Roots and Categories

Hagit Borer
USC

1. Introduction

1.1. A general outline of the system

1. There is only one computational component, call it Syntax, which is responsible for hierarchy forming and constituent manipulation operations in the grammar. These include such operations when they are associated with word-internal structure (and specifically, for our purposes, operations which create complex word derivatives such as *trans-form-ation-al* or *kitchen towel rack* (i.e., operations of so called derivational morphology).

2. A substantive *Word*, as conventionally conceived, is a syntactic constituent which (happens) to correspond to a phonological unit of a given size (e.g., for the assignment of primary stress). While it is likely that there are some universal constraints on what syntactic constituents can correspond to such phonological units, beyond that, the mapping is language specific, and syntactic constituents of equal complexity may or may not be phonological-stress units. Crucially, then, substantive *Word*s are not syntactic primitives or atomic in any meaningful sense.

3. Roots (*listemes*, in Borer (2005a,b) do not have any internal grammatical structure, and are devoid of any syntactic value:
    a. No category
    b. No morphological marking
    c. **No argument structure (either external or internal).**

4. Roots need not correspond to well-formed phonological words.

5. Grammatical Functors (both F_L and F_F) are members of the Functor Lexicon (=vocabulary items in DM).
    a. F_F : a grammatical functor that projects and licenses a functional node: *the*$_D$, *three*$_\#$, *will*$_T$, $<pst>_T$, $<pl>_{DIV}$ etc.)
    b. F_LS: a grammatical functor that projects a lexical node: *-al*$_A$, *-ation*$_N$, *-ize*$_V$, *-ly*$_{Adv}$, *on*$_P$

6. English derivational suffixes, instances of F_L, merge syntactically with their semantic (functorial) and syntactic properties. At times, such a bundle of syntactic and functorial properties defines a unique affix in a language, e.g., English –{i/*a*}*ble*, with the result that whether or not it is inserted with a phonological index or not is immaterial. At other times, such a bundle defines a set of morphemic allomorphs (e.g. deverbal nominals of the {–*ation* class}: *-ation/-ion, -ment, -ance/ence, -al*).

7. Extended Projections must have an L core (definitionally).

8. Roots merge as phonological indices. Phonological indices are exactly specific enough to ensure phonological faithfulness in the syntactic derivation, thereby excluding the derivation of *show* from *see* or an event-denoting noun such as *lesson* from some abstract non-existing verbal entry. A complete phonological matrix for a root is inserted on the basis of the index in the syntactic context created by the derivation.

9. ***Roots merge with functors (F_L or F_F), and are categorized contextually by their merger environment. Consequently, bare roots, without a category label, are not a syntactic option.***

10. ***English does not have (productive) $\varnothing$-F_Ls (zero n, v, a etc. as categorizers[1]).***

11. ***Roots merge without meaning.***
    b. ***All non-compositional substantive meaning (henceforth Meaning), including that of roots, is assigned by a single component, henceforth the <u>encyclopedia</u>.***
    c. ***The encyclopedia searches (en-searches) post-syntactic bracketed phonological representations and returns Meaning.***
    d. ***En-searches are cyclic and local: F_F brackets delimit en-searching (caveat: DIV may be, simultaneously, an instance of both F_L and F_F, as may some aspectual heads).***

1.2. Some entailments and consequences

12. a. If root meaning is only available on the basis of phonological representations, it follows that it is syntactically inactive (including in Logical Form). It further follows that roots cannot have internal arguments (i.e. (3c)follows from (11)).
    b. Silent copies are not assigned encyclopedic meaning. It therefore follows that for any one given derivation, non-compositional derivatives need not be ambiguous.
    c. Identical syntactic derivations with distinct, multiple phonological spellout possibilities for F_L vocabulary items may result in Meaning differences.
    d. All grammatically active material must be encoded either structurally or through the properties of functional vocabulary
    e. Non-local non-compositional Meaning assignment (e.g. phrasal idioms) requires multiple, possibly templatically-linked *en-searches*.

1.3. In this workshop:

13. **What I will mostly talk about:**
    a. Arguments for post-syntactic non-compositional substantive meaning assignment
    b. Arguments for the sensitivity of non-compositional meaning to phonological representation
    c. Arguments that en-searches are stopped by F_L brackets.

14. **What else is in this Handout:**
    a. Evidence that Roots must be inserted with a phonological index.
    b. Arguments for contextual categorization and against zero F_L

2. One simple argument for (some) early root phonology (cf. Borer 2003)

15. a.   √EAT]   → */eat/*
    b. [$_v$ *CAUSE*   √EAT]   → */feed/*

16. AS-nominals (Grimshaw's 1990 Complex Event Nominals) are nominalizations of a verbal structure (Hazout, 1991, 1995; Borer 1993, 1999, 2003; Engelhardt, 2000; Alexiadou, 2007; Harley 2006; Sichel 2007 among others, differing executions immaterial here.)

17. There are no AS-nominals in English (Hebrew, Greek) whose head is not morphologically (transparently) derived from a verb (or adjective).[2]

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[1] To be distinguished from, e.g. *v* as an event-structure node, which the present claim is silent about.
[2] With English *aggression* being an exception that clearly proves the rule.

18. But if roots do not contain at least some phonological information, AS-nominals without a verbal source cannot be excluded.

19. a. The lesson lasted several hours
    b. The lesson took place from 7am to 8am

20. a. *the lesson of geometry by an incompetent teacher
    b. *the lesson of geometry for several hours
    c. *the lesson of geometry in order to understand the most recent proof

21. a. ha-šinui   šel merkaz ha-'ir   'al yedey ha-'iriya
       the-transformation/change   of center   the-city   by the-city administration
    b. ha-šinuy   haya madhim
       the-change/transformation was amazing

22. a. *ha-transformacia   šel   merkaz ha-'ir   'al yedey ha-'iriya
        the-transformation   of   center the-city   by   the-city administration
    b. ha-transformacia   hayta madhima
       the-transformation   was   amazing

23. All and only phonology that impacts the derivation (see Acquaviva 2008 for a relevant discussion).[3]

3.   Constraints on non-compositional meaning assignment

3.1. Some general considerations:

24. a. The conceptual issue –
       i. Restricting the search
       ii. Avoiding a redundant search
    b. The empirical issue: is there a demonstrable *en-searchable* domain?

25. a. A domain too big: idiomatic meaning is sometimes discontinuous and may involve multi-clausal structure:

       SUBJ$_4$ (aux) *cross*(TENSE) DEM (A) *bridge$_3$*(PL) *when pron$_4$* (ADV) *come*(TENSE) *to pron$_3$*

       Unless the domain of *en-searches* is delimited, even if [[AB]C]D] is compositional, it cannot dismissed from short term memory because [[[[[AB]C]D]..]..]Z]   might have a non-compositional meaning.
    b. A domain very small: AS-nominals are always compositional (Alexiadou, 2007, based on Marantz 2001).

26. a. *the linguist's transformation of the structure (but try *the field*)
       (cannot mean *the linguist having performed a grammatical transformation on the structure*)
    b. *The patient's transference of his feelings (but try *his files*)

3.2. The Marantz-Arad approach

27. "Locality constraints on the interpretation of roots: roots are assigned an interpretation in the environment of the first category-assigning head with which they are merged. Once this interpretation

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[3] The logical conclusion is that suppletive pairs such as *go/went* constitute two, rather than one, roots with phonological gaps.

is assigned, it is carried along throughout the derivation" (Arad 2003, based on Marantz 2000, 2001).

→note conceptual affinity with Lexical Phonology and Morphology where meaning changes are restricted to level I affixation, which, by definition, is 'inside' level II affixation which cannot change meaning).

28. a. A root inventory with basic meaning
     b. A mechanism allowing the assignment of non-compositional meaning in a restricted syntactic environment (for Arad, op. cit: at categorizing, possibly defining a phase).

29. Pairs such as *transmission* (the act of transmitting) vs. *transmission* (car gear), have distinct structures (cf. Embick and Marantz 2008):

   a. $[[[\sqrt{transmit}] \varnothing_v]\text{-}tion_n]$ b. $[[\sqrt{transmit}]\text{-}tion_n]$

3.2.1. Some general queries:

30. What is the status, in this system, of the 'basic meaning of roots'?
     a. If they do have a basic meaning, is it reanalyzed when the root+category combination is assigned a distinct meaning (e.g., *transmission*)?
     b. If they don't have a basic meaning altogether, what does it mean to claim that roots take internal arguments?

31. Whenever F_L attaches to an uncategorized root, it only does so providing in some (parallel) derivation that root is categorized as a specific category type, and with a zero F_L. (e.g., whenever *–tion* attaches to a root to give rise to a 'non-compositional' meaning, it can also attach to that same root, providing it has been verbalized with a $\varnothing$-F_L). That is a rather curious coincidence.

3.2.2. Empirical problems

32. Arad's (2003) evidence: Hebrew verbs derived from roots may have idiosyncratic meanings. Denominal verbs have predictable meanings.

33. a. Root: *X.Š.B* (roughly cognitive process) → [N *xešbon*] → [V *hitxašben*]
                                             'arithmetic'   'settle accounts'
                                             'account'   'retaliate'
                                             'calculus'   (Arad, op cit), .
         → But Hebrew *xešbon* 'account', does not have the 'settle account/retaliate' reading (e.g. with any light verb)! This may be literally translated from the English idiom, rather than derived from the Hebrew noun.[4]
     b. Underived noun: [N *bayit*]   →   [V *biyet*]
                            'house'[5] →   'domesticate'
         → but also: [V *hitbayet*]
                            'focus in on something'
         Again may be a literal translation from English 'home in on', but the noun bayit 'house' is impossible in that meaning context (e.g., no 'homing pigeons'-type of expression).

34. [[V trans[form]]-ation]
     [N [N [V re[act]] tion] ary]]
     [N [A [glob] al] ize]-ation]

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[4] ose (li/iti) xešbon(ot), lit. 'makes (to me/with me) account' means 'keep record of wrongdoings', not 'retaliate'
[5] See Bat El (1994) inter alia for extensive argumentation that *bayit* 'house' is not derived from a root.

$[_N[_V[_A[_N natur]al]iz]ation]$ (H. Harley, p.c.)
$[_N [_V [organ] ize] ation]$
$[_N[_A[act] ive] ism/ist]$
$[_N[_N[_V protect]ion]ism]$
$[_N[_A[_A[_V exist]ent]ial]ism]$
$[_A[_A[_V differ]ent]ial]$ (math)
$[_N[_A[_N fest]iv]al]$
$[_A[_N[_V except]ion]al]$ (excellent), $[un[_A[_N[_V except]ion]al]]$ (ordinary)
$[un-[_A[_{(N)}Americ]an]]$

3.3. An Alternative

35. **One list, one access point**
    a. No initial assignment of root meaning
    b. No meaning adjustments at any syntactic intermediate point
    c. An encyclopedia that matches Meaning with Sound (=phonological representations) in a restricted domain (see also Marantz, 1996). Within that domain, the arbitrariness of meaning assigned to, e.g., *form* or *pie* is no different from that assigned to *reactionary* or to *last judgment* and *fellow traveler.*

36. **What domain? A clue from derived nominals:**
    Both R-nominals and AS-nominals are derived from verbs (Borer, 1999, 2003; Alexiadou, 2007) through incorporation. In both cases, the incorporation creates string adjacency between V and its nominalizer:

    a. R-nominals: [N   [verb]   N $[_{L=V}$ verb   ]
    b. AS-nominals: [N   [verb]   N $[_{FF1}$.. $[_{FF2}$... $[_{L=V}$ verb]]]

37. a. $[[form_{L=V}] -ation_N]$ a possible single phonological word; possibly non-compositional
    b. $[[[[form_{L=V}]_{FF2}]_{FF1}] -ation_N]$ a possible single phonological word; must be compositional

38. A locality constraint on en-searches:
    a. *En-searches* match Meaning with sound cyclically, using L as an anchor and operating on bracketed strings.
    b. F_F stops *en-searches* (differently put, encyclopedic entries may not contain $F_{F.}$)

39. Some consequences and elucidations:
    a. Reanalysis of root meaning is never necessary
    b. As silent copies are not *en-searchable*; if an en-searchable domain was formed by movement (e.g. incorporation), there is no reconstruction and compositional meaning is *not* formed alongside a compositional one for any single derivation.
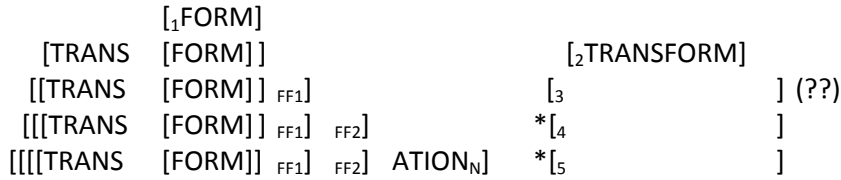
40. $[_1 ACT]$.
             [RE [ACT]   ] $[_2$ REACT]
          [[RE [ACT]   ] TION   ] $[_3$ REACTION]
       [[[RE [ACT]   ] TION] ARY]; $[_4$ REACTIONARY]

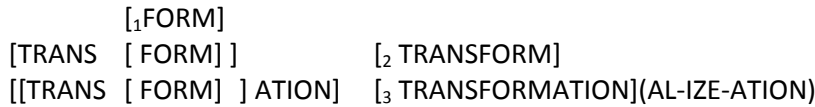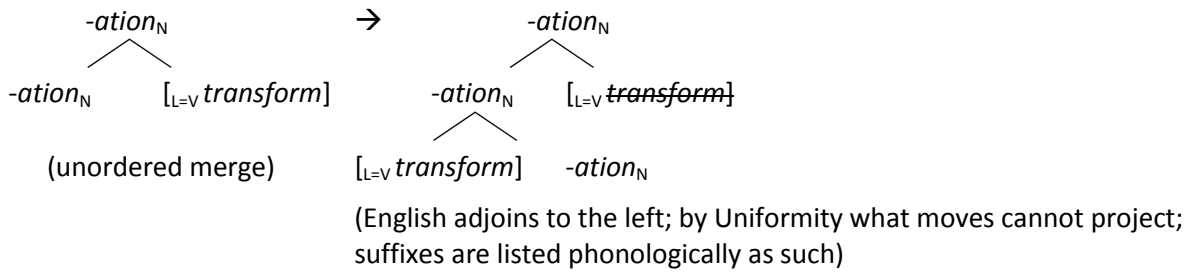   (Single) en-searchable domains: $[_1 ACT]$, $[_2$ REACT], $[_3$ REACTION], $[_4$ REACTIONARY]
    Compositional readings: all single en-searchable domains *plus* the inherent meaning of any F_L within a given cycle.

41. *The linguist's transformation of the structure*

              [$_1$FORM]
    [TRANS   [FORM]]   [$_2$TRANSFORM]
    [[TRANS   [FORM]]$_{FF1}$]   [$_3$] (??)
    [[[TRANS   [FORM]]$_{FF1}$ $_{FF2}$]   *[$_4$]
    [[[[TRANS   [FORM]]$_{FF1}$ $_{FF2}$] ATION$_N$]   *[$_5$]

42. *A successful grammatical transformation*

        -ation$_N$ →   -ation$_N$

  -ation$_N$ [$_{L=V}$ transform]   -ation$_N$ [$_{L=V}$ ~~transform~~]

    (unordered merge)   [$_{L=V}$ transform]   -ation$_N$

                      (English adjoins to the left; by Uniformity what moves cannot project; suffixes are listed phonologically as such)

         [$_1$FORM]
  [TRANS [FORM]]   [$_2$ TRANSFORM]
  [[TRANS [FORM]] ATION]   [$_3$ TRANSFORMATION](AL-IZE-ATION)

43. a. Only non-compositional constructs in Hebrew are systematically consistent with the grammatical properties of incorporated structures
    b. Only non-compositional constructs can head another construct (i.e., create a left branching structure).

    Non-compositional Meaning requires incorporation thereby creating an en-searchable domain (cf. Borer, 2008)

44. [*beyt-sefer*] sade;   [*begged-yam*] meši;   [*yošev-roš*] mo'aca   [yom huledet] šlošim[6]
  house book field   suit   sea   silk   sitter head council   day   birth   thirty
  'field school'   'silk bathing suit'   'council chairman'   '30th birthday'

45. *[*beyt 'ec*]   sade;   *[*xulcat (ha-)mora*]   meši;
  house wood field   blouse (the-)teacher silk
  (field wooden house)   (silken teacher's blouse)

46. A very simplified structures for construct and compounds in Hebrew:

    a. [$_{DP}$ [$_{\#P}$ *beyt* [$_{FF}$ [$_{DP}$ *mora*] ~~beyt~~   [$_{DivP}$ ~~beyt~~ [$_{NP}$ ~~beyt~~]   'a teacher's house'
             house   teacher

    b. [$_{DP}$ [$_{\#P}$ *beyt*   [$_{FF}$ [$_{NP}$ *'ec*] ~~beyt~~ [$_{DivP}$ ~~beyt~~   [$_{NP}$ ~~beyt~~]   'a wood house
             house   wood

47. [$_{DP}$ [$_{\#P}$ [$_N$*beyt* [$_N$sefer]]   [$_{FF}$ [$_{NP}$ ~~sefer~~] [$_{DivP}$ ~~beyt~~ [$_{NP}$ ~~beyt~~] (right adjunction)   'school'
    house book   book

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[6] Cf. *šnat alpayim* 'year 2000', where the feminine form *šana* 'year' takes a construct form, for evidence that numerical of this sort require a construct formation.

48. And note, as well: *begged*, 'suit' 'clothing item' is already categorized (as N, by the vowel combination); *yošev*, a participle, 'sitter', is already categorized. Yet they give rise, in compounding, to non-compositional meaning, in turn associated with a single N dominating constituent.

3.4. Evidence or phonological representations feeding the encyclopedia

49. a. The selective **transmission of historical documents**
    b. scanning and **transmittal of documents** or parts of **documents** (US Patent office publication)
    c. A camera system for processing documents for measurement of reflectance and/or **transmittance of documents**

50. a. **Deferment** of student loans
    b. The department shall grant a **deferral of** interest and principal payments

51. a. Several groups … monitor the sale and **transportation of seed**
    b. "The **transportal of seeds** in the wool or fur of quadrupeds." –a C. Darwin article

52. a. the slight **transference of** red pigments from the skins
    b. "**Transferral** of bread "sponge" from dough mixer to trough prior to fermentation"

53. a. public transportation
    b. *public transportal

54. a. the car's transmission
    b. *the car's transmittal
    c. *the car's transmittance

55. a. "Understanding transference and counter transference"
    b. *Understanding transferral and counter transferral

4. Some consequences and some open issues:

56. Plural marking, if head of a count phrase (*classifier; Div*P) is not separated from L with an F_F bracket, and hence may be included in en-searches. Thus [pl[N]] combination may return a non-compositional meaning while still being plural.[7]
    a *pluralia tantum*: *scissors, glasses, trousers, pants, news* etc. (typologically very common)
    b. compounds with plurals including non-compositional (in English mostly with irregular plural but not so in, e.g., Hebrew and Arabic both of which also have *pluralia tantum*)

57. Phrasal idioms cannot be the output of a single en-search. Speculatively, the encyclopedic entry for *cross* will activate a lookahead en-search for *bridge*, the entry for *bridge* will activate a lookahead en-search etc. (and see Harley and Noyer, 2000 for an explicit suggestion along somewhat similar lines). Likewise, *coat of arms, kick the bucket* and similar cases must involve multi en-searches

58. a. I hammered the nail in with my sandal (derived from root, hence flexible)
    b. I painted the wall with lacquer

59. a. *I taped the picture with pushpins (derived from word, and hence rigid)
    b. *I lacquered the wall with paint
        (argument in Arad, 2003, based on Kiparsky 1997)

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[7] Possibly also some aspectual markers (e.g. Slavic perfective prefixes), which may contribute to the formation of non-compositional meaning without losing their grammatical function.

60. a. Lola taped the poster to the wall with band aids/mailing labels
     b. screw the fixture on the wall with nails Kiparsky, 1982) – ok if nails are twisted to affix the fixture (Harley and Haugen, 2007)

61. Bento boxes of the week: Lacquered with bitter persimmon juice   (Google search)

62. a. I taped the picture with a ??(duct) tape
     b. I hammered in the nails with a ??(big) hammer (Harley and Haugen, 2007)

5.   Synthetic Compounds

5.1. The Conundrums

63. a. If compounds are en-searchable and may return a non-compositional meaning, they cannot (*when* non-compositional, at the very least) be derived from structures containing F$_F$.
     b. Synthetic compounds (or things that look an awful lot like them) most certainly can be non-compositional: *crystal-gazing, card carrying, line producing; globe trotting, sharp shooting, head hunting, face lifting, shop lifting, sleep walking, home making, war mongering*
     c. A conundrum for some models (Borer, 1999, 2003, 2005; Alexiadou 2007, Sichel, 2007): if internal arguments come from event structure, then the(apparent) internal argument in synthetic compounds must come from functional event structure. But synthetic compounds do not have an event interpretation (cf. 63(64)-(65)). So where does the internal argument interpretation come from?
     d. A conundrum for the present proposal – if internal arguments come from functional event structure, how can synthetic compounds have a non-compositional meaning?
     e. Another conundrum for some models (Marantz, 1997; Alexiadou, 2007): if *–ing*, in derived nominals, triggers the projection of some particular functional structure (*v*, for Marantz; VoiceP for Alexiadou) which effectively forces *–ing* nominals to be AS-nominals and excludes them as R-nominals, how are synthetic compounds with *–ing* but without an event reading possible?
     f. Suppose internal arguments are properties of roots, and not of structure (Marantz, 1997, Harley, 2006, 2008). A number of prima facie conundrum nevertheless arises: first, if roots have an internal argument (in which case, note, they do have meaning), where does it disappear to in R-nominals?   And wouldn't having an argument mean, effectively, that the root is a verb? (cf. Acquaviva, 2008). Second, derived verbs have internal arguments (e.g. *verbalize*), which could hardly come from the root. But if internal arguments are licensed structurally for *verbalize*, why can't they be licensed structurally across the board without root-related information?

64. a. The breaking of the door by Mary in seven minutes in order to collect the insurance
     b. (I watched) the door breaking (*by Mary) (*in seven minutes) (*in order to collect the insurance)

65. The breaker of the door (*in seven minutes) (*in order to collect the insurance)

5.2. Harely (2008)

66. Synthetic compounds are the result of the incorporation of a complement into an a-categorial root head, with subsequent categorization applying to the result of the incorporation:
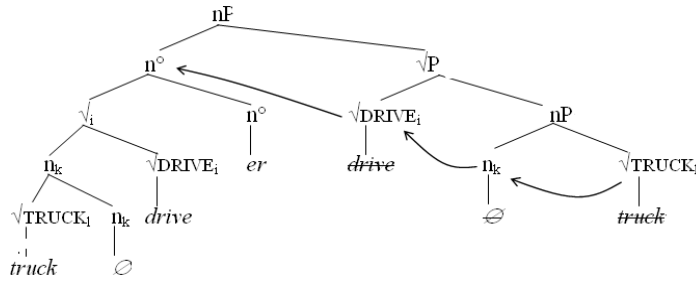
truck driver; truck driving (different *n* types for *–er* and *–ing*)

67. Assumptions:
    a. roots are listed with complements (also possible: [$_{\sqrt P}$√act fast]) for *fast acting*
    b. complements are always realized prior to categorization of the root
    c. the root incorporates into the categorial node (*n, v*)

68. But derived verbs give rise to synthetic compounds. It therefore follows that synthetic compounds cannot be derived (just) from a root plus its complement.

69. Alas, it is exactly the internal argument that *cannot* form a synthetic compound with the verb *unless* the verb has its transitive meaning:
    a. *ship sinking* – transitive reading only
    b. *tomato growing* – transitive reading only (and compare with *tomato growth*)
    c. **tree falling*
    d. **train arriving* (and compare with *train arrival*)

5.3. Back to Basics: The First Sister Principle?

70. a. truck driver   truck driving   man driven
    b. letter writer   letter writing   secretary written
    c. bread eater   bread eating   moth eaten

71. a. fast acting; strong smelling; happy looking
    b. quick-fried, slow-roasted
    c. pan frying; church going

72. a. *chef maker/making (of cakes); *man driver/driving (of trucks)
    b. *cake baked; *letter written; *church gone

73. **First Sister Principle (Roeper and Siegel, 1978):**
    All verbal compounds are formed by incorporation of a word in first sister position of the verb (presupposed demotion of the external argument and promotion of the internal argument in passive)8

74. a. vacuum cleaner; breech loader; line producer;
    b. *fast actor; *strong smeller; *beautifully dancer; *quick fryer
    c. *beautiful dancing; vs.   quick frying;
    d. home-made by hand; sun-baked (too) quickly by us; fire-brewed by boy scouts
    e. mountain-grown; garden-tested; field-harvested; night stalker
    f. pan fried/pan frying; oven roasted/oven roasting; mountain growing; garden testing; field harvesting; sun baking; fire brewing

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8 The proposal has a number of execution problems if we try to adapt it to present day accounts, e.g., the fact that in *pan frying* pan is an adjunct and not a complement. We set these aside, however, for the sake of streamlining the discussion.

75. a. war mongering   war mongerer   *to monger war
    b. baby sitting   baby sitter   *to sit baby
    c. breech loading (weapon)   breech loader   *to load breech
    d. home making   home maker   *to make home
    e. line producing   line producer   *to produce (a) line
    f. sharp shooting   sharp shooter   ??to shoot sharply
    g. crystal gazing   crystal gazer   *to gaze (into) a crystal
    h. church going   church goer   *to go church
    i. shop lifting   shop lifter   *to lift shop

76. a. *orex din*   *arixat din*   *arax sefer/##din*
       editor law   editing law $[_V$edited] book/##law
       'lawyer'   'lawyering'

       šomer saf   *šmirat saf*   *šamar bayit/##saf*
       guard threshold   guarding threshold $[_V$guarded] house/##threshold
       'gate keeper'   'gate keeping'

77. a. *-ing* and *–er* synthetic compounds exclude an understood actor interpretation for the non-head
    b. *-en* compounds synthetic compounds exclude an understood undergoer interpretation for the non-head
    c. Any other interpretation of the non-head appears licit if sufficiently contextualized.

5.4. Proposal: it is all in the affixes[9]

78. a. *–er*, a F_L, <u>means</u> an *originator/instrument*.
    b. *man driver (with man as *originator*) → two originators in the same expression. Only possible if one of them modifies the other (e.g., a driver who is a man).

79. a. *-ing* a F_F, <u>means</u> *an activity with an incorporated originator* (*activity+er*)
    b. *man driving (with man as *originator*) → two originators in the same expression. Only possible if one of the modifies the other (driving by a man(ly) agent).

6.   *-ing*

6.1. More evidence that synthetic *–ing* compounds do not derive from *–ing* AS-nominals

80. a. *the mongering of war
    b. *the sitting of (a) baby
    c. *the loading of breech
    d. *the lifting of faces
    e. *the making of (a) home
    f. *the producing of (a) line
    g. *the sharp shooting (of the target)
    h. *the gazing of crystal (compositional only)
    i. *to going of church

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[9] Discussion of *–en*, an adjectival head, is set aside here. We further set aside cases of *–er* which are not agentive, and which, to the best of my knowledge, are not attested with so-called synthetic compounds. Marantz (p.c.) notes that these are not licit, typically, in non-modified contexts (e.g., *roaster* vs. *oven-roaster*), providing us with some test for distinguishing between the occurrences.

81. a. *the acting fast
    b. ??The frying in the pan
    c. The pan frying of the pasta   (note clear violation of FSP, if this is the source)

6.2. Does –*ing* always head an AS-nominal?

82. a. Grimshaw (1990): unlike –*ation* and kin, -*ing* only assigns *Ev* and hence cannot be an R-nominal.
    b. Alexiadou (2007):-*ing* (always) projects an (active) VoiceP. As a result, it always has event structure (i.e., is always an AS-nominal). R-nominals with –*ing* are impossible.

83. But synthetic –*ing* compounds *are* R-nominals!

84. a. a good living, a strong craving, a strong beating, a reading, a (leftist)leaning, (good) standing, (one) sitting, etc
    b. "Women are reared not to feel competent or gratified by *the questing, the competing, the outbidding* that collecting … demands." S. Sontag, *Volcano Lover*, p. 138
    c. (this kind of) *fighting, fraternizing , parenting, writing* etc.
        cf: this kind of picture ; this kind of story; this kind of destruction (*of a city)

85. –*ing* R-nominals are possible, and by and large they all have an activity (simple event) interpretation

6.3   –*ing* is atelic (Snyder, 1998; Alexiadou, 2001; Borer, 2005b)

86. a. Kim's (*gradual) formulating of several procedures {for the past few weeks/*in few weeks/??twice}
    b. Pat's (*gradual) forming of many committees {for three months/*in three months/??twice}
    c. Robin's (*gradual) dissolving of these chemicals {for three hours/*in three hours/??twice}
    d. Inny's (*gradual) writing of the letter {for three hours/*in two hours/??twice}

87. a. Kim's (gradual) formulation of several procedures {twice/in two weeks}
    b. Pat's (gradual) formation of many committees {twice/in two minutes}
    c. Robin's (gradual) dissolution of these chemicals {twice/in two hours}

88. a. */#Kim's reaching of the summit
    b. */#Pat's ending of the flood
    c. */#Robin's finding of (the) oil
    d. */#The bulldozer's hitting of (the) bedrock
    e. */#The balloon's noisy exploding
    f. */#The rabbit's mysterious appearing (and compare with *appearance*)

89. a. */#the erupting of Vesuvius
    b. */#the exploding of the balloon

90. a. */#Vesuvius' sudden erupting
    b. */#the balloon's noisy exploding

91. a. the eruption of Vesuvius
    b. the explosion of the balloon
    c. the appearance of the rabbit

92. a. Vesuvius' eruption
    b. the balloon's explosion
    c. the rabbit's appearance

93. a. The sinking of the ship (under intransitive reading)
    b. The falling of stock prices
    c. The slipping of standards
    d. The laughing of the boys
    e. The jumping of the cows
    f. The dancing of the fairies

94. **And contrast with gerunds:**
    a. Kim('s) formulating several new procedures {for several weeks/in two weeks/twice/gradually}
    b. Pat('s) forming many committees {for three minutes/in two minutes/twice/gradually}
    c. Robin('s) dissolving these chemicals {for three hours/in two hours/twice/gradually}
    d. Inny('s) writing the letter {for three hours/in two hours/twice/gradually}

95. a. Kim's reaching the summit
    b. Pat's ending the flood
    c. Robin's finding (the) oil
    d. The bulldozer's hitting (the) bedrock
    e. The balloon's exploding noisily
    f. Mary's disappearing

96. **And the progressive**:
    a. Kim is reaching the summit (as we speak)
    b. Pat is ending the flood (as we speak)
    c. Robin is finding oil (as we speak)
    d. ?The bulldozer is hitting bedrock (as we speak)
    e. Mary is disappearing

97. a. The (enthusiastic) formulations/*formulatings of many procedures (by newly appointed bureaucrats)
    b. The (occasional) salutations/*salutings of an officer (by his juniors)
    c. The (gradual) promotions/*promotings of these incompetent functionaries (by their superiors)
    d. The (frequent) replacements/*replacings of many humans with few machines (in thirty years)
    e. The appointments/*appointings of three musicians to permanent positions (by the management)
    f. The arrivals/*arrivings of the trains

98. a. A formulation/*formulating of many procedures (by newly appointed bureaucrats)
    b. A salutation/*saluting of an officer (by his junior)
    c. A promotion/*promoting of an incompetent functionary (by his superior)
    d. A replacement/*replacing of a worker with a machines
    e. An appointment/*appointing of a musician to a permanent position (by the management)
    f. An arrival/*arriving of a train

6.3 *-ing* is not stative (subject is understood as *originator*)

99. a. Kim loved Pat (stative reading (preferred); eventive-agentive reading)
    b. Charles felt the coat (stative reading; eventive-agentive reading)
    c. Jenny smelled the stew (stative reading; eventive-agentive reading)
    d. Corrine touched Gil (stative reading; eventive-agentive reading)
    e. The wall touched the fence (stative   reading only, under normal circumstances)

100. a. The loving of Pat   (by Kim) (eventive-agentive reading only)
    b. The feeling of {#the cold/the coat on his shoulders} (by Charles) (eventive-agentive reading only)
    c. The smelling of the stew (by Jenny) (eventive-agentive reading only)
    d. The touching of Gil (by Corrine) (eventive-agentive reading only)
    e. The touching of the fence (#by the wall) (eventive-agentive, abnormal under normal circumstances)

101. a. Kim's loving of Pat   (eventive reading only)
    b. Charles' feeling of {#the cold/the coat on his shoulders} (eventive reading only)
    c. Jenny's smelling of the stew (eventive reading only)
    d. Corrine's touching of Gil (eventive reading only)
    e. #The wall's touching of the fence (eventive, abnormal under normal circumstances)

102. a. The wall's (persistent) adherence/*adhering to the fence
    b. Dennis' (tenacious) endurance/*enduring of the noise
    c. The stain's (sad) resistance/*resisting to cleaning

7. Back to synthetic nominals – some more on why synthetic nominals are not AS nominals

103. **Compounds: transitive reading only**   **AS Nominals: intransitive reading possible**
    tomato growing   the growing of the tomato
    ship sinking   the sinking of the ship
    #guest departing   the departing of the guest
    #flower wilting   the wilting of the flower
    #standard slipping   the slipping of standards

104. fence-touching *wall   *stative, activity
    stew smelling   *stative, activity
    (under relevant reading. 'smells like stew' is ok)

105. tomato grower
    ship sinker
    fence toucher
    stew smeller

106. This kind of *growing, sinking, dropping, disappearing,* all allow, indeed appear to prefer, an intransitive, but activity reading.

107. It cannot be that nominal *-ing* always forces a little *v* or an active VoiceP reading.

108. **Transitive reading only for synthetic compounds - problem for:**
    a. The assumption that the transitivity of, e.g., *grow* derives from a projected *v* or *CAUSE*
    b. Any account based on the First Sister Principle which subscribes to the unaccusative hypothesis
    c. Any account based on the First Sister Principle which subscribes to the view that causative are derived from adding structure to inchoatives (acknowledged by Harley, 2008)

109. *The growing of the tomato*
    a. *-ing*$_{originator}$ [$_{EP}$ *(expl)*   [$_{F^S P}$ the tomato   ]]   transitive, activity
                                                participant
    b. *-ing*$_{originator}$ [$_{EP}$ the tomato   ]   intransitive, activity
                          originator$_2$

8. Late insertion of meaning - summary

8.1. One substantive meaning list, once accessed:

110. There are good empirical reasons to assume that roots are inserted with at least some phonological information,

111. Empirical reasons for assuming that roots are inserted with meaning appear dependent on a fortiori conceptual distinctions motivated by grammatical phenomena. These are hard to evaluate without a worked out cognitive theory of concepts and the restrictions on their vocabulary correlates

112. It is not clear what, if anything, is explained by the assumption that roots have internal arguments/complements.

113. If there are no good reasons to assume multiple substantive meaning lists or multiple access, by Occum's razor, one list/one access suffice. Since all en-searches for a specific constituent happen simultaneously and silent copies are not en-searchable, reanalysis is unnecessary. It raises the possibility that some simultaneous assignment may co-exist, context allowing (e.g., the meaning of the root *š.m.n* 'to do with fat' and the meaning of the noun *šamenet* – 'cream').

8.2. One more point: the encyclopedic factory

114. a. [war monger]   → to war monger
    b. [baby sit]   → to baby sit   attested
    c. [breech load]   → to breech load
    d. [wool gather]   → to wool gather
    e. [home make]   → to home make
    f. [house keep]   → to house keep
    f. [line produce]   → to line produce   attested
    g. [sharp shoot]   → to sharp shoot   attested
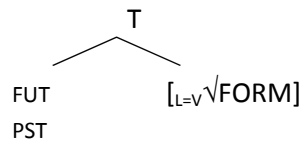   h. [crystal gaze]   → to crystal gaze   attested

Appendix: Categorizing and against $\varnothing$ categorial affixation
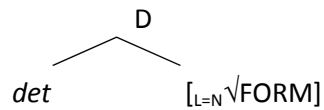
A1. Introduction

115. Grimshaw (1990): English $\varnothing$-nominalizers do not allow for event structure and are hence, by and large, excluded as AS-nominals.

116. *change (*and *exchange*), *release*, *use*, (among others)

117. A run, a stand, a sit in, a lie down, a walk, a ride, a dance, a turn, a twist, a smoke, a smile, a laugh, a frown, love, hate, a kiss, a lift, a roll, a rock, a hold, a climb, a descent, a kill, a raid, an arrest, a follow-up, a chase, an export, an import, a think…… (and see below for more examples)

118. *the walk of the dog for three hours
    *the dance of the group for a whole evening
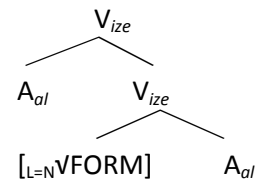   *the kiss of the beloved in order to seal the marriage

119.   a.   T   b.   D   c.   V*ize*
               /\   /\   /\
           FUT   [_{L=V}√FORM]   *det*   [_{L=N}√FORM]   A*al*   V*ize*
           PST   /\
                                                                                      [_{L=N}√FORM]   A*al*

120. Nothing formally merges directly with a root, nor are roots, as such, well-defined syntactic objects. As the root is, definitionally, a member of a specific category in the context of the functor selecting it, be it an L-functor or an F-functor, all mergers are, posteriori, minimally, to L.

121. English does not have (productive) $\varnothing$ F_Ls. There is, in other words, no $\varnothing$ correlate of '-*ize*' or a $\varnothing$ correlate of '-*ation*', such that when they attach to a root they convert it, effectively, to a noun or to a verb without any overt affixation to mark such a change.

122. Contra Kiparsky (1982, 1997), and contra DM.

A2. ∅-categorizers (F$_L$s) in DM

123.   a. T
       FUT
       PST
           √FORM *v*$_\varnothing$
                  v$_\varnothing$
   b. D
       det *n*$_\varnothing$
              √FORM *n*$_\varnothing$

124.   a. *v*$_{ize}$
           a$_{al}$ *v*$_{ize}$
           n$_\varnothing$ *a*$_{al}$
           √FORM *n*$_\varnothing$
   b. *v*$_{ize}$
       a$_{al}$ *v*$_{ize}$
       √FORM *a*$_{al}$

   c. *n*$_{ation}$
       v$_\varnothing$ *n*$_{ation}$
       √FORM *v*$_\varnothing$
   d. *n*$_{ation}$
       √FORM *n*$_{ation}$

   e. *n*$_\varnothing$
       v$_\varnothing$ *n*$_\varnothing$
       √FORM *v*$_\varnothing$ **(??)**

125. Non-compositional meaning is available for (124d) but not for (124c) (is this a falsifiable claim?)

126. *form*, a noun, is as morphologically complex as *formation* (Kiparsky, DM);
     form, the verb, is as morphologically complex as *liquefy* (DM, but not Kiparsky)*.*
     a. [$_N$[√FORM] *n*$_\varnothing$]   [$_N$[√FORM] *n*$_{ation}$]
     b. [$_V$[√FORM] *v*$_\varnothing$]   [$_V$[√LIQUI] *v*$_{ify}$]

127. In XSM, neither the noun nor the verb *form* are morphologically complex.

128. *government*, in DM:
     a. *n* → -*ment* /   { √GOVERN____
                             [$_V$[√GOVERN] *v*$_\varnothing$] ____ }
     b. -*ment* only attaches to *v*$_\varnothing$: *[$_V$[√GOVERN] *v*$_{-\varnothing}$] (e.g., *v*$_{ify}$, *v*$_{ize}$, *v*$_{ate}$ etc.)
         Query 1: why does –*ment* only attach to roots which may otherwise be verbalized with a *v*$_\varnothing$? Why
                   not to roots that are otherwise nominalized or adjectivized?
         Query 2: why should the root GOVERN and the verb GOVERN systematically select the same
                   nominalizer?

129. In XSM:
     a. N → -*ment*/   [$_L$GOVERN] ____
     b. *ment* verbalizes its complement.

130. a. a salute   to salute
       a form   to form
       a chair   to chair
       a floor   to floor
       a lamp   to lamp
    b. a salutation   *to salutation
       a formation   *to formation
       an arrival   *to arrival
       a friendship   *to friendship
       a neighborhood   *to neighborhood

131. a. a dance   to dance
       a kiss   to kiss
       a run   to run
       a walk   to walk
    b. *a verbalize   to verbalize
       *an instantiate   to instantiate
       *a liquefy   to liquefy
       *an encase   to encase
       *a fatten   to fatten

132. a. a wardrobe   to wardrobe
       a blackboard   to blackboard
       chicken wire   to chicken wire
    b. history teacher   *to history teacher
       baby sitter   *to baby sitter
       government policy   *to government policy

133. How to exclude (130)-(132) in a grammar with zero categorizers:
    a. If a root is verbalized by any affix other than $v_\varnothing$, it cannot be nominalized with $n_\varnothing$
    b. If a root is nominalized by any affix other than $n_\varnothing$, it cannot be nominalized with $v_\varnothing$

134. Alternatively: zero-affixation is restricted to roots, a problematic statement for a system with late insertion of functors (as well as unfalsifiable), where no generalizations based on phonological content are expected, let alone across categories.

135. *And, not to forget:*
$n_\varnothing$ cannot merge with a functional event structure (and as such is distinct from n_{ation}, n_{ence}, n_{ment}, n_{al}, and n_{ine}).

136. A theory internal problem for DM: English default past tense form is the only one that attaches to overtly derived verbs, a fact that should derive directly from locality – exceptional information specified only on roots – but in (b) roots are not any more accessible than in (a). Similar issues emerge with irregular plurals:
    a. $[_v[\sqrt{INSTANT}]\text{-}iate]$; $[_v[\sqrt{LIQUI}]\text{ }–ify]$; $[_v[\sqrt{HARMON}]\text{ }–ize]$; $[_v[\sqrt{FAT}]\text{ }–en]$; $[_v\text{ }en\text{- }[\sqrt{CASE}]]$
    b. $[_v[\sqrt{STAND}]\text{ -}\varnothing]$; $[_v[\sqrt{SING}]\text{ -}\varnothing]$; $[_v[\sqrt{BEND}]\text{ -}t]$

137. a. $[_v[_{L=N}\sqrt{INSTANT}]\text{-}iate]$; $[_v[_{L=N}\sqrt{LIQUI}]\text{ }–ify]$; $[_v[_{L=N,A}\sqrt{HARMON}]\text{ }–ize]$, $[_v[_{L=A}\sqrt{FAT}]–en]$; $[_v en\text{-}[_{L=N}\sqrt{CASE}]]$
    b. $[_T[_{L=v}\sqrt{STAND}]]$; $[_T[_{L=v}\sqrt{SING}]]$ $[_T[_{L=v}\sqrt{BEND}]]$

138. Similar problem with *–ation* (when contrasted with *–ence, -al, -ment*), which is the only form available following (non-zero) verbalizers (e.g., *-ate, -ify,* and *–ize*), but which, given zero categorizers, are as complex making a non-local statement necessary.

A2. An Alternative.

139. a. $[_T \ [_{L=V} \ \sqrt{FORM}]]; \ [_{Asp}[_{L=V} \ \sqrt{FORM}]]$ etc.
    b. $[_D \ [_{L=N} \ \sqrt{FORM}]]; \ [_{DIV}[_{L=N} \ \sqrt{FORM}]]$ etc.
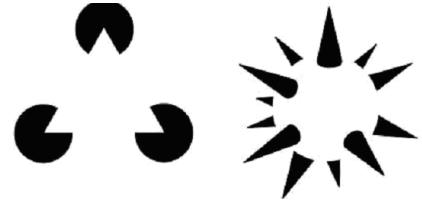
In the absence of zero affixation, overt affixation is necessary to turn nouns into verbs and vice verse. In the absence of such additional overt affixation, embedding, e.g. *formalize* in a nominal context quite simply leads to a contradiction: the L is already a verb, but is interpreted, contextually, as a noun. Conversely, *formation*, when embedded in a verbal context, is interpreted as V-equivalent, but as it is already a noun, contradiction and hence ungrammaticality result:

140. a. $*[_T \ [_N \ \text{formation}]]; \quad *[_{Asp} \ [_N \ \text{formation}]]$ etc.
    b. $*[_D[_V \ \text{formalize}]]; \quad *[_{DIV} \ [_V \ \text{formalize}]]$

When *formation* is embedded in an N-equivalent context, or *formalize* in a V-equivalent context, they are interpreted, by virtue of their contexts, as N and V respectively, which in this case adds little information, but which, given the nature of definitional categorization, has no cost:

141. a. $[_D \quad [_N \ \text{formation}]]; \ [_{DIV} \ [_N \ \text{formation}]]$ etc.
    b. $[_T \quad [_V \ \text{formalize}]]; \ [_{Asp} \ [_V \ \text{formalize}]]$

142. a. to grandstand, to blackboard, to chicken-wire, to wall-paper, to (non- compositional); to French kiss etc.
    b. (much) white-out, a take-off, a sell-out, a buy-up; a take-over, a teach-in, a   show-down, a   sing-along etc.

143. a. $[_L \ [_L \ldots \quad] \quad L_{head} \ldots \ ] \ ]$
             black   board
             wall   paper
             French   kiss
    b. $[_L \ [\quad L_{head} \ldots \quad [\ P \ ] \ ] \ ]$
             white   out
             take   out
             show   down

144. a. $[_{Asp} \ [_{L=V} \quad [_L \ldots \quad] \quad L \ldots \ ] \ ]$
        (to)   black   board
        (to)   wall   paper
        (to)   French   kiss
    b. $[_D \quad [_{L=N} \ [_L \ldots \quad] \quad L \ldots \ ] \ ]$
        (a)   black   board
        (a)   wall   paper
        (a)   French   kiss

145. a. $[_{Asp}[_{L=V}$ L $[$ P $]...]]$
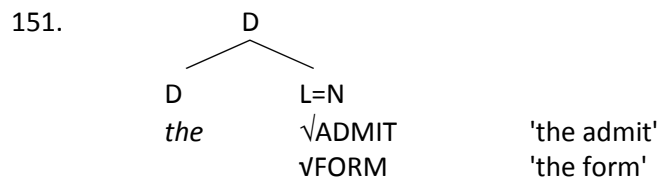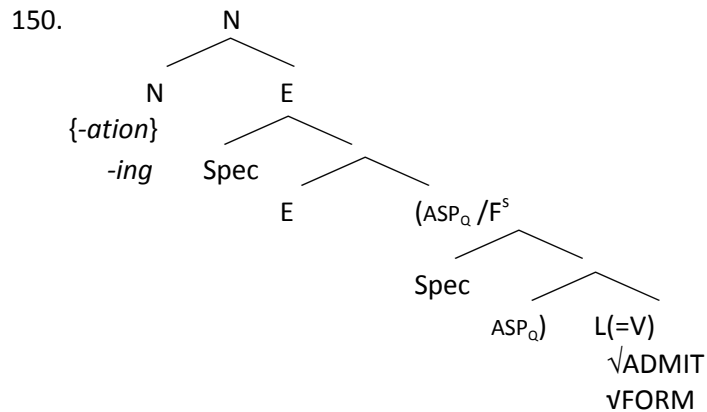   (to) white out
       (to) wash off
       (to) buy up
   b. $[_D$ $[_{L=N}$ L $[$ P $]...]]$
       (a) white out
       (a) wash off
       (a) buy up

146. a. movie director; law enforcement; word formation; piano recital
   b. *to movie director; *to law enforcement; *to word formation; *to piano recital

147. a. $[_N$ $[_{L=V}\sqrt{DIRECT}]$ N_{or} $]$
   b. $[_N$ $[_V V_{en}$ $[_{L=N}\sqrt{FORCE}]]$ N_{ment} $]$
   c. $[_N$ $[_{L=V}\sqrt{FORM}]N_{ation}$ $]$
   d. $[_N$ $[re$- $[_{L=V}\sqrt{RECITE}]]N_{al}]$

148. $[_D$ $[_N [_L ...$ $]$ N ... $]]$
      movie director
      law enforcement
      word formation
      piano recital

149. *$[_{Asp-Q}$ $[_N$ $[_L ...$ $]$ N ... $]]$
      movie director
      law enforcement
      word formation
      piano recital

150.
```
              N
          /       \
        N          E
     {-ation}    /    \
      -ing    Spec    \
              /    \     \
            E      (ASP_Q /F^s
                   /    \
                Spec     \
                       /    \
                  ASP_Q)    L(=V)
                           √ADMIT
                           √FORM
```

151.
```
              D
           /     \
         D        L=N
        the      √ADMIT       'the admit'
                 √FORM        'the form'
```

152. a. *the *form* of 2 special committees (by the board of directors) (in order to oversee the elections).
    b. the *formation* of 2 special committees by the board of directors in order to
        oversee the elections.
    c. the *forming* of 2 special committees by the board of directors in order to
        oversee the elections

153. a. *the *admit* of 3 graduate students (in order to just teach Russian) is not a good idea.
    b. the *admission* of 3 graduate students (in order to just teach Russian) is not
        a good idea
    c. our *admitting* of 3 graduate students (in order to just teach Russian) is not
        a good idea.

A3. Rebutting some Potential Counter Arguments

154. a. a portion, a position, a condition, a proposition, an audition, a ration, a question, a motion, an air condition
    b. to portion, to position, to condition, to proposition, to audition, to ration, to question, to motion, to air condition

155. a. *port-, cond- rat-, mot-*
    b. *to pose, to propose, to audit, to quest*)

156. a. the model posed in front of the camera for several hours
    b. Mary proposed a solution in two minutes
    c. The authorities audited my tax records for several years
    d. John quested for love for years

157. a. the posing of the model in front of the camera for several hours
    b. Mary's proposal of a solution   in two minutes
    c. The authorities' auditing of my tax records for several years
    d. the questing for love for years on the part of adult males

158. a. the position of the model in front of the camera★   (*for several hours)
    b. Mary's proposition of a solution★   (*in two minutes)
    c. The authorities' audition of my tax records★   (*for several years)
    d. *the question (for years) for love on the part of adult males
        ★= with the intended reading as events associated with (156a-d)

159. The nouns in (154a) have exactly the cluster of properties we typically find with underived nouns:
    a. They alternate freely with verbal forms
    b. They may not function as AS-nominals.
    c. They only nominalize with an overt suffix

160. a. The condition *(ing) of certain responses by certain works of literature
    b. John's proposition *(ing) of Mary
    c. Mary's question *(ing) of John
    d. Kim's audition *(ing) of the candidate

A4. Kiparsky's (1982, 1997) arguments

161. There are two zero categorial affixes in English, one which derives verbs from nouns and which is a
    level I affix, and another one which derives verbs from nouns, and which is a level II affix.

162. a. Contrary to XSM but in line with DM, there are (two distinct) abstract categorizers in English.
    b. Contrary to DM and XSM, zero verbs and zero nouns are not derived independently from roots, but from each other.

A4.1. Two denominal verbs in English? - cf. discussion above (58)-(62)

A4.2. Morpho-phonological arguments?

A4.2.1. Productivity

163. Level II affixation takes as its input phonological words and is very productive.
    Level I affixation takes as its input either words or non-word stems, and is (potentially) less productive.

    Kiparsky's Claim: N to V is very productive. Not so V to N – but see (117)

164. a. an àdmit (a newly admitted student)
    b. an admìt (a record of a positive admission decision *or* a newly admitted student)
    c. give it a think   (note the absence of blocking from *thought*)
    d. give it a turn   (meaning *turn it*)
    e. a responsive read (proof-reading process, from a magazine editorial board)
    f. there are people on that list who deserve a listen
    g. A scheduled (court) hear
    h. an embed (a journalist 'embedded' in a US military unit)

A4.2.2. Stress shift

165. V$\rightarrow$N alternations may give rise to stress shift (i.e., tormént$_V$ $\rightarrow$ tórmènt$_N$, admít$_V\rightarrow$ ádmit), but not so N$\rightarrow$V alternations (i.e., páttern $\rightarrow$ *pattérn). If Level II affixation is involved in N$\rightarrow$V, and if stress rules are applicable only to the output of Level I affixation, the absence of stress effects of the change from N$\rightarrow$V would be explained.

    But consider (164a-b). Stress has shifted in (164a) but not in (164b)
    Two zero-affixes associated with V$\rightarrow$N?

    The existence of stress shift in some syntactic contexts but not in others is entirely compatible with a system that allows for roots that are phonologically underspecified, together with the late insertion of fully specified phonological information.

A4.2.3. Ordering

166. Kiparsky's claim: Cases such as (154), in which verbs are formed from –*ation* affixed words, argue for N$\rightarrow$V later than –*tion* affixation. N$\rightarrow$V in compounds likewise argues for a late N$\rightarrow$V rule, |but an early V$\rightarrow$N rule
    But Kiparsky cannot account for the systematic ungrammaticality of "to transformation", "to friendship" or "to union brotherhood", all predicted to be possible by his logic.

167. Underived verbs (within his system) may receive Level I affixation, but not so (zero) derived verbs, formed by assumption at Level II:
    contract-ual, murder-ous, rebeli-ous
        By this logic, the noun *market* is derived from the verb *market*, and the noun *question* from the verb *question* (which is actually a contradiction in his system):

salvageabílity,   marketabílity, questionabílity

168. Kiparsky: V→N→V triplets should occur, but not so N→V→N triplets:
    a. compóund$_V$(1)→ cómpound$_N$ (2) → cómpound$_V$ (3)
    b. permít$_V$ (1) → pérmit$_N$ (2) → pérmit$_V$ (3)

    As it turns out, however, N→V→N triplets do occur (as Kiparsky himself notes):

    c. sweat$_N$(1)→sweat$_V$(2)→ sweat$_N$(3)   ((1) = substance; (3) = result N)
    d. spit$_N$(1)→spit$_V$(2)→spit$_N$(3)
    e. paddle$_N$(1)→paddle$_V$(2)→paddle$_N$(3)

    K.'s explanation: there are two distinct rules deriving nouns from verbs, both applying at Level I:
    Rule 1:   V→Result N   (to) *sweat$_V$* → (have) *a sweat$_N$*
    Rule 2:   V→ Substance N   (to) *sweat$_V$* →(smelly) *sweat$_N$*

    Note further the presupposition that *sweat$_N$* is derived from *sweat$_V$*, *shit$_N$* from *shit$_V$* etc.

169. a. I sank the boat
    b. that was quite a sink! (viewing the action in (a)
    c. I bought a new sink
    d. I am going to (re-)sink the kitchen

170. Ironically, *tape* and *screw* may be both a substance and a result:
    a   I just got my hair cut and asked for **a tape up**
    b. Visualization of the flow through **a screw-down** valve

    But that would mean that they are derived from verbs, in contradiction with the purported properties of *tape* vs. *hammer*.

References

Acquaviva, P. 2008. Roots and lexicality in Distributed Morphology. Ms. University College Dublin/Universität Konstanz.

Alexiadou, A. 2007. On the role of syntactic locality in morphological processes: the case of (Greek) derived nominals. To appear in A. Giannakidou & M. Rathert, eds. Quantification, Definiteness and Nominalization. Oxford: Oxford University Press.

Alexiadou, A. 2001. Functional Structure in Nominals: Nominalizations and Ergativity. Amsterdam: John Benjamins.

Arad, Maya. 2003. Locality constraints on the interpretation of roots: The case of Hebrew denominal verbs NLLT 21: 737-778

Bat El, O. 1994. Stem modification and cluster transfer in Modern Hebrew. NLLT 12: 571-596.

Borer, H. 1991/1993. "Derived Nominals." Ms., University of Massachusetts, Amherst.

Borer, H. 1999. The form, the forming and the formation of nominals. Talk given at ZAS, Berlin.

Borer, H. 2003. Exo-skeletal vs. endo-skeletal explanation: Syntactic projection and the lexicon. In J. Moor and M. Polinsky, eds. The Nature of Explanation in Linguistic Theory. Stanford: CSLI

Borer, H. 2005a,b. Structuring Sense Vols. I, II. Oxford: Oxford University Press.

Borer, H. 2008. Compounds: The view from Hebrew. To appear in R. Lieber and P. Stekauer, eds. The Oxford Handbook of Compounds. Oxford: Oxford University Press.

Embick, D. and A. Marantz. 2008. Architecture and blocking. Linguistic Inquiry 39.1.

Engelhardt, M. 2000. "The Projection of Argument-taking Nominals", Natural Language and Linguistic Theory 18 (1). 41-88.

Grimshaw, J. 1990. Argument Structure. Cambridge: MIT Press.

Harley, H. 2006. The morphology of nominalizations and the syntax of vP. Ms. University of Arizona

Harley, H. and J. Haugen, 2007. http://www.ledonline.it/snippets/allegati/snippets9002.pdf "Are there really two different classes of instrumental denominal verbs in English?" Snippets: Issue 15

Harley, H. 2006. The morphology of nominalizations and the syntax of vP. In M Rathert and A. Giannadikou. Eds. DP, QP and Nominalizations. Oxford: Oxford University Press.

Harley, H. 2008. Compounding in distributed morphology. To appear in R. Lieber and P. Stekauer, eds. The Oxford Handbook of Compounds. Oxford: Oxford University Press.

Harley, H. and R. Noyer. 2000. Licensing in a non-lexicalist lexicon. In B. Peeters, ed. The Lexicon Encyclopedia Interface. Amsterdam: Elsevier 349-374

Hazout, I. 1991. Verbal Nouns in Hebrew and Arabic. PhD dissertation, University of Massachusetts, Amherst.

Hazout, I. 1995. Action nominalization and the Lexicalist Hypothesis. Natural Language and Linguistic Theory 13: 355-404.

Kiparsky, P. 1982. Lexical Morphology and Phonology in Linguistics in the Morning Calm, Hanshin Publishing Company, Seoul, Korea.

Kiparsky, P. 1997. Remarks on denominal verbs. In A. Alsina, J. Bresnan and P. Sells. eds. Complex Predicates. Stanford: CSLI Publications.

Marantz, A. 1996. "Cat as a Phrasal Idiom", ms. MIT.

Marantz, A. 1997. "No Escape from Syntax," In A. Dimitriadis, I. Siegel et. al, (eds.) University of Pennsylvania Working Papers in Linguistics. 4.2., pp. 201-225.

Marantz , A. 2000. Roots: The universality of roots and pattern morphology. Paper presented at the conference on Afro-Asiatic languages, University of Paris VII.

Marantz, A. 2001. Words and things. Ms. MIT.

Roeper, T. and D. Siegel. 1978. A lexical transformation for verbal compounds. LI 9, 199-160.

Sichel, I. 2007. Agent exclusivity in nominalizations. Paper presented at the Workshop on Bare Nouns and Nominalizations, Stuttgart, June 2007

Snyder, W. 1998. On the aspectual properties of English derived nominals. In U. Sauerland and O. Percus, eds. The Interpretive Tract: Working Papers in Syntax and Semantics (MITWPL Volume 25), pp.125-139. Cambridge, MA: MIT Working Papers in Linguistics.

Hagit Borer
Department of Linguistics
University of Southern California
Los Angeles, CA 90089-1693
USA
borer@usc.edu
http://www-rcf.usc.edu/~borer