On the Formation of [V+V] Compounds in Turkish

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1.Introduction

Turkish has $[V+V]_N$ compounds which forms nouns such as the following:

(1)   a. yap   +bóz   b. çek   +yát   c. tut   +kál
construct-2nd imp.+destroy-2nd imp   pull2nd imp+lie down-2nd imp   hold-2nd imp +stay-2nd imp
       'jigsawpuzzle'   'sofabed'   'glue'

$[V_+V]_N$ compounds have the following properties:

   a.   Unlike regularly stressed compounds, these forms are stressed on the end of the second item.

   b.   They do not exhibit any overt process of morphological lexicalization.

   c.   Each constituent is an inflected verbal form.

In this study I propose that these particular features are related to each other. In particular, I claim that final stress in such compounds functions as a mechanism to lexicalize them. As a result, I analyze the prosodic structure of these compounds as a compound marker.

I start with the description of regular compound stress and regular word stress suggested for Turkish in the previous literature (Kabak and Vogel (2001) among others) and I show that $[V+V]_N$ compounds differ from regularly stressed compounds, in that they have word stress. In section 3, I discuss the phrase-like properties and formal unity of compounds in general. Hence, I conclude that lexicalization is a scalar process with; phrases on the one end and words on the other. Regular stress bearing compounds (phonological phrases) are closer to phrases since the first component is stressed just as phrases, but word stress bearing compounds (phonological words) are closer to words since such compounds bear final stress. I next discuss the strategies of compound formation in Turkish in section 4. Suffixation is the only compounding marker that has been discussed in connection to Turkish (Göksel&Kerslake; 2005). In section 4.2, I turn to studies in other languages for similar constructions and consider the accounts suggested for such forms in various languages (Bisetto & Scalise 2005; Heath; 1999 and McIntyre; 2006), I suggest an account for Turkish $[V+V]_N$ compounds. In particular, I posit that regular word (final) stress assignment for $[V+V]_N$ compounds functions as a typing mechanism in the lexicalization of these forms. In section 5, I mention other compounds that have Verbs in them such as V+N and N+V types. After showing the similarities of N+V and V+N compounds to the regularly stressed compounds and to the finally stressed compounds, I indicate the source of the derivation at work to mark them as compounds. These support my claim about the scalar nature of the word formation processes. Since I propose that stress assignment functions as a means of

morphological derivation, in section 6, I describe the lexicon that can host such a mechanism. Lastly, in section 7, I summarize the study with remaining points to be discussed in further studies.

2. Stress in Turkish

2.1 Compound stress

In Turkish, the *compound stress rule* says "assign stress on the stressable part of the first constituent" (Kabak & Vogel 2001; Van Schaaik 2002; Orgun & Inkelas 2003; inter alia).

(2) a. aná+yasa   b. hamám böceğ-i
    fundamental+law   bath-insect-LE[1].
    "constitution"   "cockroach"

Kabak & Vogel (2001) argue that such compounds consist of more than one Phonological Word (henceforth PW) at the lowest level as formulized in (3).

(3) [stem]$_{PW}$ +[clitic/stem/copula/converb] $_{PW}$

Each phonological word has a final stress and when more than one phonological word is put together as in the case of compounds, the leftmost one gets the (primary) stress on a higher level which they call "clitic group" (henceforth CG as can be seen in (4) and (5)).

(4) [[   ]$_{PW}$+ [   ] $_{PW}$]$_{CG}$

(5) [[aná]$_{PW}$+[yasa]$_{PW}$]$_{CG}$
    fundamental+law
    "constitution"

Hence, A CG is hierarchically higher than the PW and consists of at least two PWs. This formulation may be considered as the reflection of complex structure of compound forms such as [root+clitic], [roor+root] or [root+copula] (and [root+converb], later on mentioned in Kabak&Vogel forthcoming).

Another term that is posited by Kabak & Vogel (2001) is phonological phrase (henceforth PPh). They argue that PPh is different from CG in that, although both CG and PPh has the stress to the first constituent, a PPh, unlike a CG, has a slightly more prominent stress on the rightmost constituent of it, too[2].

(6) a. Compound stress = CG stress
       Stress the first word in a CG, reduce the prominence of any other stresses.

   b. Phrasal stress
       Stress the first word in a PPh.

Here I should point out that, Kabak&Vogel (2001) do not consider stress assignment as a compounding marker or as a mechanism used for marking compounds. Nor do they include finally stressed [V+V]$_N$ noun compounds in their data. Although the notation in (6a) successfully predicts the stress pattern of the forms such as the ones in (2), neither of the formulations encompasses the [V+V]$_N$ type. If we are to apply the compound stress formulation to [V+V]$_N$ compounds, the resulting

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[1] LE: Linking Element suffixes that are used for compounding purposes in Turkish Göksel&Haznedar (2007)

[2] It is important to note that as stated in Kabak&Vogel (2001); this slight difference between compound stress and phrase stress is not measured acoustically and for a more reliable account, one should make the necessary measurements.

structure is interpreted as coordination of two clauses as can be seen in (7). In some cases such as (7b); when the compound gets the stress to the first constituent, it is not interpreted as a compound but a clause (if there is a nominal homophone of one of the constituent verbs).

(7) a. çek+yát   'sofabed'

   b. [[çék]$_{PW}$[yat]$_{PW}$]$_{CG}$ "Pull and (then) lie down!"
      pull-2nd.impr. + lie down-2ndimpr.

(8) a. kazı+kazán   "scratch-off lottery ticket"
      scratch-2nd.impr.+ win-2ndimpr.

   b. [[kaz-í]$_{PW}$ [kazan]$_{PW}$]$_{CG}$ "Win the goose!"
      Goose-acc.   win-2ndimpr.

As we see in (7a and 8a), clitic group stress rule in (6a) cannot predict the placement of stress, since in a [V+V]$_N$ structure the stress falls on the last constituent no matter how many PWs it is made up of. However, as can be seen in (7b and 8b) we can apply the rule in (6b) and this correctly predicts the behavior of a clausal form that is "stress the first element in a phrase". Therefore, we can say that neither (6a) nor (6b) (as schematized respectively in (9a) and (9b)) is the representative of [V+V]$_N$ compounds in terms of their stress assignment.

(9) a. Phrasal stress   b. Clitic Group stress (compound)
      PPh   *   PPh   *
      [CG   ]   * *   [CG   ]   *
      [PW] [PW]   * *   [PW] [PW]   * *

After having shown that compound stress or phrase stress do not coincide with the stress assignment of [V+V]$_N$ compounds, one can immediately ask if there is any other unit of language that such a stress pattern is relevant. In the next subsection, I talk about word stress assignment in Turkish and I show that the stress pattern of [V+V]$_N$ is identical with stress assignment in words.

2.2 Word Stress in Turkish

        Stress falls on the final vowel of the word no matter how much suffixes are attached (Göksel&Kerslake; 2005, Kabak&Vogel; 2001, Inkelas&Orgun; 2003, among others). The set in (10) illustrates the stress pattern of a regularly stressed Turkish word[3].

(10) a. [év]$_{PW}$ house   "house"
      b. [ev-lér]$_{PW}$ house-pl.   "houses"
      c. [ev-ler-ín]$_{PW}$ house-pl.-2nd.poss.sing   "your houses"
      d. [ev-ler-in-dé]$_{PW}$ house-pl.-2nd.poss.sing-loc.   "(they are) in your houses"
      e. [ev-ler-in-de-kí]$_{PW}$ house-pl.-2nd.poss.sing-loc.-PRON "the one in your houses"
      f. [ev-ler-in-de-ki-lér]$_{PW}$ house-pl.-2nd.poss.sing-loc.-PRON-pl. "the ones in your houses"
      g. [ev-ler-in-de-ki-ler-í]$_{PW}$ house-pl.-2nd.poss.sing-loc.-PRON-pl.-acc. "the ones in your houses"

After this introduction to word stress in Turkish, we can go back to the main discussion, that is, the stress pattern of [V+V]$_N$ compounds and that they exhibit similar properties with word stress.

2.3 Stress pattern of [V+V]$_N$ compounds

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[3] There are exceptions for word final placement of stress in Turkish e.g. in case of place names, loan words or some certain suffixes stress can be non-final. However, this issue is not relevant to our concerns here.

As I have pointed out previously, in [V+V]$_N$ compounds, stress falls on the last vowel of the second constituent. And this is exactly the same case with Turkish word stress. In the case of V+V compounds that bear "irregular" stress the whole list of which is cited below, things are a bit different. These are finally stressed just as the words of Turkish (Orgun & Inkelas 2003).

11. a. bas+konúş
    Push-2nd imp.+talk-2nd imp.
    "push to talk"

    b. çek+ás
    Pull-2nd imp.+hang-2nd imp.
    "laundry hanger"

    c. çek+çék
    Pull-2nd imp.+pull-2nd imp.
    "barrow"

    d. çek+yát
    Pull-2nd imp.+liedown-2nd imp.
    "sofabed"

    e. çevir+áç
    twist-2nd imp.+open-2nd imp.
    "twist-off"

    f. gel+gít
    come-2nd imp.+go-2nd imp.
    "tide"

    g. kaç+góç
    escape-2nd imp.+midrate-2nd imp.
    "purdah"

    h. kap+káç
    catch-2nd imp.+run away-2nd imp.
    "pick pocketing"

    i. kazı+kazán
    scratch-2nd imp.+win-2nd imp.
    "scratch-off lottery"

    j. kullan+át
    use-2nd imp.+throw away-2nd imp.
    "single-use"

    k. seç+ál
    choose-2nd imp.+take-2nd imp.
    "self-service"

    l. tut+kál
    hold-2nd imp.+stand-2nd imp.
    "glue"

    m. yap+bóz
    make-2nd imp.+destroy-2nd imp.
    "jigsaw puzzle"

    n. yap+sát
    make-2nd imp.+sell-2nd imp.
    "constructing and selling buildings"

Whether suffixes are attached to a word in Turkish or not, we know that stress always falls on the last syllable of the word. To make sure that [V+V]$_N$ compounds behave exactly the same with words in Turkish, let us attach suffixes to a [V+V]$_N$ compound in (12) and see if stress is still "word final".

12. a. kap+káç   catch-2nd imp.+run away-2nd imp.   "pick-pocketing"
    b. kap+kaç-çí   catch-2nd imp.+run away-2nd imp.-der.   "snatcher"
    c. kap+kaç-çı-lár   catch-2nd imp.+run away-2nd imp.-der.-pl.   "snatchers"
    d. kap+kaç-çı-lar-í   catch-2nd imp.+run away-2nd imp.-der.pl.-acc.   "the snatchers"

As can be seen in (12) as the suffixes are attached, [V+V]$_N$ compounds receive stress on the rightmost vowel. This indicates that the stress pattern of [V+V]$_N$ compounds does not behave like other types of compounds but it behaves just as words. We already talked about "phrase-like" properties of non-[V+V]$_N$ compounds in terms of their stress assignment. Now that we have seen [V+V]$_N$ compounds are on the opposite end of the scale, closer to "lexical items", the next section will be about other differences between the [V+V]$_N$ forms and other types of compounds. Since one of the most prominent distinctions between these forms is their stress assignment, that is; compounds are stressed like phrases while in [V+V]$_N$ compound stress is assigned to the end of the whole structure, I basically focus on the phrasal and lexical properties of the two kinds.

3. A continuum from phrase to compound

It is known that the internal structure of a compound resembles phrasal structures. They can have head-complement or head-argument relationships. Additionally, forms that are considered regular compounds in many languages are recursive like phrases just as the regular compounds in Turkish. These kinds of recursive compounds that have an argument-head relationship within the constituents are called syntactic compounds, and the ones that are fully lexicalized and those that lose their compositional meaning are called lexical compounds (Spencer;1991). Following from this idea Spencer (1991) indicates that compound formation applies at all levels of representation. This property

has received attention from other researchers as well. Bauer (2001) states that compounds undergo a gradual shift from "coinage to lexicalized word". Therefore, the next step is to understand whether phrases can be added to the other end of this continuum.

In particular, semantic and syntactic properties of compounds distinguish them from phrasal constructions. In terms of their semantics; if the combination of two stems makes up a new lexical entry, then they are considered to be compounds, (a unit independent of its constituents). Additionally, assuming that compounding is a way of word formation and every compound is a lexical item, compounds are expected to be fixed, not allowing any constituent to come in between their constituents. Taking these aspects into account, let us test whether phrasal stress bearing compounds and finally stressed $[V+V]_N$ compounds exhibit different properties.

3.1 Compounds: lexical items or phrases?

We can generally say that a compound is a complex lexical item that contains two or more stems or words in it.[4] The inseparability of a compound has been used to test whether it is a lexical item or a syntactic phrase. The following well-known examples indicate the inseparable (lexicalized) structure of compounds and show that compounds do not behave like phrases.

(13) a. *black-as-coal-bird
    b. *slightly-used-car-salesman

This particular feature of compounds is expected when we think of them as lexical items. Now let us see if we can coordinate compounds that receive phrase stress and those that receive final stress. You can observe the outcome in (14) and (15) respectively.

(14) a. bibér+dolma-sı   b.kabák+dolma-sı   c.biber ve kabak+dolma-sı
         Pepper+filling-LE   courgette+fillinh-LE   pepper and courgette+filling-LE
         "stuffed pepper"   "stuffed courgette"   "stuffed pepper and courgette"

(15) a. çek+ás   b.çek+yát   c. *çek+as ve yat
         Pull-2nd imp.+hang-2nd imp.   Pull-2nd imp.+liedown-2nd imp.   Pull-2nd imp.+hang and lie down-2nd imp.
         "push to talk"   "sofabed"   "(after) you pull (it), hang (it) and lie down"

The grammaticality judgments in (14c) and (15c) indicate that as in (14c) "N+N compounds", when coordinated, do not yield ungrammaticality. Additionally, in certain environments the linking element can drop and the compounds as the ones in (14) can have phrasal features (Hayasi; 1996), whereas coordinated $[V+V]_N$ forms, as can be seen in (15c), cannot form a grammatical structure. Interestingly enough, the only difference between the sets in (14) and (15) is not only their (un)grammaticality but their phonological and morphological properties as well as the syntactic category of the constituents. The compounds in (14) receive stress at the end of the first constituent while in (15) stress falls on the last vowel of the second constituent. The two N+N structures in (14) carry a morphological compound marker {-(s)I(n)} at the end of the second constituent, which is a productively used linking element in Turkish (Göksel&Haznedar; 2007). On the other hand, $[V+V]_N$ compounds in (15) do not carry any affix to type them as compounds. What is more, they exhibit inflectional morphemes as if they are not lexical items (Dede; 1978).

The immediate question to be asked is how it is possible to coordinate a structure (as in (14)) that is considered as a regular compound with its overt compound marker while a syntactically inflected form (3rd person imperative as in (15)) that does not even exhibit any sign for compounding is regarded as a

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[4] For instance, the word "bathroom" (N) is a combination of the words "bath" (N) and "room" (N). One of the earliest description of the notion compound comes from Brown (1864) (as cited in Ball; 1939), "A compound is the one that is composed of two or more simple words as *watchman, watchhouse, watchtower, nevertheless*." (Brown;1864 as cited in Ball; 1939).

lexical item that cannot be broken apart. The answer lies, I claim, in the varying stress patterns of these structures. We have already seen that non-[V+V]$_N$ compounds are stressed like phrases, that is, the last syllable of the first constituent and that [V+V]$_N$ compounds receive word final stress. Although the linking element {-(s)I(n)} in (14) seems to be a uniting mechanism for the constituents, these combinations exhibit phrasal features both phonologically and syntactically (as can be seen in 14). Keeping this in mind, we can conclude that forms such as the ones in (14) are *phonological phrases* whereas [V+V]$_N$ compounds as illustrated in (15) are *phonological words*.

In other words, on the one hand there are *phonological phrases* with an overt compound marker, and on the other hand there are *phonological words* that do not exhibit any affix to mark them as words. How [V+V]$_N$ compounds are marked as words is the next question to be answered. In what follows, I examine the morphological tools to mark a compound in Turkish and then I move on to other languages that exhibit covert morphology for compound formation. Lastly I explain my account for the compounding process of [V+V]$_N$ forms.

4. Compound formation in Turkish

4.1 Overt morphology in compound formation in Turkish

In the literature it is pointed out that compound formation with overt morphemes is a productive process in Turkish (van Schaaik; 2002, Göksel&Haznedar; 2007). It is also observed that the "…majority of compounds belong to the syntactic category of nouns and are made up of two nouns and a linking element [[N+N]+LE]$_N$" (Göksel&Haznedar; 2007). These types of compounds are exemplified in (16). The examples are taken from Göksel&Haznedar (2007):

(16) a. Ánkara armud-u   b. kabák   çekirdeğ-i
        Ankara pear-LE   pumpkin   seed-LE
        '(type of) pear'   'pumpkin seed'

Both of the examples in (16) are formed with linking elements and all of the compounds that have LE to the end of the [N+N] receive stress to stressable syllable of the first constituent. However, there are instances which carry LE and assign stress on the final syllable of the second element such as the following:

(17) a. el-i açík   b. gönl-ü zengín
        hand-LE open   heart-LE rich
        "generous"   "generous"

Levis (1967) named such forms as *başıbozuk* constructions. With respect to their stress assignment they resemble [V+V]$_N$ compounds. However, a closer look can easily reveal that they are just a variety of the constructions such as the ones in (16). The peculiarity with their stress pattern is mentioned in Göksel&Haznedar (2007), "These compounds fall into the same pattern of having stress on the subordinate constituent, but since this constituent is on the right, these can be mistaken as having word stress."

Linking Elements can be variable in form. Some examples are as the following:

(18) a. gün-é bak-an   b. ak-ár su   c. kum-dán kale
        sun-DAT look-LE   flow-LE water   sand-LE castle
        'sun flower'   "river"   "sandcastle"

In this section I showed that using a compound marker to link the constituents is not obtained in [V+V]$_N$ compounds. This indicates that such forms employ a different mechanism other than Linking

Elements and suffixation. The following section is about [V+V]$_N$ compounds in other languages and compounding process of such forms.

4.2 Covert morphology in compound formation – evidence from other languages

[V+V]$_N$ is a rarely found form in natural languages such that, Bisetto & Scalise (2005) call such forms "neglected categories". Being rare, such categories exist in a number of languages. In this section I talk about some accounts put forth for [V+V]$_N$ compounds in Italian (Bisetto & Scalise; 2005), Koyra Chiini (Heath; 1999) and Hausa (McIntyre; 2006).

4.2.1 Bisetto's covert morphology

Bisetto (forthcoming) suggests an account following from Lieber (2004). It is stated that V+N and P+N compounds in Italian (e.g. crepacuore 'heartbreak') are nominalised through a covert nominalization process:

> "Both VNs and PNs are nouns receiving category information
> from a covert nominaliser whose function is that triggering
> the compound formation. VNs and PNs are not, actually
> lexical formations unless a covert nominalization process, specific
> for each type, is hypothesized to have operated." Bisetto (2008)

Although not all of the components are verbs, such compounds expose a syntactic relationship between their constituents such as subordination or coordination. In this sense, they resemble Turkish V+V compounds. Another similarity is that Italian V+N and P+N compounds do not go through any affixation process for compounding.

Lexicalizations mechanisms are language specific. However, the idea of a covert nominalization draws a sample for possible accounts for similar compounds in other languages such as Turkish. However, as for Turkish data, I argue that there is not a covert mechanism for compounding such forms. Going back to the inseparable nature of lexical compounds, I argue that there is an overt "physically" unifying mechanism for Turkish V+V compounds. In the following sub-section we will see that languages like Koyra Chiini and Hausa adopt phonological marking as a nominalization mechanism for [V+V]$_N$ compounds.

4.2.2. Phonology as a means of compound formation: evidence from Koyra Chiini and Hausa

Heath (1999) points out an interestingly similar feature of nominalized verb+verb compounds in Koyra Chiini:

> "Compounds, functioning syntactically as nouns that consist of
> two or more verb stems chained together with no word-internal
> indication of nominalization may be produced more or less spontaneously".
>
> (Heath; 1999)

He explains this "spontaneous" production, in terms of *tone raising* and *tone dropping*. In very general terms, tone raising occurs towards the end of the compound and marks the morphologically non-derived verbal constituents as nouns.

Another account is posited for Hausa V+V compounds. In his dissertation McIntyre lists V+N, V+V type nominal compounds and states that all of these forms either have imperative inflection and/or employ tone dropping (zàri-rùugaa (grab run) "rugby") (McIntyre; 2006). According to the study imperative inflection is not a mechanism adopted soley to mark these forms as compounds. However, it is pointed out that dropping the tone of the first verbal constituent is typical to V+V compounds and he likens this aspect to the stress assignment mechanism of European languages. The verb+verb

combinations without any affixal compounding strategy is the exact description of Turkish $[V+V]_N$. What we can infer from McIntyre (2006) and Heath (1999) is that phonology can be employed in the lexicalization process of compounds. In other words it is possible to think of "final stress assignment" in Turkish $[V+V]_N$ compounds as having a compounding function. In fact, in the next section I claim that word final stress assignment in $[V+V]_N$ compounds has a function to lexicalize such compounds as nouns.

4.2.3 Compound formation in $[V+V]_N$ type compounds in Turkish (overt or covert?)

We have seen in section 2 that $[V+V]_N$ compounds receive word final stress unlike regularly stressed compounds. Additionally I showed in section 4 that $[V+V]_N$ compounds are lexical items while compounds with linking elements exhibit phrasal properties (e.g. phrasal stress, coordination). In the light of the observations cited above I argue that the word final stress pattern of these compounds has a function. In particular, final stress is employed as a compound marker for $[V+V]_N$. Therefore, such structures are not perceived as syntactic structures but as lexical units.

These forms do not bear any linking element. In other words there is a different mechanism at work for typing them as compounds. However, I claim that this is not a covert nominalization mechanism as posited by Bisetto (forthcoming) or a zero morpheme, as final stress assignment is particular to such non-derived V+V compounds. We have also seen that other languages (e.g. Koyra Chiini and Hausa) employ phonology to mark similar constructions. What I argue is that Turkish employs phonology for $[V+V]_N$ compounds with a similar fashion to the above mentioned languages.

Although the starting point is the $[V+V]_N$ compounds, there are V+N and N+V compounds that receive word final stress as well. This might be problematic for the account proposed here. However, in the next section I show that these structures do not conflict with the approach that is suggested in this study. On the contrary that they receive word final stress and exhibit lexical features support my claims on the scalar representation of compounds.

5. Other compounds which have Verbs in them

5.1 Morphologically non-derived [V+N] and [N+V] compounds

There are also V+N and N+V compounds the verbal parts of which do not exhibit any overt derivational element. Since phonology seems to be the only mechanism to be employed to nominalise such clausal forms, based on the account posited here, we expected that they receive word final stress in a similar fashion to V+V compounds. The examples in (19) and (20) are in line with our expectations.

(19)	a. al+bení	b. dön+babá	c. çal+çené
	Take-2nd imp.+me	turn-2nd imp.+father	play-2nd imp.+jaw
	'charm'	'geranium'	'chatty'

(20)	a. al+bas-tí	b. sinek+kay-dí	c. gece+kon-dú
	red+cover-participle	fly+slipped-participle	night+landed-participle
	'Puerperal fever'	'smooth shave'	'slum house'

The set in (19) illustrates V+N combinations the verbal parts of which are imperative and nominal parts are (internal or external) arguments of these verbs. Although they look like an imperative clause they are lexically compounds due to their stress pattern. Similarly, some instances of N+V compounds are listed in (20). This time the verbal parts of these compounds carry a participle suffix. However, the procedure is the same. These clauses are marked as lexical items with word final stress.

After having seen that the forms such as the ones in (19) and (20) receive lexical stress, let us test whether they are separable or not and make sure that phonological typing mechanism applies in every

case. In the examples below you see two instances of coordinated compounds the second components of which are the same ("beni" and "bastı" respectively).

(21) a. *al   ve unutma beni
          Take-2ndimp. and forget+not-2ndimp. me
          "take me and don't forget me"   (intentional reading: "charm and forget-me-not")

    b. *dal ve kül+bas-tı
        branch and ash+cover-participle   (intentional reading: "cherry and steak")

These examples widen the scope of the account posited here. In addition to V+V compounds final stress bearing V+N compounds can be accounted for with this approach. I find it necessary to apply another test to make sure that final stress assignment is identical to the stress pattern in V+V compounds. In (22) the [N+V]_N compounds and the verbal constituent, though inflected, do not bear any compound marker. Likewise, the compound receives final stress as seen in (22a). (22b) and (22c) indicates that no matter how many suffixes are added, stress falls on the last syllable of the second element keeping the lexical stress constant.

(22) a. gece+kondú   b.gece+kondu-lár   c.gece+kondu-lar-ín
       night-landed   night-landed-pl.   night-landed-pl.-3rd. pl. poss.
       "slum house"   "slum houses"   "slum houses' "

In line with the examples above we can revise our account in that, in Turkish "word final stress" is adopted as a compound marker for V+V, V+N and N+V compounds the verbal constituents of which do not bear any derivational morpheme for the same typing function.

There is another type of compounding in Turkish that is relevant to the concerns of this paper. This type can be grouped under the heading of morphologically derived V+N and N+V compounds since such compounds exhibit nominalised verbal constituents. Following from the idea that compounds that do not bear any lexicalization receive final stress as a compound marker, derived V+N and N+V compounds are supposed to adopt phrasal stress, since there is no need for another mechanism to type them as compounds. The following sub-section is about the nominalization mechanisms, lexical and phrasal properties and stress assignment of such derived compounds.

5.2 Morphologically derived V+N, N+V compounds

Nominalised V+N compounds are illustrated as the following:

(23) a. uç-**án** daire   b. yaz-**ár**+kasa   c. çık-**máz** sokak
         fly-der. circle   write-der.+register   go out-der. Street
          "UFO"   "cash register"   "dead end"

Three different derivational morphemes are employed in (23a), (23b) and (23c). These are {-(y)An}, {-(A)r} and {-mAz} respectively. (23) exemplifies V-der+N compounds. Due to the derivational morpheme the verbal parts of the compounds above do not carry their syntactic properties anymore although the components retain the syntactic head argument relationship. As mentioned previously, if a V+V, V+N or N+V compound exhibits derivational marking that lexicalizes the verb in it then word final stress assignment is assumed not to be employed for compounding purposes. (23) is in line with the argumentation since the compounds in (23) receive stress at the end of the first component.

So far all the instances have corresponded to the compound marking function of word final stress assignment. In other words, the compounds that bear derivation or LE receive phrasal stress whereas the V+V, V+N and N+V compounds that do not bear compound marking are finally stressed. There is another set of data that seem to be in conflict with the assumptions suggested in this study. As can be seen in (24), N+V-der. are finally stressed. This indicates that they are phonologically marked as compounds. However, as stated above, whenever the verbal component of the compound is

nominalised through suffixation, there is no need for another mechanism to carry out the compounding function. Compounds in (24) are problematic for our assumptions in this sense.

(24) a. gün-e+bak-**án**   b. bilgi+say-**ár**   c. hacı+yat-**máz**
     day-dative+ look-der.   info. +count-der.   pilgrim+lie down-der.
     "sunflower"   "computer"   "tumbler"

At this point I want to point out other functions of the derivational suffixes in (24a), (24b) and (24c). All of these forms have functions other than deriving adjectives and nouns. {-(y)An} is employed as a participle. {-(A)r} and {-mAz}, on the other hand, are the 3rd person singular affirmative and negative aorist markers respectively. This indicates that these suffixes are either derivational suffixes, or inflectional forms or both. (23) implies that they can be used as derivational suffixes and final stress in (24) suggest that they are considered as syntactic inflections. There is another alternative that these suffixes may not have a derivational function. In this case, the account claimed here would not be a sufficient one. If it is not possible to decide on which function these suffixes are used in compounds, we can refer to single stems suffixed with these forms and check if they allow any nominal inflection. As can be seen in (25), the verbal stems are affixed with these morphemes.

 (25) a. Her yaz-**ar** -ı   sev-er[5].
         every writer-der.-acc. love-3rdsingl.aorist
         "S/he likes every author."

     b. Taşın-**maz**-lar-ın   liste-si-ni   yap-maz.
       estate-der. -plr.-poss.   List-poss.-acc. make-3rdsingl.neg.aor.
     "S/he does not make a list of the estates."

In (25a) the verbal form with the aorist is inflected with accusative marker which is typical to nouns. This indicates that in this example the suffix in bold has a derivational function. Similarly, (25b) is an example to the derivational use of the negative aorist. In this case it bears number inflection.

Nevertheless, the problem with the inconsistent stress pattern of the compounds in (24) has not been solved, yet. But we know that the above mentioned morphemes can function both as a derivational suffix and as an inflectional one. Additionally, we should keep in mind that lexicalization of compounds is observed to be a scalar process, and phrase stress bearing compounds are closer to phrases whereas word stress bearing compounds are closer to words in Turkish. Considering this information we can conclude that the two set in (23) and (24) are different realizations of these morphemes. In (23) they function as derivational morphemes, so the final stress assignment is not employed. Whereas, in (24) the stress assignment indicates that these suffixes are realized as inflectional. Hence, non-existence of linking element results in employing word (final) stress assignment for compounding.

Let us assume that there are two different realizations of these morphemes, resulting in different stress patterns. Is the stress pattern of these compounds random or does it have a criteria for that? What I claim is that the linear organization of the components in the V+N and N+V compounds that carry {-(y)An}, {-(A)r} and {-mAz} is related to the varying functions of these suffixes and so the stress assignment. To illustrate, let us first look at the (23b) and (24b) repeated in (26) and (27) respectively.

(26)   [yaz-**ár**+kasa]$_N$ (27)   [bilgi+say-**ár**]$_N$
        write-der.+register   info. +count-aorist.
        "cash register"   "computer"

In (26) the adjectival "yaz-ar" 'writer' is derived from the verb "yaz-" 'write', and it is the first component of the compound. In (27) the verbal form "say-ar" is the second constituent of the

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[5] Note that the morphemes that are attached to the main verb are aorist markers. (e.g. "sev-**er**" and "yap-**maz**")

compound. Turkish is a verb final language that is, the verb comes last, just as the example in (27). So the ordering of the structure is almost identical with the clausal counterpart. The only difference is that the compound receives final stress. Just as the V+V compounds resemble coordinated clauses, N+V-der. compounds resemble declaratives in Turkish. Therefore, as expected, compound marking is done through word final stress assignment. As for the compound in (26), we need to remember a property of Turkish adjectival phrases: "attributive adjectives precede the nouns that they modify". Distribution of the {-(A)r} marked verb is where attributive adjectives are typically found in Turkish APs (preceding the noun). This distributional property makes the compound very similar to an adjectival phrase. In this line of reasoning, the phrasal stress observed in V-der+N compounds seems legitimate. We can infer from this information that a compound that is distributionally similar to a clause receives final stress in order to mark it as a compound.

6. The Lexicon

This paper argues that word final stress assignment has a morphological function. This function is compound formation. In other words, final stress assignment is employed for deriving new lexical items. Given that a lexical item is listed in the lexicon, I find it necessary to describe the lexicon that can host such a mechanism. In very simple terms lexicon is the component in the grammar, which is a list of lexical entries. It is like a mental dictionary that contains phonological, morphological, semantic and syntactic information of its entries. However, there are controversial ideas about the description of the lexicon. On the one hand some researchers claim that any predictable property of a lexeme is not included in the lexicon. On the other hand, some researches suggested that there is a complex lexicon that both contains the list of verbs and the word formation component (Jackendoff; 1975). Turkish is a highly agglutinative language displaying rich morphological operations. Adopting a complex lexicon consisting of rich morphological operations and a list of non-derived lexical entries does not seem economical for an agglutinative language such as Turkish. On the contrary, an approach that assumes a simple lexicon without any phonologically, syntactically or morphologically predictable properties results in a more simplistic and thus economical notion of a lexicon. For such an approach, the lexicon is simply a list of morphemes, where all the regularities are excluded. With the same line of reasoning, Spencer (1991) introduces two notions, "the permanent lexicon" and "the potential lexicon". Accordingly, in the permanent lexicon there is a list of morphemes that are unproductively produced and the potential lexicon consists of productively formed potential words. So far we have observed that stress pattern of [V+V]$_N$, V+N and N+V type compounds is predictable and has certain characteristics (applying to compounds the verbal parts of which are not nominalized). This kind of a typing mechanism seems regular. Following from Spencer (1991), I would rather say that word stress assignment with compounding functions belongs to the lexicon and produces new lexical items to be listed in the potential lexicon.

7. Conclusion

This study examined the compounding process of morphologically non-nominalized [V+V]$_N$ compounds and suggested that marking [V+V]$_N$ as new lexical items is done through word final stress assignment, in that word (final) stress assignment has a compound marking function. It is further suggested that as well as [V+V]$_N$ compounds, V+N and N+V compounds make use of word final stress assignment as a compound marking mechanism as long as the verbal components of which do not exhibit any derivational suffixes. Finally, taking the rich morphology of Turkish and predictable nature of word final stress as a compounding mechanism into account, I described the lexicon that would best suit for such a mechanism. I suggested that having a simple lexicon and a complex computation is a more economical approach for an agglutinative language such as Turkish. Accordingly, I suggested that predictable word final stress assignment is listed in the lexicon functioning as a typing mechanism for [V+V]$_N$, N+V and V+N compounds. For future studies, one

can search for the reason why these forms are inflected only in past and imperative forms as well as a diachronic analysis of the productiveness of such a mechanism. Moreover, it would be insightful to look at the internal semantic and syntactic relationships of the nouns in N+V and V+N compounds and as well as the headedness properties.

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