A clausal analysis of Dari and Tajik phrasal comparatives*

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In Colloquial Dari – particularly the variety spoken in and around Kabul, Afghanistan – comparatives obligatorily include a marker, *kada*, the past participle of *kadan* 'to do'. Tajik, a closely related language, also has a counterpart to *kada* – *dida*, the past participle of 'see'. Its distribution is similar, except that *dida* is optional:

- (1) tu az ma *(kada) beland-tar ast-i. (Dari)
 You from me *(KADA) tall-er be-2s.
 'You are taller than me.'
- (2) in darakht az aan darakht (dida) beland-tar as. (Tajik)
 This tree from that tree (DIDA) tall-er be-3s.

 'This tree is taller than that tree.'

This paper investigates the syntax and semantics of Dari and Tajik comparatives, with the particular goal of explaining how the distribution of *kada* and *dida* can bear on theories of phrasal comparatives. I will conclude that *kada* and *dida* are markers of an underlying small clause; the presence of this clause suggests that -er must combine with a degree predicate. Under a direct analysis, where -er combines with an individual, the presence of *kada/dida* would remain unexplained.

I will proceed as follows: first I review the background on clausal and phrasal comparatives, and introduce the major generalizations for Dari and Tajik. I then present several diagnostics indicating that Dari does not use "implicit" or contextual comparison, equivalent to English *compared to*. Finally, I attempt to account for *kada* and *dida* with

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different approaches to comparatives, concluding that only the small clause analysis can correctly predict its distribution.

1. Background

Many languages allow both clausal and phrasal comparatives (c.f. 3a, 3b); the grammar behind this variability has been of interest for a long time (Chomsky 1965, Hankamer 1973, Bresnan 1973).

(3) a. John is taller than *Bill is*. (clausal) b. John is taller than *Bill*. (phrasal)

It is usually thought that the LF of clausal comparatives like (3a) is along the lines of (4). *Than* selects a CP complement; the gradable adjective is elided at PF (Bresnan 1973 a.o.). *Wh*-movement within the CP results in the creation of a degree predicate (Vergnaud 1974, Chomsky 1977, Heim 2000); the *wh*-operator is phonologically covert in some languages (including English) but overt in others (e.g. Russian, Pancheva 2006). Assuming *than* is semantically vacuous, the resulting degree predicate can combine with the comparative morpheme, a degree quantifier with the semantics in (5). Finally, *-er* must undergo QR to combine with the second degree predicate, and the sentence is interpreted as true if there is a degree to which John is tall but Bill is not.

(4) John is taller than $[CP wh_1 Bill is \frac{d_1-tall}{d_1}]$.

(5)
$$[[-er]] = \lambda P_{\langle d, l \rangle} \cdot \lambda Q_{\langle d, t \rangle} \cdot \exists d[Q(d) \land \neg P(d)]$$

One question we might ask is whether phrasal comparatives like (3b) are structured and interpreted the same way as clausal comparatives. There are at least three major approaches to this question, briefly sketched out in (6).

- (6) a. John is taller than [CP] wh $_1$ [TP] Bill is d_1 -tall]]. (reduction analysis; full clause)
 - b. John is taller than $[v_P]$ wh $[v_P]$ Bill d_1 -tall]. (reduction analysis; small clause)
 - c. John is taller than [DP Bill]. (direct analysis)

Under the *direct analysis* (Heim 1985; Kennedy 1999, 2007; Bhatt and Takahashi 2007), the syntax and semantics of clausal and phrasal comparatives is fundamentally different. Cognitively, two heights are compared in clausal comparatives, but two individuals are compared with respect to height in phrasal comparatives. *Than* may select either a clausal or DP complement; thus the overt material in phrasal comparatives is precisely the material contained in the syntactic structure (Culicover and Jackendoff 2005). A necessary consequence is that two *-er* quantifiers must be posited: one that can combine with a degree predicate and another that can combine with an individual. The

¹ Alternative definitions of *-er* make use of a maximality operator (e.g., Heim 2000), where the *than*-clause denotes a maximal degree. I use the definition provided in (5), but this choice is inconsequential for the analysis here.

use of "individual" comparison can vary cross-linguistically, perhaps as an accident or perhaps because it is required by the syntax (Bhatt and Takahashi 2007).

In a *reduction analysis*, by contrast, *than* always selects a clausal complement – either a CP or a small clause – but in phrasal comparatives more material is elided (Hackl 2000, Heim 2000, Lechner 2001, Merchant 2009). This non-overt syntax makes the syntax-semantics interface simpler. The clausal complement, a degree predicate, can combine with the degree quantifier in (5), so the functional lexicon need not contain lexical ambiguity or underspecification. Cross-linguistic differences are thus attributed to the syntax, and individual comparison (if available) will not involve the degree quantifier –*er*. Reduction analyses receive support from binding effects (Lechner 2001) as well as island effects (Merchant 2009, Pancheva 2009).

2. Data from Dari and Tajik

I will start by illustrating the generalization given above: Dari and Tajik comparatives contain the past participles *kada* 'done' and *dida* 'seen'. In colloquial Dari, this is obligatorily² the case for predicative comparatives (as shown in 1) as well as adverbial and nominal comparatives (in 7-9). *Dida* is optional in Tajik (e.g., (2)).³

- (7) ma az tu *(kada) tez-tar me-daw-um. I from you *(KADA) fast-er DUR-run-1s 'I run faster than you.'
- (8) ma az tu *(kada) zeyaad-tar saeb khurd-um. I from you *(KADA) many-er apple ate-1s. 'I ate more apples than you.'
- (9) zeyaad shagardaan az profaisaraan *(kada) beland ast-an. many students from professors *(KADA) tall be-3pl 'More students than professors are tall.'

Kada and *dida* derive from *kadan* 'see' and *didan* 'do', which productively combine with both nouns and adjectives to form complex predicates like (10-11). The *than*-phrase also contains the ablative preposition az - a common way of forming comparatives cross-linguistically (Stassen 1984); we also find az in sentences like (12).

(10) a. ADJECTIVE + KADAN b. NOUN + KADAN (Dari) kharaab kadan bad do help do

² Kada is not used in formal/Standard Dari or Persian, however. Some informants seemed to accept colloquial comparatives without *kada*, while others felt they were clearly unacceptable.

³ Most of my data will focus on Colloquial Dari. The Tajik data is much more limited in scope, and comes from descriptive grammars (e.g. Perry 2005). I also restrict my attention here to the syntax of comparatives (for reasons of space, I do not consider equatives, which are realized with a correlative).

'to destroy' 'to help'

- (11) a. ADJECTIVE + DIDAN b. NOUN + DIDAN (Tajik) tayyaara didan ready see 'to prepare' b. Noun + DIDAN (Tajik) tayyaara didan harm see 'to come to harm'
- (12) baazaar duur az maktab as. (Dari) market far from school be-3s. 'The market is far from the school.'

That Dari *kada* 'done' is part of the *az*-phrase is evidenced by movement patterns: in (13a-c), the *az*-phrase undergoes scrambling. Movement that strands *kada* – as in (13d) – is strictly unacceptable.

- (13) a. tu beland-tar [az ma kada] ast-i. you tall-er [from me KADA] be-2s.
 - b. tu [az ma kada] beland(-tar)⁴ ast-i. you [from me KADA] tall(-er) be-2s.
 - c. [az ma kada] tu beland(-tar) ast-i. [from me KADA] you tall(-er) be-2s.
 - d. * tu [az ma] beland-tar kada ast-i. you [from me] tall-er KADA be-2s. 'You are taller than me.'

To summarize briefly, the past participles *kada* 'done' and *dida* 'seen' – from the light verbs *kadan* 'to do' and *didan* 'to see' – are found in the *than*-phrases of Dari and Tajik comparatives. In both languages, the standard of comparison also includes the ablative preposition *az* 'from,' and the whole *az*-phrase can undergo movement. In the following sections, I explore existing accounts of phrasal and clausal comparatives and their potential applications here. Given the surface resemblance of *az...kada* 'done from' and *az...dida* 'seen from' to markers of contextual comparison – *compared to, with*

⁴ Interestingly, the comparative morpheme –*tar* can be omitted from the gradable predicate in both Dari and Tajik, but only if it follows an *az*-phrase. Exceptions to this include Dari measure phrase comparatives like (ii), which require an overt comparative morpheme regardless of word order, and nominal comparatives like (9) which seem to permit the null comparative morpheme before the *az*-phrase. At present I have no explanation why this is the case.

⁽i) a. in kurta [az aan (dida)] khub(-tar) ast. (Tajik)
this kurta [from that (DIDA)] good(-er) is.
b. in kurta khub*(-tar) [az aan (dida)] ast.
this kurta good*(-er) [from that (DIDA)] is.
'This kurta is better than that.'

⁽ii) John az paynj feet beland*(-tar) as.

John from five feet tall*(-er) is.

'John is taller than five feet.'

respect to, or regarding – I first explore an analysis along these lines, concluding on the basis of a number of diagnostics that it cannot work for Dari and Tajik.

3. Dari and Tajik Comparison as Implicit or Contextual

Before evaluating analyses of *than*-clauses as they apply to Dari and Tajik, we might wonder whether *az...kada* and *az...dida* are even equivalent to *than*-phrases. For example, Beck et al (2004) have suggested that Japanese YORI-phrases are interpreted analogously to English *compared to*-phrases. The purpose of the *compared to*-phrase in (14) – and perhaps the YORI-phrase in Japanese – is to make an object (e.g., Joe's height) more salient, thereby setting the contextual value needed by the positive adjective.

(14) Sally is tall, compared to Joe. (Beck et al 2004) $\exists d[Sally \text{ is d-tall \& d > c}]$ (where c is the standard made salient by the context, in this case "Joe's height")

Aside from the surface similarities noted above, there are a number of other diagnostics we can use to differentiate between *compared to*-phrases and *than*-phrases. For example, *compared to*-phrases in English generally have a wider distribution than *than*-phrases: the comparative morpheme –*er* can be omitted, and the *compared to*-phrase can be displaced in (15-16). This does not hold for the *than*-phrases in (17-18),

- (15) Compared to Bill, John is tall(er).
- (16) a. John is tall, compared to Bill.
 - b. Compared to Bill, John is tall.
- (17) John is tall*(er) than Bill.
- (18) a. John is taller than Bill.b. ??Than Bill, John is taller.

In Dari, too, the comparative morpheme can sometimes be omitted, if only in certain word orders (see footnote 4 for related details). But the movement of the *az*-phrase – while possible – is much more limited than that of *compared to*-phrases. English *compared to* can be in a different clause than the adjective in sentences like (19), but the same is not true for the Dari equivalent in (20).

- (19) Compared to Bill, it turns out that John is taller.
- (20) a. * az John kada fahmida shud ke Bill beland-tar as. from John KADA understood became that Bill tall-er is.
 - b. fahmida shud ke Bill az John kada beland-tar as. understood became that Bill from John KADA tall-er is. 'It turned out that John is taller than Bill.'

Moreover, whereas *compared to* can be modified or substituted by other expressions, yielding alternatives like *when compared to* or *upon closer comparison with*, the *az...kada/dida* phrase cannot. And, unlike English *compared to*-phrases, Dari *az*-phrases cannot combine with superlatives, indicating that the *az*-phrase is selected specifically by the comparative morpheme *-tar*.

- (21) a. Compared to them, John is (the) tallest.
 - b. * John is tallest than them.
- (22) * John az waa kada beland-tarin as. John from them KADA tall-est is.

Kennedy (2007) establishes a number of diagnostics for "implicit" comparison, cases where context is manipulated "in such a way that the positive [adjective] is true of x and false of y," as it is in English *compared to* comparatives. He uses these diagnostics to argue that Japanese does *not* have "implicit" comparison; if this is also true for Dari and Tajik, then we expect similar results from these diagnostics. For example, given a sizeable difference between two objects – as with (23) – speakers can felicitously use a positive adjective. But if the difference is relatively small, as in (24b), speakers find it infelicitous to assert that *y is A* is false; "explicit" comparatives like (23a) and (24a) are fine in either case. That (25) is acceptable suggests that the construction is a comparative with a null –*er*.

- (23) *Context: a 600-word essay and a 200-word essay* (Kennedy 2007)
 - a. This essay is longer than that essay.
 - b. Compared to that essay, this essay is long.
- (24) *Context: a 600-word essay and a 597-word essay*
 - a. This essay is longer than that essay.
 - b. # Compared to that essay, this essay is long.
- (25) Context: a 600-page book and a 597-page book
 - i kitaab az u kitaab kada daraaz as. this book from that book KADA long be-3s.

Furthermore, measure phrases can combine directly with a gradable adjective, "neutralizing" their context dependency. Thus measure phrases are infelicitous with *compared to* and a positive adjective, as we see in (26a). But *az*-phrases are acceptable with *beland* 'tall' in (27), patterning again with *than*-phrases.

- (26) a. # Compared to Lee, Kim is 10cm tall.
 - b. Kim is 10cm taller than Lee.
- (27) ma da inch az Bill kada beland ast-um. (Dari) I ten inch from Bill KADA tall be-1s.

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In this section, I offered several arguments why Dari and Tajik comparison is likely "explicit" comparison – interpreted compositionally, not contextually. First, I showed that *az*-phrases have a much more limited distribution than *compared to*-phrases. They cannot move beyond a clausal boundary or combine with superlatives. Moreover, several diagnostics used by Kennedy (2007) to differentiate between explicit and implicit comparison point to the availability of explicit comparison in Dari and Tajik. Therefore, in what follows, I will explore both direct and reduction analyses of *az*-phrases.

4. A Direct Analysis

Recall that, under the direct analysis, the comparative morpheme *-tar* '-er' can combine with individuals in phrasal comparatives, obviating the need for underlying clausal structure. At first glance, Dari and Tajik seem to *only* allow individual comparison, an analysis that has been suggested for Hindi-Urdu (Bhatt and Takahashi 2007) and Japanese (Kennedy 2007). This is because clausal comparatives are generally unacceptable unless they undergo nominalization: the noun *andaaza* 'amount' is necessary in Dari examples like (28-30).⁵

- (28) tu beland-tar ast-i az *(andaaza-e ke) tawaaqo daasht-um. Youtall-er be-2s from *(amount-EZ that) expect had-1s 'You are taller than I expected.'
- (29) ma (yak kilo) seb zeyaad-tar khord-um az *(andaaza-e ke) forokt-i I (one kilo) apple many-er ate-1s from *(amount-EZ that) sold-2s. 'I ate (one kilo) more apples than you sold.'
- (30) tu tez-tar me-daw-i az *(andaaza-e) ke feker me-kad-um. You fast-er DUR-run-2s from *(amount-EZ) that think DUR-did-1s. 'You run faster than I thought.'

A likely reason why this happens is that az (as with other prepositions) does not take finite clausal complements. In (31), baad az 'after' requires similar nominalization. The same syntactic restrictions likely prohibit az from selecting a finite clause complement in comparatives, resulting in the nominalizations we see in (28-30).

(31) baad az *(i ke) neweshta kada bud, khaana aamad after from *(this that) written done was-3s home returned. 'He came home after he had written.'

Even if these syntactic restrictions on az are related to the availability of individual comparison in Dari, we still need to explain why kada or dida would be required – and allowed – to appear in the than-phrase. In English, it is typically assumed

⁵ Subcomparatives (such as *the box is taller than the cake is wide*) also require insertion of a degree-denoting noun, but are otherwise acceptable. I will assume that restrictions on subcomparatives are the same ones operating on regular clausal comparatives, and will not consider them further.

that *than* is semantically vacuous. Under the direct analysis, this allows *-er* to combine directly with individuals in phrasal comparatives. By extension, we expect not only *az* but also *kada/dida* to be semantically vacuous. In this case, *kada* (and *dida*) would be a semantically null postpositional element selected on purely syntactic grounds (i.e., to assign case to the DP), perhaps with one of the structures given in (32).

I argue, however, that there are reasons to doubt (a) that *kada* is a postposition, (b) that *kada* is semantically vacuous, and (c) that *kada* is selected on syntactic grounds. One clear indicator that *kada* is not a postposition is that it cannot be found anywhere else as a postposition. This is not surprising, given that adpositions are typically head-initial in Dari – a generalization that holds not only for simple prepositional phrases, but also for complex prepositional phrases like those in (33-34), where multiple prepositions can be seen clustering to the left, notably even when *az* is involved.

- (33) az darune khaana from inside house 'from inside the house'
- (34) da tarafe jelaalaabad at toward Jalalabad 'towards Jalalabad'

What is most problematic, however, is the necessary assumption that *kada* is semantically vacuous. There is a compelling reason to think that its appearance is semantically conditioned: it is obligatorily omitted when the complement to *-tar* denotes a degree or degree predicate. In the nominalizations in (28-30), it is a *degree-denoting* noun like 'amount' that must be inserted, not an individual – and, tellingly, *kada* may not accompany it in (35). *Kada* is also omitted in measure phrase comparatives, such as (36).

- (35) tu beland-tar ast-i az andaaza-e ke tawaaqo daasht-um (*kada). you tall-er be-2s from amount-EZ that expect had-1s (*KADA). 'You are taller than I expected.'
- (36) John az paynj feet (*kada) beland-tar as. John from five feet (*kada) tall-er is. 'John is taller than five feet.'

One way around this problem is to argue that *kada* is needed for case assignment in certain types of comparatives, but not in others. There is a precedent for this in Polish, where phrasal comparatives take *od*, but clausal comparatives and measure phrase comparatives take *niż* (Pancheva 2009). In Polish, however, *niż* is not a preposition and therefore cannot assign case in phrasal comparatives. Extending this to Dari and Tajik would be problematic because *az* is clearly used as a preposition elsewhere and should have no problem assigning case.

Given all of these facts, a direct analysis of Dari and Tajik comparatives does not seem possible. Arguing that *kada* is a semantically vacuous postposition selected for case

assignment is problematic: it is highly unlikely that *kada* is a postposition, and there are no obvious syntactic reasons why it should appear there. Moreover, its distribution seems to be semantically conditioned – it is specifically omitted whenever the complement to *az* denotes a degree or degree predicate – and this is unexpected if we assume the comparative morpheme combines with individuals.

5. A (Small Clause) Reduction Analysis

Recall that reduction analyses extend the lexical semantics of *-er* from clausal comparatives to phrasal comparatives. In both cases, *-er* combines with a degree predicate; therefore, in both cases clausal structural is needed. Following the reduction analysis, I suggest that *kada* is a clausal marker. Crucially, the presence of this clause argues for only one *-er* in the lexicon, which must combine with degree predicates.

Adopting this hypothesis takes care of a number of problems faced by the direct analysis. If we accept that *kada* is a clausal marker, then we predict that it will be absent whenever there is no underlying clausal structure. This could be the case if, for example, the complement to *az* already denoted a degree predicate, which would obviate the need for clausal structure. Measure phrase comparatives fit precisely this description: something like *than five feet* has been argued to denote a degree predicate (Heim 2000, Schwarzschild 2002). Furthermore, evidence from Slavic suggests that measure phrase comparatives, unlike other types of phrasal comparatives, do not derive from full clauses (Pancheva 2006). In (37), for example, the *wh*-element that can be present in Russian clausal comparatives is unacceptable in measure phrase comparatives.

- (37) a. * Ivan rostom bol'še, *čem* dva metra Ivan in-height more what two meters
 - b. Ivan rostom bol'še *dvux metrov*Ivan in-height more [two meters]-GEN
 Ivan measures in height more than 2m.

Because *five feet* or *two meters* likely denote degree predicates, we might not expect to find clausal structure in the *az*-phrase, and therefore *kada/dida* should not be allowed. Indeed, as we saw, *kada* is absent in measure phrase comparatives and whenever a degree-denoting noun is inserted. The reduction analysis predicts this to be the case because of the semantics of *-tar/-er*, suggesting it is on the right track.

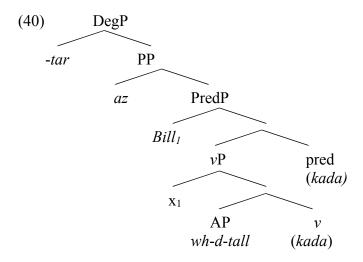
As we saw above, az 'from' – along with other prepositions – generally cannot select finite clausal complements. There is no reason to think that this should be different in comparatives. Therefore, I limit my attention further to the small clause reduction analysis (Pancheva 2006, 2009), an innovation of the reduction analysis in which the complement to than is a small clause whose subject is exceptionally case-marked by than. I propose that kada and dida are more specifically markers of underlying small

⁶ A similar approach was suggested by Lechner (2001), but only for a subset of comparatives. In this case, phrasal comparatives can be nonfinite, but still retain the C position.

clauses. This receives immediate support from the observation that *kada* and *dida* are nonfinite, agreeing neither with the subject's phi-features in (38) nor the tense of the matrix verb in (39), suggesting that the underlying clause is not a full TP.

- (38) az tu/waa wh-d beland kada from you/them wh-d tall KADA '...than you/them...'
- (39) tu beland-tar az Bill wh-d beland kada bud-i/ast-i. you tall-er from Bill wh-d tall KADA were-2s/are-2s. 'You were/are taller than Bill.'

Pancheva (2009) uses the small clause analysis to explain why the equivalent of *More tourists visited Sofia than Varna* is degraded in Slavic: movement of the *wh*-element from spec, *vP* to another spec, *vP* violates a constraint on anti-locality, and the alternative results in a subject island violation. But since Dari has no overt *wh*-movement, *more*-NPs are acceptable subjects in phrasal comparatives. A likely structure is given in (40): the *az*-phrase subject raises to spec, PredP (or another functional projection) and *kada* is realized either in the head of PredP or *vP*; I do not commit to one or the other here.



As with English do-support, insertion of *kada* might be seen as a last resort move by the grammar, likely related to the fact that there is no process of VP ellipsis in these languages. If this were the case then we should expect to find *kada* in other nonfinite environments. Sentences like (41) have been accepted by some informants, but only when "used emphatically."

- (41) ? ma Bill-a kumak kada meytaanum wa too John-a kumak kada meytaani. I Bill-ACC help KADA can and you John-ACC help KADA can. 'I can help Bill and you can John.'
 - I leave this as an open question for future work, but suggest briefly that the

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insertion of *kada* may be related to focus marking in the functional structure of the small clause. This would also account for why clitic pronouns are degraded with *kada*, even though they are otherwise acceptable:

- (42) ? ma az-esh kada beland-tar ast-um. I from-him KADA tall-er be-1s. 'I am taller than him.'
- (43) ma az-esh duur ast-um.
 I from-him far be-1s
 'I am far from him.'

Either way, we have seen that a reduction analysis is the only one that can predict the distribution of *kada* and *dida*, by associating its presence with an underlying small clause. The clausal structure is required to form a degree predicate as the complement to *-tar* '-er'. If *-tar* could combine with individuals, the appearance of *kada* and *dida* would remain largely a mystery. Contextual comparison was ruled out for separate reasons, but we note here that it would also fail to explain, for example, why *kada* and *dida* are impossible with the insertion of *andaaza* 'amount'.

7. Conclusion

This paper introduces new data from two relatively understudied languages with rich and varied comparative constructions. It was my goal to reconcile the facts from these languages with existing accounts of phrasal comparatives, in order to bear more broadly on questions about the syntax and semantics of *than*-clauses and the degree quantifier *-er*. The analysis here provides direct evidence for a small clause analysis of phrasal comparatives along the lines of Pancheva (2006, 2009). The evidence offered here is also of a different kind than has been previously suggested (i.e., subject island effects in Pancheva 2009).

Dari and Tajik are also particularly good candidates for Bhatt and Takahashi (2007)'s proposal that if the syntax of a language prohibits comparative clauses, an "individual comparison" -er will be used instead. Dari and Tajik preclude finite clauses in comparatives, but still do not seem to have an individual comparison -er. Cognitively, individual comparison is perhaps possible (in sentences like *You exceed me in height*), but crucially, not when the quantifier -er is involved. This supports the view of a more tightly constrained functional lexicon with only one degree quantifier -er; its syntax and semantics likely determine the mode of comparison at the interface with the extralinguistic cognitive systems.

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