear scope presupposition (NSP) in (7a) here entails the restrictor presupposition (RP) in (7b). A language where the presupposition of quantificational unagreement is ambiguous between NSPs and RPs is therefore undistinguishable from one that

3 For reasons of space, I do not discuss further arguments for the presuppositional nature of person features in unagreement, but see Höhn (2014). While there are alternative semantic analyses for person (e.g., Sudo 2012: part II, Harbour 2016), their application to unagreement or pronominal determiner constructions does not seem trivial and I am not aware of any implementations.

only makes use of RPs. Conversely, a RP is distinguishable only in contexts where the NSP is not satisfied. On a crosslinguistic level, two types of unagreement languages are feasible: those allowing NSPs only, and those allowing RPs (or ambiguous between both types of presupposition). The next section shows that Bulgarian represents the first type and Greek the latter.

3 Contrast between Greek and Bulgarian

While both Greek and Bulgarian allow quantificational unagreement, they display a minimal contrast. I argue that quantificational unagreement in Bulgarian strictly triggers a NSP like (7a), while Greek allows the weaker RP in (7b). Consider (8) as context for the example sentences from (3), repeated in (9a) below.

(8) Context: Anna is a seamstress working in a factory. Along with other women working there, she is protesting the exploitative working conditions.

The Bulgarian sentence in (9b) is an infelicitous continuation of (9a) as expected if quantificational unagreement triggers a NSP in Bulgarian.[4] Asserting that the speaker has not worked for 24 hours contradicts the presupposition of (9a) that $\text{author}_C \in (\max(\textbf{work.for.24h}) \cap \max(\textbf{woman}))$.

(9) a. Njakoi zheni sme rabotili po 24 chasa… *Bulgarian*
some women AUX.1PL worked for 24 hours
'… some (of us) women have worked for 24 hours…"

b. #Az imax kăzmet i trjabvashe da rabotja "samo" 18 chasa
I had.1SG luck and must.PST SBJV work.1SG only 18 hours
– no situatsija-ta e neponosima za vsichki nas.
but situation-DET is.3SG unbearable for all us
'I was lucky and had to work for "only" 18 hours – but the situation is unbearable for all of us.'

While a Greek sentence like (10a) will also typically infer that the author is included in the nuclear scope set, that inference can be subsequently deleted by (10b) without giving rise to a contradiction.

4 The patterns illustrated below have been tested with 8 native speakers of Greek and 5 native speakers of Bulgarian, though not every consultant saw the exact same examples. The Greek judgements were largely unanimous with minor variation likely due to pragmatic factors. For Bulgarian, four speakers clearly rejected the relevant configurations, commenting consistently that they impose contradictory requirements. I focus on the Bulgarian of these speakers, two of whom also speak Greek (one Bulgarian/Greek bilingual, one expert L2 speaker) and accepted relevant examples in Greek. The fifth Bulgarian consultant seemed to follow the Greek pattern.

(10) a. Kapjes jinekes exume dhulepsi ja 24 ores. *Greek*
some women AUX.1PL worked for 24 hours
'Some (of us) women have worked for 24 hours.'

b. Egho imun tixeri ke eprepe na dhulevo mono 18
I was.1SG lucky and must.PST.3SG SBJV work.1SG only 18
ores, ala jenika i sinthikes aftes ine aparadektes.
hours but generally the conditions DEM are.3PL unadmissable
'I was lucky and had to work for "only" 18 hours, but generally these conditions are unbearable.'

As discussed above, this either that Greek quantificational unagreement is suggests ambiguous between a NSP and a RP or that it only triggers a RP. In the latter case, the inclusion of the author in the nuclear scope set may be a conversational implicature triggered by the fact that a sentence with third person agreement would convey an identical assertion. In either case, Greek quantificational unagreement allows readings compatible only with a RP, while such readings are infelicitous in Bulgarian.

Another diagnostic for the subtle difference between Greek and Bulgarian quantificational unagreement are coordinate clauses with first person unagreement where the sets denoted by the nuclear scope of each clause are nonintersective, so that the same individual cannot be a member of both sets. If first person presuppositions are NSPs for each clause in Bulgarian, they cannot be satisfied in the context of the presupposition of the other clause. While the individual clauses are well-formed, coordinating them should be infelicitous. This is borne out in (11) with both main verbs inflected for first person plural, which incoherently requires that the speaker both did and did not make mistakes.[5] If Greek person presuppositions can be RPs, there should be no conflicting requirements on the speaker. And indeed, (12) is felicitous with first person agreement in both clauses, simply leaving open which group the speaker belongs to.

(11) Na poslednija izpit njakoi studenti dopusnach-me greshki, *Bulgarian*
in last exam some students commit.AOR-1PL mistakes
a njakoi ne {#dopusnach-me/ dopusnach-a} nikakvi.
and some NEG commit.AOR-1PL commit.AOR-3PL none
int.: 'In the last exam, some (of us) students made mistakes and some didn't make any.'

5 Unsurprisingly, such examples are fine in both languages with third person plural agreement on at least one of the main verbs, i.e., without quantificational unagreement and its interpretive effects.

(12) Stin proigoumeni eksetasi kapji fitites kana-me lathi *Greek*
in-the last exam some students made-1PL mistakes

ke kapji dhen {kana-me/ kana-ne} kanena lathos.
and some NEG made-1PL made-3PL no mistake

'In the last exam, some (of us) students made mistakes and some didn't make any mistake.'

The same effect arises with "pronominal" quantifiers with a contextually supplied silent restrictor. In the context of a competition with only one attempt at participating, each participant will unambiguously be among the winners or the losers. In both languages, use of first person quantificational unagreement requires that the speaker be a participant in the contest, i.e., a member of the contextually supplied restrictor set of the quantifier. However, a participant cannot felicitously utter Bulgarian (13). This would require them to be among the winners and the losers simultaneously, due to the application of the NSP (7a) in each clause. Greek (14), on the other hand, is felicitous as a somewhat generic statement where the speaker avoids predictions about whether they themself will win or lose, again indicating a RP reading (7b).

(13) #Nakraja njakoi shte spechel-im, a njakoi shte zagub-im. *Bulgarian*
finally some FUT win-1PL and some FUT lose-1PL

(14) Sto telos kapji tha kerdis-oume ke kapji tha xas-oume. *Greek*
in.DET end some FUT win-1PL and some FUT lose-1PL
'In the end, some (of us) will win and some (of us) will lose.'

Other non-universal quantifiers like numerals work similarly. In context (15), Bulgarian (16) is infelicitous, requiring that the speaker simultaneously go to the theatre and the cinema, as expected if both clauses involve a NSP. Greek (17) is felicitous and does not enforce a reading where the speaker is a member of both groups, but rather leaves open where the speaker will go, in line with the availability of an RP reading for person in quantificational unagreement.

(15) Context: A group of 10 students and 5 professors are on an excursion. A student describes their plans for the following evening.

(16) #Petima studenti shte otid-em na teatăr, a drugi-te *Bulgarian*
five students FUT go-1PL to theatre but others-DET

shte otid-em na kino.
FUT go-1PL to cinema

(17) Pende fitites tha pa-me sto theatro ke *Greek*
five students FUT go-1PL in.DET theatre and

i ipolipi tha pa-me sto sinema.
DET remaining FUT go-1PL in.DET cinema

'5 (of us) students will go to the theatre and we others will go to the movies.'
cf. Höhn 2016: 573f., (76a)

4 Outlook

I have provided evidence of crosslinguistic variation in the interpretation of person presuppositions in quantificational contexts. Relevant person presuppositions need to hold for the sets denoted by the restrictor and the nuclear scope in Bulgarian, whereas in Greek compliance with respect to the restrictor set is sufficient.[6]

There are indications that the Greek pattern can be transferred in language contact situations. I know no examples where the Greek pattern is replaced by the Bulgarian one, but this may well be due to the lack of crosslinguistic data on the phenomenon. Pomak (glottocode `poma1238`), spoken in Western Thrace, Greece, is part of the same dialect continuum as Bulgarian. Limited data I was able to elicit suggest that in spite of the close genetic relationship to standard Bulgarian at least some Pomak varieties pattern with Greek concerning the felicity of (18). This may plausibly be connected to language contact with Greek (Turkish is another potential source, pending further inquiry into whether Turkish has quantificational unagreement).

(18) Besh örendji-eve sa varv-ime na sinema i drugi-se *Pomak*
five student-PL REFL go-1PL to cinema and others-DET.1

sa varv-ime na metshite-ne.
REFL go-1PL to school-DET.3

'Five of us students go to the cinema and we others go to the school.'

Southern Italo-Romance varieties that allow unagreement in contrast to standard Italian, likely due to historical influence from local Greek varieties (Höhn, Silvestri & Squillaci 2017), also behave like Greek concerning the contrast in quantificational unagreement. See (19) for a southern Calabrian variety.

6 The crosslinguistic contrast between unagreement language observed here is distinct from that noted by Höhn (2016: 550f.) between Spanish and Modern Greek. Greek does not allow negative quantifiers as unagreeing subjects and the distributive universal quantifier *kathe* 'each' only in restricted syntactic configurations, while Spanish seems to lack these restrictions. In this respect, Bulgarian seems to pattern with Greek (Höhn 2016: p. 551).

(19) I menzi mangia-mu spaghetti, *Sant' Eufemia d'Aspromonte*
DET half eat-1PL spaghetti

i menzi mangia-mu pennette.
DET half eat-1PL pennette

'Half (of us) eat spaghetti, half (of us) eat pennette.

An important question is whether there are independent cues indicating to language acquirers which pattern to learn. So far, I have found no obvious candidates — Bulgarian contrasts with Greek in having final articles, but so does Pomak. Building on Sudo's (2012) anaphoric approach to presuppositions above, one could maybe expect Bulgarian to lack restrictor anaphora as in (20). That should be checked empirically, but I am uncertain whether it is the distinctive factor, as it seems difficult to elicit such data even for Greek.

(20) One of the students criticized Mary. **They** (all the students) are not so smart.
after Sudo 2012: 88, (218)

It seems possible that the contrast in the availability of RPS is *sui generis*, in which case the lack of RPS in Bulgarian may be the default and the Greek pattern can be acquired given positive evidence for the need to admit RPS. This would still leave open the question of the semantic analysis of the contrast.

Notice that the Greek pattern from (10) resembles English partitive constructions like (21a). The continuation in (21b) violates the presupposition of the adnominal pronoun *us*, but there is no entailment that the speaker herself has also worked for 24 hours, see (21c).

(21) a. Some of us women have worked for 24 hours…

b. #…but I'm not a woman.

c. …but luckily I got to go home after "only" 18 hours.

However, it seems unlikely that Greek (but not Bulgarian) employs a kind of hidden partitive in quantificational unagreement. This would require strong motivation not only for the atypical ellipses, see (22), but also for the necessary morphological case adjustments, as quantifier and noun agree for case in non-partitives (i.e., *kapji ghlosoloj-i* 'some linguist-NOM.PL.M').

(22) kapj-i *(apo) (emas) *(tus) ghlosologh-us *Greek*
some-NOM.PL.M of us.ACC.PL DET.ACC.PL.M linguist-ACC.PL.M

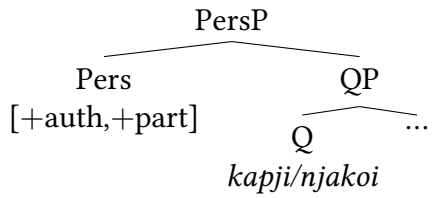
Also, variation in verbal agreement as in (23) suggests that it is formally independent from the (person) features of the partitive restrictor, making hidden partitives an unlikely source of unagreement.[7]

7 The use of 2PL is colloquial and humoristic, implicating that the speaker herself is not crazy.

(23) Kapji apo mas {ine/ imaste/ ?iste} treli. *Greek*
Some of us are.3PL are.1PL are.2PL crazy
'Some of us are crazy.'

I suspect the Bulgarian-Greek contrast is due to differences either in the way person presuppositions project and/or the relevant syntactic structures. One possibility is to build on Höhn's (2016) proposal that person features are hosted by a distinct head in the nominal projection of unagreement languages, see (24).

(24)



The variation could then be due to whether person features (hosted by Pers) are pied-piped with the QP in quantifier raising. Ifthe Pers head remains *in situ*, the person presupposition could compose with the variable left by QR in the nuclear scope of the quantifier. This configuration might be what gives rise to a NSP. If Pers is moved along with QP, on the other hand, the presupposition introduced by the person features might be able to only affect the restrictor, yielding a RP.

Of course, this requires a worked out account of the compositional derivation of the projection of person presuppositions in quantificational contexts. It also raises questions about the flexibility of the semantic type of the Pers head, allowing it to take either an e-type variable or a quantified phrase of type $\langle\langle e,t\rangle,t\rangle$ as argument. If this is on the right track, however, Greek could in principle allow optional pied-piping of Pers, as it allows both NSP and RP readings. The central question would be why Bulgarian blocks pied-piping of Pers. It seems plausible to assume that person features prototypically combine with referential expressions (Heim 2008), normally of type e, so that possibility may come for free. A possible rationale for the problem in Bulgarian could then be that it lacks the necessary lexicon entry or type-shifting mechanism for the Pers head to be able to compose with the more complex type of the quantified phrase.

The development of this approach or an alternative and, importantly, the collection of further empirical data on this phenomenon remain for future research.

References

Ackema, Peter & Ad Neeleman. 2013. Subset controllers in agreement relations. *Morphology* 23. 291–323. https://doi.org/10.1007/s11525-013-9218-4.

Ackema, Peter & Ad Neeleman. 2018. *Features of person*. Cambridge (MA): MIT Press. https://doi.org/10.7551/mitpress/11145.001.0001.

Beaver, David & Bart Geurts. 2012. Presupposition. In Claudia Maienborn, Klaus von Heusinger & Paul Portner (eds.), *Semantics. An international handbook of natural language meaning*, chap. 91, 2432–2460. Berlin: de Gruyter.

Benveniste, Emile. 1971. The nature of pronouns. In *Problems in general linguistics*, 217–222. Coral Gables (FL): University of Miami Press.

Choi, Jaehoon. 2014. *Pronoun-noun constructions and the syntax of DP*. University of Arizona dissertation.

Groenendijk, Jeroen & Martin Stokhof. 1991. Dynamic predicate logic. *Linguistics and Philosophy* 14(1). 39–100.

Harbour, Daniel. 2016. *Impossible persons*. Cambridge (MA): MIT Press. https://doi.org/10.7551/mitpress/9780262034739.001.0001.

Harley, Heidi & Elizabeth Ritter. 2002. Person and number in pronouns: a feature-geometric analysis. English. *Language* 78(3). 482–526. https://doi.org/10.1353/lan.2002.0158.

Heim, Irene. 2008. Features on bound pronouns. In Daniel Harbour, David Adger & Susana Béjar (eds.), *Phi theory. Phi-Features across modules and interfaces*, 35–56. Oxford, New York: Oxford University Press.

Höhn, Georg F.K. 2014. The semantics of adnominal pronoun constructions and unagreement. In Ludmila Veselovská & Markéta Janebová (eds.), *Complex visibles out there. Proceedings of the Olomouc linguistics colloquium 2014: Language use and linguistic structure*, 175–191. Olomouc: Palacký University.

Höhn, Georg F.K. 2016. Unagreement is an illusion: apparent person mismatches and nominal structure. *Natural Language and Linguistic Theory* 34(2). 543–592. https://doi.org/10.1007/s11049-015-9311-y.

Höhn, Georg F.K. 2017. *Non-possessive person in the nominal domain*. University of Cambridge dissertation.

Höhn, Georg F.K., Giuseppina Silvestri & M. Olimpia Squillaci. 2016. Unagreement between Italian and southern Italian dialects. *Rivista di Grammatica Generativa* 38. 137–147.

Höhn, Georg F.K., Giuseppina Silvestri & M. Olimpia Squillaci. 2017. Greek and Romance unagreement in Calabria. *Journal of Greek Linguistics* 17(2). 263–292. https://doi.org/10.1163/15699846-01702002.

Hurtado, Alfredo. 1985. The unagreement hypothesis. In L. King & C. Maley (eds.), *Selected papers from the thirteenth linguistic symposium on Romance languages*, 187–211. Amsterdam: John Benjamins. https://doi.org/10.1075/cilt.36.12hur.

Norman, Boris. 2001. Субстантивное подлежащее при глаголах в 1-м лице множественного числа в болгарском языке (двама студенти търсим работа) [substantivnoe podležaščee pri glagolax v 1-m lice množestvennogo čisla v

bol'garskom jazyke (*Dvama studenti tərsim rabota*)]. In Alexander Kiklevič (ed.), *Количественность и градуальность. Quantität und Graduierung in der natürlichen Sprache* (Die Welt der Slaven 11), 77–86. München: Otto Sagner.

Osenova, Petya. 2003. On subject-verb agreement in Bulgarian (an HPSG-based account). In Peter Kosta, Joanna Błaszczak, Jens Frasek, Ljudmila Geist & Marzena Żygis (eds.), *Investigations into formal Slavic linguistics. Contributions of the fourth European conference on formal description of Slavic languages – FDSL IV*, 661–672. Frankfurt/Main: Peter Lang.

Sudo, Yasutada. 2012. *On the semantics of phi features on pronouns*. MIT dissertation.