There is more to the morphology of $-\dot{s}/-i\dot{s}$

The comparative in Ukrainian

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There are two comparative suffixes in Ukrainian: the productive -iš, and the non-productive -š. Following Caha et al. (2019) I show that just like in Czech, the distribution of these two suffixes in Ukrainian is regulated not by phonology, but by morphosyntax. The theory of Nanosyntax (Starke 2009) is used in order to account for the data. The comparative meaning is represented in syntax not by one but by two functional heads. To be more precise, I propose that in Ukrainian -iš is decomposed into two morphemes -i and -š, where -i spells out the lower head and -š spells out the higher one. The issue of suppletive adjectives is discussed as well. I argue that suppletion can be accounted for using the nanosyntactic concept of pointers. As a result, this approach helps to explain the mechanism behind allomorphy of the comparative suffix in regular and suppletive adjectives in Ukrainian.

Keywords: morphology, nanosyntax, comparatives, suppletion, allomorphy, Ukrainian

1. Introduction

There are two ways to form a comparative construction in Ukrainian. The first one is to use analytic form, that is the adverb $bilj\check{s}$ 'more' followed by an adjective in the positive form. The other option is to use a synthetic construction, namely to add a comparative suffix $-(i)\check{s}$ to the positive form of an adjective. This paper is concerned with synthetic comparative adjectives, which will be referred to as 'comparative adjectives' throughout the article.

The comparative form (CMPR) of adjectives in Ukrainian is mostly formed by adding a comparative suffix to the positive form (POS). This suffix seemingly has four allomorphs: -iš, -š, -č, and -šč, as presented in Table 1. Adjectives in

Ukrainian show agreement in gender, number, and case with nouns, and this agreement marker (AGR) is obligatory.¹

The suffix $-i\dot{s}$ is very productive, it is the most common way to form comparative adjectives. The suffix $-\dot{s}$ is less commonly used, with about 25 instances, while $-\dot{c}$ and $-\dot{s}\dot{c}$ together occur only 10 times in comparative adjectives.²

	POS	CMPR	Number
a.	čyst-yj	čyst- iš -yj	very productive
	clean-AGR	clean-er-AGR	
b.	dešev-yj	dešev- š -yj	25 cases
	cheap-AGR	cheap-er-AGR	
c.	duž-yj	duž-č-yj	7 cases
	strong-AGR	strong-er-AGR	
d.	vysok-yj	vyšč-yj	3 cases
	high-AGR	high-er-AGR	

At first glance, there are four comparative suffixes in Ukranian, but as I show in Vyshnevska (to appear) $-\check{c}$ and $-\check{s}\check{c}$ are phonologically conditioned allomorphs of $-\check{s}$ that appear as a result of assimilation and dissimilation (Bevzenko 1960). As a result they will not be discussed separately in this paper. The point that is important for our discussion is that there are two comparative suffixes: $-\check{s}$ and $-i\check{s}$.

The other point that was discussed in Vyshnevska (to appear) is that the choice between the two comparative suffixes is not determined by phonology. Two main arguments were presented in favour of it. Firstly, there are a number of adjectives that can take both the -š and -iš suffix in the comparative, e.g. bahatyj 'rich' has two comparative forms: bahat-š-yj and bahat-iš-yj. The same applies to hrubyj 'fat, rude' that has two options: hrub-š-yj and hrub-iš-yj. Secondly, adjectives that present the same or very similar phonological environments can still choose different suffixes. In order to demonstrate this, some minimal pairs are presented in Table 3.

The article has the following structure. Section 2 lays the theoretical foundation in order to account for the Ukrainian data. Section 3 provides evidence to suggest that the distribution between the two suffixes is morphological. The issue

^{1.} The nominative masculine singular marker -*yj* will be used throughout the paper.

^{2.} The data is taken from the Ukrainian corpus MOVA http://www.mova.info/.

of Ukrainian suppletive adjectives is covered in Section 4. The last section concludes the discussion and provides some suggestions for further research.

	POS	CMPR -š	CMPR -iš	Translation
a.	dešev-yj	dešev- š -yj	*dešev- iš -yj	cheap
	važlyv-yj	*važlyv-š-yj	važlyv- iš -yj	important
b.	duž-yj	duž-č-yj	*duž- iš -yj	strong
	sviž-yj	*sviž-č-yj	sviž- iš -yj	fresh

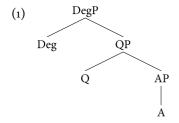
Table 2. Adjectives with the same phonological environment

2. Theoretical background: DegP and Nanosyntax

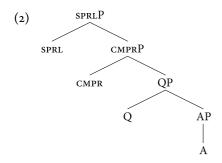
I would like to present here some theoretical background that is needed to account for the data that will be presented in Section 3, starting with the notion of adjectival degrees and how they are syntactically represented.

2.1 DegP

Corver (1997) argues for the structure of the adjectival domain as in (1). According to him, it is comprised of a degree element (DegP), a quantifier (QP) and an adjectival phrase itself (AP).



However, since there are different types of degrees (positive, comparative, superlative), Bobaljik (2012) suggest that the DegP has to be decomposed into CMPR and SPRL. The corresponding tree, slightly modified by De Clercq et al. (2022) with a more fine-grained structure of QP, is presented in (2). In this tree there are three degrees: the positive (QP), the comparative (CMPR), and the superlative (SPRL). Since this article is concerned with compar-ative adjectives only, the issue of the superlative form will not be addressed here. The important thing for the current study is the idea that the Deg head is decomposed into two different heads.



As noticed by De Clercq & Vanden Wyngaerd (2017:39): "[...] the deeper we dig into the morphological marking of degree, the more functional heads we will be able to unearth." This is the idea that will be taken further in my analysis in Section 3.

Caha et al. (2019) develop a Nanosyntactic approach to comparatives in Czech. They take Bobaljik's idea as a starting point, but propose that the CMPR head should be split up into two separate heads. Apart from Czech, the decomposition of the CMPR head into C1 and C2 is also suggested for Slovak (Vanden Wyngaerd et al. 2020). The idea is to further decompose the originally proposed DegP suggested by Corver (1997) and elaborated by Bobaljik (2012). Before I dive into that, I would like to introduce two key notions of Nanosyntax that will be relevant for my analysis.

2.2 Nanosyntax

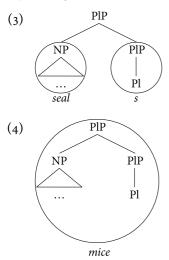
Firstly, the notion of submorphemic syntax will be introduced. It is called submorphemic as morphemes are not the smallest units in Nanosyntax. In Distributed Morphology (DM) lexical items are the minimal building blocks in syntactic structures. Each lexical item is uniquely associated with one terminal node. In contrast, in Nanosyntax one morpheme can span several syntactic terminals, "and therefore they [i.e.morphemes] will correspond to an entire subtree rather than corresponding to a terminal. This means that the lexicon contains subtrees, ie. syn-tactic trees, paired with phonological and conceptual information" (Starke 2009:2).

Submorphemic syntax is built on the observation that there are more featural distinctions than there are morphemes available. For instance, the plural form *mice* is morphologically non-decomposable, as there is no separate morpheme that would stand for the plural feature, as opposed to *seal-s*, which has a regular plural morpheme *-s*. The logical conclusion is that there is a one-to-many relationship between morphemes and features, i.e. *mice* = *mouse* + PL. This has been

observed by previous approaches, as in DM, where Fusion and null morphemes were suggested to account for such irregular forms (Bobaljik 2012, Embick 2010).

Secondly, the notion of phrasal spell-out will be introduced, as suggested by Starke (2009). The idea is that lexicalisation applies not to terminals, but to phrasal nodes. As presented in Baunaz & Lander (2018:16): if multiple heads make up a single morpheme, "then it must be possible for spellout to target phrases (XPs) and not just heads".

Phrasal spell-out helps us to account for cases that look problematic in other approaches. In case of regular plurals (3) the NP is spelled out by *seal*, and the PlP is spelled out by the plural morpheme -s. When it comes to irregular forms (as in 4), we can assume that the whole structure is spelled out as *mice* instead of saying that there are two separate terminals [N] and [Pl], each spelled out by a different element. As I will show further, phrasal spell-out provides an elegant solution not only to irregular nouns, but also to regular and suppletive comparative adjectives.



As Starke (2009:2) suggests: "Once lexical items are not confined into terminals anymore, they can be of different syntactic sizes – i.e. different lexical items may correspond to different amounts of syntactic structure". This will be the key idea of the Section 3: adjectives differ in the amount of structure they spell out. With these key notions in mind, we can now proceed with the analysis. I will argue that adopting Nanosyntax helps to explain the distribution of Ukrainian comparative suffixes.

3. The choice between -š and -iš is morphologically conditioned

In this section I argue that the choice between the comparative suffixes -š and -iš is determined by morphology, or more precisely by morphosyntax. The idea is that there are different sizes of roots in Ukrainian adjectives. Those that are bigger spell out more structure, and this is the decisive factor behind the -š/-iš alternation in comparatives. I will first analyse regular comparative adjectives, and then go into suppletives.

3.1 Regular Ukrainian adjectives

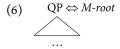
Caha et al. (2019: 477) propose that the CMPR head has to be split up into two separate heads, which they call C1 and C2. The suggestion is that the Czech suffix $-\check{e}j\check{s}$ has to be split up into $-\check{e}j$ (C1) and $-\check{s}$ (C2). Both in Czech and Ukrainian there are two comparative suffixes, where one is a short version of the other, as in (5).

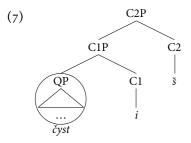
I adopt the analysis developed by Caha et al. (2019) and claim that this decomposition applies to Ukrainian as well. The corresponding Ukrainian suffix has to be split into -i (C1) and $-\check{s}$ (C2). These heads are added on top of the positive degree as presented in the trees (6) and (7) below. QP stands for the positive form of an adjective, which in fact should be further decomposed, but since it is not directly relevant for this paper, I will use the simplified structure of the trees.

Caha et al. (2019) and Vanden Wyngaerd et al. (2020) develop an idea that there are different root sizes. The notion of 'root sizes' is crucially different from the DM approach. It is built on two important notions that have been mentioned: submorphemic syntax (there are more featural distinctions than there are morphemes available) and phrasal spell-out (spell-out target phrases instead of heads). The idea presented in Caha et al. (2019) is the following: the less structure the positive degree spells out, the more additional morphology an adjective needs in the comparative. Those Czech adjectives that take the -ĕjš suffix are of size AP. Since they are 'small', they need both -ĕj and -š to spell out C1 and C2. In contrast, adjectives with the -š suffix are of size C1P. Their roots are 'big enough', so they don't need the C1 to be spelled out by a different head, only -š to spell out C2.

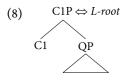
My suggestion for Ukrainian comparatives is the following: there are two types of roots – 'medium' (*M-roots*) and 'large' (*L-roots*). *M-roots* are of size QP, their lexical entry is provided in (6) along with the adjective *čyst-is-yj* 'cleaner' that belongs to this type. Such adjectives are 'small', they need both C1 and C2 to

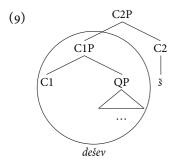
be spelled out by an additional morphology. Thus, they take the suffix $-i\check{s}$ in the comparative.





Meanwhile, *L-roots* are of size C₁P, their lexical entry is provided in (8). They are 'big enough' as they spell out more structure than *M-roots* and need only -*š* to spell out C₂. An example of such an adjective is *dešev-š-yj* 'cheaper' that takes the suffix -*š*, as in (9).





It should be made clear that whether an adjective belongs to the M-class or the L-class is unpredictable. It is a situation comparable to the theme vowels in Romance languages, where no analysis 'predicts' which class a verb belongs to, i.e. which theme vowel it will take. It is in other words a lexically idiosyncratic property, and analyses come up with different ways in which roots can be divided into what are in essence arbitrary classes: one can make lists of the relevant classes, or assign different diacritics to roots of different classes, or assign them different root

sizes, as in the current proposal. The last option has the advantage of introducing no new entities in the ontology. In other words, root sizes are determined when different patterns are being compared.

Now that I have discussed Ukrainian comparatives, I would like to draw a parallel with other Slavic languages that have been mentioned. The distribution of comparative suffixes -š/-ejš is claimed to be syntactic for Czech (Caha et al. 2019) and phonological for Slovak (Vanden Wyngaerd et al. 2020). Thus, in this respect Ukrainian behaves like Czech, as the distribution of the two corresponding suffixes is syntactic. However, Caha et al. (2019) present data from a Czech dialect where a comparative can be formed without the regular -š/-ejš comparative suffixes. This is not the case for Ukrainian, where the presence of the comparative suffix is obligatory.

Slavic adjectives might also have additional morphology ('augment') -k. It is preserved in certain Ukrainian comparative forms, as in $dzvin-k-yj-dzvin-k-i\check{s}-yj$ 'voiced', while it is dropped in other cases like $korot-k-yj-korot-\check{s}-yj$ 'short'. In Czech the augment is always present in the comparative, as it is palatalised into - \check{c} (Caha et al. 2019). In Slovak -k is not palatalized into - \check{c} , and -k sometimes disappears in the comparative form (Vanden Wyngaerd et al. 2020). Polish seems to always drop the augment in the comparative form (Bartosz Wiland, personal communication). These Slavic languages are closely related, but the formation of comparatives is surprisingly different, which should be further studied. Discussing the intricacies of the distribution of the augment in positive and comparative degree adjectives is something that would lead me to far afield here, so I will only discuss adjectives lacking an augment.

In conclusion, there are different types of adjectives, since they spell out different amounts of structure. This is the key idea that is adopted further in this article for the analysis of Ukrainian comparatives. Now that I have discussed regular comparatives, I will go into suppletives, as they show an interesting regularity.

3.2 Suppletive Ukrainian adjectives

Suppletion comes in two types: portmanteau (bad-worse) and root suppletion (good-bett-er). Baunaz & Lander (2018:15) explain portmanteau as "Extreme cases of morphological irregularity or unpredictability that are not segmentable at all". That is, we can not segment worse into a root and a comparative morpheme. In contrast, root suppletion is segmentable. Even though we can not predict the root change from good to bett in adjectives like better, we can segment a regular comparative morpheme -er from the root.

When it comes to Ukrainian, there are only four suppletive adjectives. All of them are of the root suppletion type, since they take a suffix in the comparative. Two adjectives *malyj* 'small' and *velykyj* 'big' are presented in Table 3. Importantly, both of these suppletive adjectives take the suffix -š, the -iš suffix is completely ungrammatical.

Table 3. Suppletive adjectives: 'small' and 'bi	Table 3.	Suppletive ad	jectives: ˈ	ʻsmall'	and '	big'
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	POS	CMPR	Translation	
a.	mal-yj	men-š-yj	small	
		*men-iš-yj		
b.	velyk-yj	bil-š-yj	big	
		*bil-iš-yj		

These two adjectives have only one form in the comparative, taking the suffix -š. However, there are also two other suppletive adjectives: *pohanyj* 'bad' and *dobryj* 'good'. Interestingly, these adjectives are 'disuppletive' (i.e. they have both the non-suppletive form and the suppletive one). While discussing the issue of disuppletion, Arregi & Nevins (2014) provide an example of the English adjective *bad*. Its suppletive form is *worse*, but there is also the form *badd-er*, which has the positive evaluation in "anti-hero contexts". They explain this meaning shift in DM terms, claiming that there is an intervening evaluative head that 'blocks' *worse* from being inserted under the terminal A, leading to *badd-er*.

Turning back to Ukrainian, there are two adjectives that show disuppletion: 'bad' and 'good', as mentioned above, which are presented in Table 4. There are two separate columns: one for the suppletive forms and one for the regular ones.

The adjective *pohanyj* 'bad' in (a) is suppletive. However, there is also the dialectal form *pohan-iš-yj*, which is regular. Whether it can be used in the "antihero contexts", like the English *badder* is an open question to be studied. One way to analyse such case would be to test whether there is an intersective vs. non-intersective regularity in suppletive vs. dissupletive adjectives as suggested for Serbian in Despić (2019). When the form is regular, it cannot take the suffix -š, such form as *pohan-š-yj* is ungrammatical.

The adjective *dobryj* 'good' (b1) has two standard suppletive options which can be used interchangeably: *lip-š-yj* and *kraš-č-yj*, meaning 'better'. Both adjectives take the suffix *-š*.³ However, there is also the regular form *dobr-iš-yj* in (b2) meaning 'kinder'. Again, the observation is that when the form is regular, as in case of *dobr-iš-yj*, it cannot take the suffix *-š*, such forms are ungrammatical.

^{3.} The surface suffix $-\check{c}$ in $kra\check{s}-\check{c}-yj$ is the result of assimilation and dissimilation, as discussed in Section 1.

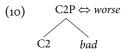
	POS	POS transl.	CMPR suppletive	CMPR regular	CMPR transl.
a.	pohan-yj	bad	hir-š-yj	*pohan-š-yj	worse
			*hir-iš-yj	pohan-iš-yj	
b1.	dobr-yj	good	lip-š-yj, kraš-č-yj	*dobr-š-yj	better
			*lip-iš-yj, *kraš-iš-yj	dobr-iš-yj	
b2.	dobr-yj	kind	-	dobr-iš-yj	kinder
				*dobr-š-yj	

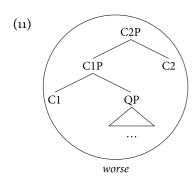
Table 4. Suppletive adjectives: 'good' and 'bad'

Taking into account the data in Table 3 and Table 4, the regularity that can be observed is that if an adjective is suppletive, i.e. if it changes its root in the comparative, it can only take the suffix -š. If an adjective is disuppletive, i.e. if it has the non-suppletive form alongside the regular suppletive one, it can only take the suffix -iš.

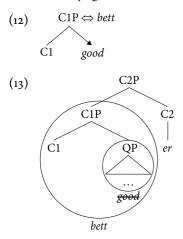
In order to account for this generalisation, I would like to adopt the approach of De Clercq & Vanden Wyngaerd (2017). They discuss suppletive adjectives and use a nanosyntactic approach. More specifically, they use so-called 'pointers'. In general, pointers were introduced in Nanosyntax in order to account for idioms, where the meaning is non-compositional, e.g. 'hit the sack' is built in the syntax and is comprised of 'hit', 'the', and 'sack'. At a certain point the meaning is overwritten by 'go to bed'. Thus, pointers make a reference within a lexical entry to another lexical entry. An illustrative comparison is used in De Clercq & Vanden Wyngaerd (2017:10): "A pointer is like a page number in the index of a book: it refers to a location in the book where the actual information pertaining to a concept can be found". Starke (2009); Starke (2014) proposes that pointers should be used in order to deal with portmanteau suppletion.

Thus, pointers *point to*, or make a reference within a lexical entry to another lexical entry. In the case of portmanteau suppletion, the lexical item *worse* (10) contains a pointer to the lexical item *bad*. In the course of derivation both *bad* and *-er* get overwritten by *worse* (11).



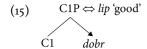


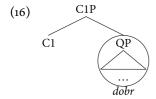
In contrast, root suppletion takes place when *good*, which spells out QP, gets overwritten at C1P by *bett*, and C2P is spelled out by *-er*, as presented in (13) below. The lexical item for *bett* is provided in (12). The suggestion is that the suppletive root in comparatives is of size C1P: "a node that is slightly smaller than C2P (thus making it different from a case like *worse*), but slightly larger than QP" (De Clercq & Vanden Wyngaerd 2017: 11).

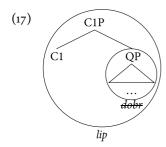


There are only root suppletion cases in Ukrainian. Following De Clercq & Vanden Wyngaerd (2017) I suggest that Ukrainian suppletive adjectives are of size C1P. Thus, they are incompatible with $-i\check{s}$ and can take only $-\check{s}$. In order to demonstrate this, I will go through the derivation. The positive degree (QP) is spelled out by dobr (14). When the comparative is formed, the lexical entry in (15) makes a reference to dobr (16) and overwrites it with lip (17). Thus, it starts as dobr and then turns into lip.

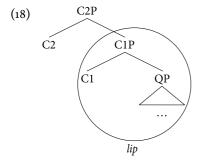


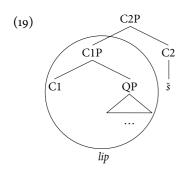






Then C2 is attached on top of C1P (18) and can be spelled out as $-\check{s}$. Then the whole structure can be spelled out as $lip-\check{s}$ (19). As a result, lip can only take the suffix $-\check{s}$ in the comparative, as it is of size C1P.



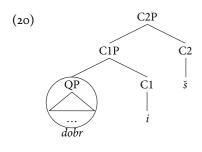


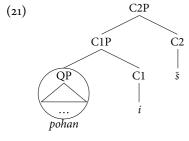
De Clercq et al. (2022:35) discuss suppletion in Czech and reach the following conclusion: "Suppletion requires that each root lexicalises a slightly different structure. Such a difference only exists in the $-\dot{s}$ class, and hence, only the $-\dot{s}$ class shows suppletion. In the $-ej\dot{s}$ class, suppletion is predicted to be impossible." This is exactly what we see in Ukrainian suppletive adjectives, as they are incompatible with the $-i\dot{s}$ suffix. This might be a generalization for suppletives in Slavic languages, but it requires some further research.

3.3 Disuppletion: Possible solutions

In case of disuppletion, like *pohanišyj* 'worse' and *dobrišyj* 'kinder', there are two possible solutions. The first one by Arregi & Nevins (2014) that has been mentioned in Section 3.2. That is, there is an intervening evaluative head that blocks *worse* from being inserted. There would be one adjective *dobryj* 'good' and one adjective *pohanyj* 'bad' in the positive form, each might or might not have the evaluative head in the comparative. That would mean that the comparative forms, both suppletive and regular, have different meanings in Ukrainian. That would yield one reading in the positive form and two readings in the comparative for each adjective.

The second suggestion is Nanosyntactic. It could be that these disuppletive forms belong to the *M-root* type, being of size QP. In that case the structure is exactly as proposed for the adjectives like *čyst-iš-yj*, presented in (20) and (21). That in turn suggests that there are two separate forms for each adjective: (1) the suppletive 'good1' with a pointer and of size C1P, the regular 'good2' without a pointer of size QP; (2) the suppletive 'bad1' with a pointer and of size C1P, the regular 'bad2' one without a pointer of size QP. Each of these forms would need to be associated with a different concept in the positive. That would yield two readings in the positive form and two readings in the comparative for each adjective.





In theory both solutions could work, but in order to decide between the two, I would need to conduct a study involving a number of Ukrainian native speakers. They would choose between the possible readings for *pohanyj* 'bad' and *dobryj* 'good' both in the positive and in the comparative form. The task would be to check whether native speakers have the evaluative reading for the disuppletive forms, whether there are different meanings associated with suppletive and disuppletive forms. This is the next step that I am going to make with respect to the study of Ukrainian comparative adjectives.

4. Conclusion

There are two comparative suffixes in Ukrainian: -iš and -š, and their distribution is regulated not by phonology, but by morphosyntax. I proposed that the suffix -iš is to be decomposed into two morphemes -i and -š, each of which spells out a different syntactic head (C1 and C2). I also discussed suppletive adjectives in Ukrainian and explained why they are compatible only with the -š suffix. At the very end I discussed 'disuppletive' Ukrainian adjectives and suggested two potential solutions.

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