Primitive Elements of Verbal Predicates:
Evidence from Persian

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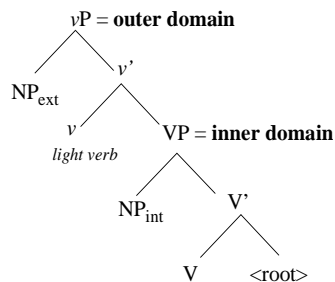megerdoo@usc.edu
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1 Introduction

Question: How do grammars of natural language encode events?

(i) Events have internal structure
   - events are not unanalyzable units but are composed of more primitive elements
(ii) Universal primitives
   - primitive concepts of grammar: causation, change, state, time, space...
(iii) Structural representation of meaning
   - semantics of events interact with their syntactic structure

(1)   [[**outer event**][**inner event**]]
           ↓   ↓
        causation   change of state
        agency   affectedness
                       temporal boundedness

(2)   A split-vP analysis:

vP = **outer domain**
/   \
NP$_{ext}$ v'
        /   \
      v VP = **inner domain**
  light verb   /   \
              NP$_{int}$ V'
                        /   \
                       V   <root>

Theories of Predicate Formation

(i) Meaning of the verb determines argument structure

   (Jackendoff 1990, Levin & Rappaport Hovav 1996, Alsina 1993, Grimshaw 1990, Pustejovsky 1995, among others)
      - richly annotated lexical entries
      - no interaction between the lexicon and the syntax
      - argument structure changing operations in lexicon or in syntax, but determined by lexical semantics of the verb

(ii) Structure determines verb meaning

   (Borer 1994, Travis 1991, Hale & Keyser 1993, Marantz 1997, among others)
      - lexical entry alone doesn't determine argument structure
      - event construal subject to syntactic principles
      - syntactic configuration and the meaning of the verb are derived from contribution from various constituents of the predicate

➡ Despite the variation across languages, can we isolate the main basic concepts of meaning/structure? Where does predicate formation take place?

Evidence and Proposal
• Complex Predicates in Persian:
      - transitivity alternations
      - contribution of parts; decompose into primitive elements ➡ event structure
      - extend to unergative verbs
• Predicate-based approach to verb formation
      - syntactic/semantic properties can be derived from the structure and don't need to be listed as a lexical entry
      - lexicon: roots and functional elements

2 Event Structure

Complex Predicates: predicates that are composed of more than one grammatical element but behave as a simple predicate.

- Complex predicates in Persian consist of a preverbal element and a light verb.

(1) shekast dâdan   (defeat give)   'to defeat'
     gul zadan   (deceit hit)   'to deceive'
     xoshk kardan   (dry make)   'to dry (tr.)'
     e'lâm kardan   (announcement do)   'to announce'
     âsib didan   (damage see)   'to be damaged'
     pâyân yâftan   (end find)   'to end (intr.)'
     na're keshidan   (yelling pull)   'to yell'
     e'teqâd dâshtan   (belief have)   'to believe'
     pas dâdan   (back give)   'to return'
     be gerye oftâdan   (to cry fall)   'to start crying'

(2) imeyl zadan   (email hit)   'to email'
     klik kardan   (click do)   'to click (a mouse)'

• Light verbs do not have the same argument structure as their heavy counterpart

(3) nâder ketâb- ro   be hushang dâd
     Nader book - Obj to Hushang gave
     'Nader gave the book to Hushang.'

(4) a. nâder   *estefâ'   dâd*
         Nader resign   gave
         'Nader resigned.'
     b. nâder   in pesar- ro   *neJât dâd*
         Nader this boy - Obj rescue gave
         'Nader rescued this boy.'
     c. nâder   ketâb- ro   ruy-e miz   *qarâr dâd*
         Nader book - Obj on-Ez table setting gave
         'Nader put the book on the table.'

⇨ Preverbal elements provide the substantive information to the complex predicate.

⇨ Preverbal elements affect the internal arguments of the verbal predicate.

Past proposal: All argument structure is contributed by the preverbal element (Mohammad
            and Karimi 1992, Karimi-Doostan 1997, Vahedi-Langrudi 1996, among others).

• Light verbs affect the presence of the external argument (Transitivity alternations).

(5) a. pezeshk   mariz-ro   *shafâ   dâd*
         doctor   patient-Obj cure   gave
         'The doctor cured the patient.'
     b. mariz   *shafâ   yâft*
         patient cure   found
         'The patient was cured.'

(6) a. hushang   mâni - ro   *gul   zad*
         Hushang   Mani - Obj deceit hit
         'Hushang deceived Mani.'
     b. mâni   *gul   xord*
         Mani   deceit ate/collided
         'Mani was deceived.'

(7) a. hushang   dar-ro   *bâz   kard*
         Hushang   door-Obj open made
         'Hushang opened the door.'
     b. dar   *bâz   shod*
         door open became
         'The door opened.'

• Light verbs contribute to the aspectual interpretation of the CP (Karimi-Doostan 1997)

(8) a. dast-e dâryush dar yek sâniye /?*sâ'at-hâ   *dard   gereft*   [bounded]
         hand -Ez Dariush in one second / hour-Plur pain   caught
         'Dariush's hand (started to) hurt in one second / ?*for hours.'
     b. dâryush   ?*daryek sâniye / sâ'at-hâ   *dard   keshid*   [unbounded]
         Dariush   in one second / hour-Plur   pain   pulled
         'Dariush hurt ?*in one second / for hours.'

• Preverbal elements also contribute to the verbal aspect.

(9) a. hâle   *dar nim sâ'at / sâ'at-hâ   *gerye   kard*   [unbounded]
         hale   in half hour / hour-Plur   crying   did/made
         'Hale cried *in half an hour / for hours.'
     b. hâle   dar nim sâ'at / #sâ'at-hâ qofl-e dar-ro   *baz   kard*   [bounded]
         hale   in half hour / hour-Plur lock-Ez door-Obj open   did/made

'Hale opened the door lock *in half an hour / for hours.'

> **Preverbal element:**
> - substantive information
> - internal arguments
>
> **Light verb:**
> - external arguments
> - aspect & event information
>   (causation, change of state, duration, inception)
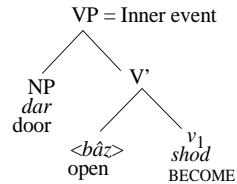
3 Transitivity Alternations

- The Causative/Inchoative alternation: *shodan* (become) vs. *kardan* (do / make)

(10) a. âdam barfi *âb* *shod*
      snowman   water became
      'The snowman melted.'
      b. âftâb âdam barfi -ro *âb* *kard*
      sun   snowman-Obj   water made
      'The sun melted the snowman.'

(11) a. dar *bâz* *shod*
      door open became
      'The door opened.'
      b. hushang dar-ro *bâz* *kard*
      Hushang   door-Obj open made
      'Hushang opened the door.'

(12) a. pesar-e kuchak dar daryâ *qarq* *shod*
      boy- Ez small   in sea   drown became

'The little boy drowned at sea.'
      b. mi-guyand ke in mard pesar-e kuchak-ro *qarq* *kard*
      Imp-say-3pl that this man boy- Ez small - Obj drown made
      'They say that this man drowned the little boy.'

• Causative alternation verbs in English: open, sink, dry, redden, break...

(13) *open:*   (Levin and Rappaport Hovav 1995, Dowty 1991)
      a.   [y BECOME Open]
      b. [x CAUSE [y BECOME Open]]

(14) *open:*   (Harley 1999)
      a. [BECOME [y Open]]
      b. [x CAUSE   [y Open]]

> ▸ Inchoative: $\{v_{\text{become}}\}$ - State   ➡ *bâz shodan* (open become)
> ▸ Causative: $\{v_{\text{cause}} . v_{\text{become}}\}$ - State   ➡ *bâz kardan* (open make)

(15) a. âb   *be Jush âmad*
      water to boil came
      'The water boiled.'
      b. Nimâ âb -ro *be Jush âvard*
      Nima water-Obj to boil brought
      'Nima boiled the water.'
      ▸ *âvardan* (bring) = causative of *âmadan* (come)

(16) a. Homâ *be gerye oftâd*
      Homa to crying fell
      'Homa started to cry.'
      b. Nimâ Homâ -ro *be gerye andâxt*
      Nima Homa - Obj to crying threw
      'Nima made Homa (start to) cry.'
      ▸ *andâxtan* (throw) = causative of *oftâdan* (fall)
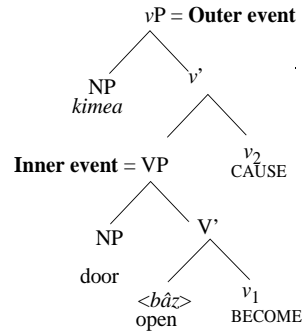
➡ *kardan* (make) = causative of *shodan* (become)

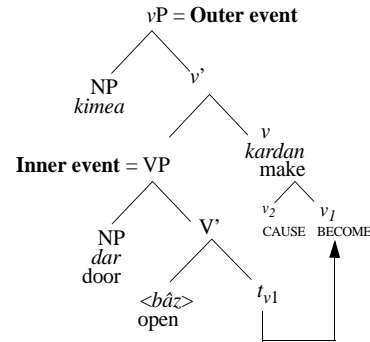## 4   Causative Alternations and VP-Structure
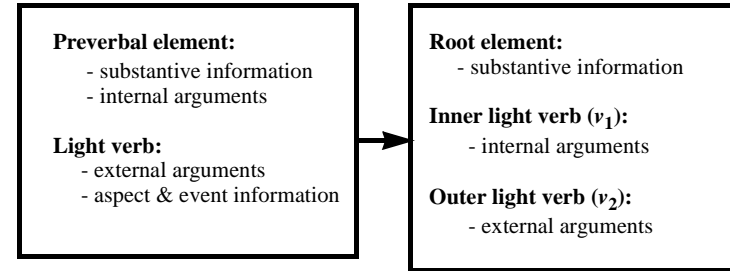
(17)   Inchoative:

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              VP = Inner event
             /        \
           NP          V'
          dar         /  \
         door    <bâz>     v1
                  open    shod
                         BECOME
```

(18)   Causative:
   a.   b.

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        vP = Outer event                      vP = Outer event
        /        \                            /        \
      NP          v'                         NP          v'
    kimea        /  \                      kimea        /  \
               /      v2                               /      v
  Inner event = VP   CAUSE               Inner event = VP   kardan
        /    \                                   /    \      make
      NP      V'                                NP     V'    / \
     door    /  \                              dar    /  \  v2   v1
        <bâz>    v1                            door  <bâz>  t_v1  CAUSE BECOME
         open   BECOME                              open
```

- VP = unaccusative ; *v*P = transitive
- Transitives consist of two functional elements v_1 and v_2
  - ➡ One *v* in each component
  - ➡ Each *v* projects a specifier position.
    The argument can be interpreted as an *internal* (undergoer) or *external* (causer) argument based on its position in the structure.
- Aspect is derived from the resulting structure (Borer 1994, Ritter and Rosen 1998)
  VP = Achievement; *v*P = Accomplishment (Vendler 1967)
  - ➡ No need to pre-classify the verbal projections

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┌─────────────────────────────┐    ┌──────────────────────────────┐
│ Preverbal element:          │    │ Root element:                │
│   - substantive information │    │   - substantive information  │
│   - internal arguments      │    │                              │
│                             │──▶ │ Inner light verb (v1):       │
│ Light verb:                 │    │   - internal arguments       │
│   - external arguments      │    │                              │
│   - aspect & event information│  │ Outer light verb (v2):       │
│                             │    │   - external arguments       │
└─────────────────────────────┘    └──────────────────────────────┘
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5   Unergatives

- Intransitives that consist of a noun and the light verb *kardan*

(19)   gerye kardan   (crying do)   'to cry'
       shenâ kardan   (swim do)   'to swim'
       kâr kardan   (work do)   'to work'
       nâle kardan   (moan do)   'to moan'
       fekr kardan   (thought do)   'to think'
       ? andishe kardan   (thought do)   'to think'
       parvâz kardan   (flight do)   'to fly'
       bâzi kardan   (play do)   'to play'
       sorfe kardan   (cough do)   'to cough'
       ?? xande kardan   (laugh do)   'to laugh'
       tazâhorât kardan   (demonstrations do) 'to demonstrate'

- Unbounded predicates

(20)   a. gonJeshk *dar yek sâ'at / sâ'at-hâ *parvâz kard*   [unbounded]
          sparrow   in one hour / hour-Plur flight   did
           'The sparrow flew *in an hour / for hours.'
       b. mâni   *dar yek sâ'at / sâ'at-hâ *kâr*   *kard*   [unbounded]
          Mani   in one hour / hour-Plur work   did
           'Mani worked *in an hour / for hours.'

c. bache-hâ *dar yek sâ'at / sâ'at-hâ   *gerye kardand*   [unbounded]
   child-Pl   in one hour / hour-Plur   crying did
      'The children cried *in an hour / for hours.'

- Agentive subjects
- Morphosyntactic diagnostics
   ⇨   These verbs have an external argument.

(21) <u>-er nominalization</u>
      a. bâzi-kon   'player'   from *bâzi kardan* (play)
      b. tazâhorât konnande   'demonstrator'   from *tazâhorât kardan* (demostrate)

(22) <u>adjectival participle formation</u>
      a. *mard-e bazi karde   'played man'   from *bâzi kardan* (play)
      b. *pesar-e gerye karde 'cried child'   from *gerye kardan* (cry)

(23) <u>manner adverb formation</u>
      a. shenâ konân   'by swimming'   from *shenâ kardan* (swim)
      b. parvâz konân   'by flying'   from *parvâz kardan* (fly)

- No transitivity alternations

(24) a. The children laughed.
      b. *The clown laughed the children.

• Preverbal element is a deverbal noun (Sadeghi and Arzhang 1980)
   xand (stem of 'laugh') + '-e' ⇨ *xande* (laughter)
   gery (stem of 'cry') + '-e' ⇨ *gerye* (crying)

- the nominal element denotes an event and has an argument
- nominalization is syntactic, rather than lexical (Marantz 1997, Harley and Noyer 1998, van Hout and Roeper 1998)

(25) Nominalization:
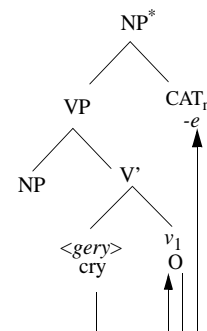
(26) a. parvâz-e   havâpeyma
         flight-Ez airplane
         'the flight of the airplane'
      b. xande-ye   drâkulâ   tarsnâk   ast
         laughter-Ez Dracula scary   is
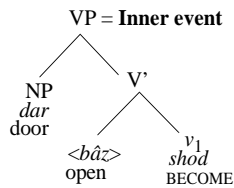   'Dracula's laughter is scary.'

(27) Unergative: *gerye kardan*
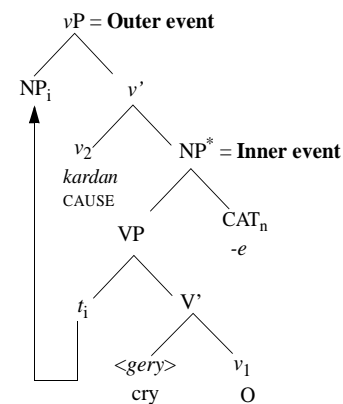
Unaccusative/Unergative Distinction

- Transitivity alternation:
  - verbalizing element of the unergative occupies the outer v position = v_2
  - verbalizing element of the unaccusative occupies the inner v position = v_1

- Agentivity of subject argument:
  - argument of unergative is in the outer event ➡ Agentive
  - argument of unaccusative is in the inner event ➡ Undergoer

- Argument structure of preverbal element:
  - preverbal element in unergatives is a deverbal noun (contains a v and an argument)
  - preverbal element in unaccusatives is an AP (no v)

(28)

a. Unaccusative   b. Unergative

Lexicon:

$<Root_i> ... <Root_n>$

Cat_n , Cat_{adj} , ...

shodan: *kardan*:

v_{Become} <Root> v_{Cause} EventP
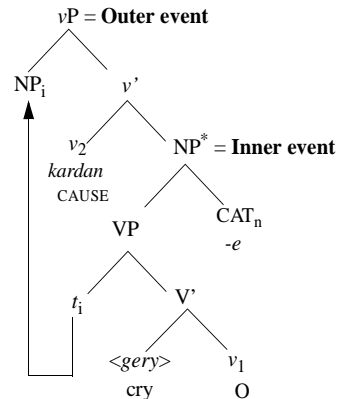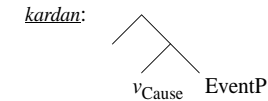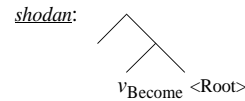
6 Level of Formation

- Word formation
  - complex predicates can be nominalized, form adjectivals and adverbs.

➡ Words are formed in syntax (Distributed Morphology)
   Theory-internal problem: the problem doesn't arise if the system does not have a strict division between the lexical and syntactic components.

- Stress placement
  - complex predicates act as a lexical unit because they have single word stress

(i) Complex predicates don't behave like "real" compounds:

(29)   **dar**-ro [^{vP} **bâz** kardam]
       door-Obj   open made
       'I opened the door.'

(30)   dar-baz-**kon**
       door-open-maker
       'can-opener'

(ii) Non-specific objects get the main stress as well, but they have very different behavior compared to the preverbal elements (e.g., they can become a specific object, can become subject of passive)

       ex. ke**tâb** xaridam

(iii) Main stress can appear on adverbs (33a) or negation (33b)

Do we really want to argue that adverbs form a lexical unit with the complex predicate?

(31)   mâni   [^{vP} she**nâ**   mi-kone]
      mani   swim   Imp-does
      'Mani swims.'

(32)   a. mâni   [^{vP} **xub**   shenâ   mi-kone]
        mani   good swim   Imp-does
        'Mani swims well.'

      b. mâni [^{vP} shenâ   **ne**-mi-kone]
        mani   swim   Neg-Imp-does
        'Mani does not swim.'

➯   Stress facts cannot be used to argue for lexical properties of the complex predicates.

Stress seems to be structural: Main stress occurs on the lowest element in the clausal structure (Cinque 1993).

7   Conclusion

- event structure of causative alternation verbs and unergatives (in Persian)
  - ➯   a decomposition of verbal constructions into basic elements
- compositional, syntactic analysis can account for properties of complex predicates
- notion of basic lexical item
  - ➯   primitive elements of the syntactic configuration

References

Alsina, Alex. 1999. "On the Representation of Event Structure". In *Grammatical Semantics: Evidence for Structure and Meaning,* Mohanan and Wee (eds.). CSLI Lecture Notes. Stanford, Calif: CSLI Publications.

Arad, Maya. 1998. *VP-Structure and the Syntax-Lexicon Interface*. Doctoral dissertation, University College London.

Barjasteh, Darab. 1983. *Morphology, Syntax, and Semantics of Persian Compound Verbs: A Lexical Approach.* Doctoral dissertation, University of Illinois.

Borer, Hagit. 2000. "The Exo-skeletal vs. Endo-skeletal Explanations: Syntactic Projections and the Lexicon". Ms., University of Southern California, Los Angeles.

Borer, Hagit. 1994. "The Projection of Arguments". In *Occasional Papers in Linguistics* 17, E. Benedicto and Jay Runner, eds. GLSA, University of Massachussetts, Amherst.

Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, Mass: MIT Press.

Chomsky, Noam. 1998. "Minimalist Inquiries: The Framework". MIT Occasional Papers in Linguistics, Number 15. Cambridge, Mass: MIT.

Cinque, Guglielmo. 1993. "Null Theory of Phrase and Compound Stress". *Linguistic Inquiry* 24:239-297.

Dowty, David. 1991. "Thematic Proto-Roles and Argument Selection". *Language* 67(3):547-619.

Ghomeshi, Jila and Diane Massam. 1994. "Lexical/Syntactic Relations without Projection". *Linguistic Analysis* 24(3-4).

Goldberg, Adele. 1996. "Words by Default: Optimizing Constraints and the Persian Complex Predicate". In *Proceedings of BLS 22*.

Grimshaw, Jane. 1990. *Argument Structure*. Cambridge, Mass.: MIT Press.

Hale, Kenneth and Samuel Jay Keyser. 1993. "On Argument Structure and the Lexical Expression of Syntactic Relations". In *The View from Building 20*. Cambridge, Mass: MIT Press.

Hale, Ken and Jay Keyser. 1997. "On the Complex Nature of Simple Predicators". In *Complex Predicates,* Alsina et al. (eds.). CSLI Lecture Notes, Number 64. Stanford, Calif: CSLI Publications.

Hale, Ken and Jay Keyser. 1998. "The Basic Elements of Argument Structure". In *Papers from the UPenn/MIT Round Table on Argument Structure and Aspect*. MIT Working Papers in Linguistics, Volume 32. Cambridge, Mass.

Halle, Morris and Alec Marantz. 1993. "Distributed Morphology and the Pieces of Inflection." In *The View from Building 20*. Cambridge, Mass: MIT Press.

Harley, Heidi. 1999. "Denominal Verbs and Aktionsart". In *Papers from the UPenn/MIT Round Table on the Lexicon.* MIT Working Papers in Linguistics, Volume 35. Cambridge, Mass.

Harley, Heidi and Rolf Noyer. 1998. "Licensing in the Non-Lexicalist Lexicon: Nominalizations, Vocabulary Items and the Encyclopedia". In *Papers from the UPenn/MIT Roundtable on Argument Structure and Aspect*, Heidi Harley (ed.). MIT Working Papers in Linguistics, Volume 32. Cambridge, Mass.

Hout, Angeliek van and Thomas Roeper. 1998. "Events and Aspectual Structure in Derivational Morphology". In *Papers from the UPenn/MIT Roundtable on Argument Structure and Aspect*, Heidi Harley (ed.). MIT Working Papers in Linguistics, Volume 32. Cambridge, Mass.

Jackendoff, Ray. 1990. *Semantic Structures*. Cambridge, Mass.: MIT Press.

Karimi, Simin. 1997. "Persian Complex Verbs: Idiomatic or Comppositional". *Lexicology* 3:2.

Karimi-Doostan, Mohamad-Reza. 1997. *Light Verb Constructions in Persian*. Doctoral dissertation, University of Essex.

Larson, Robert. 1988. "On the Double Object Consturction". *Linguistic Inquiry* 19:335-391.

Levin, Beth and Malka Rappaport Hovav. 1995. *Unaccusativity: At the Syntax-Lexical Semantics Inter-face*. Cambridge, Mass.: MIT Press.

Marantz, Alec. 1997. "No Escape from Syntax: Don't Try Morphological Analysis in the Privacy of Your Own Lexicon". In *Proceedings of the 27th Annual Penn Linguistics Colloquium.* Philadelphia, Pennsylvania, Working Papers in Linguistics 4.

Marantz, Alec. 2001. "Words". Paper presented at *WCCFL* 20, University of Southern California, Los Angeles.

Mohammad, Jan and Simin Karimi. 1992. "Light Verbs are Taken Over: Complex Verbs in Persian". In *Proceedings of WECOL,* vol. 5:195-212.

Pustejovsky, James. 1995. *The Generative Lexicon*. Cambridge, Mass.: MIT Press.

Ritter, Elizabeth and Sara Thomas Rosen. 1998. "Delimiting Events in Syntax". In *The Projection of Arguments*, Miriam Butt and Wilhelm Geuder (eds.). Stanford, Calif: CSLI Publications.

Sadeghi, A. A. and Gh. Arzhang. 1980. *Dastur*, Vol I, II, III. Ministry of Education and Training, Iran.

Travis, Lisa. 1991. "Derived Objects, Inner Aspect and the Structure of VP". Paper presented at *NELS 22*, University of Delaware. (Not in proceedings.)

Travis, Lisa. to appear. "The L-Syntax/S-Syntax Boundary: Evidence from Austronesian". In *Formal Issues in Austronesian Syntax*. eds. Ileana Paul, Vivianne Phillips, Lisa Travis.Kluwer Academic Publishers, Dordrecht, The Netherlands.

Vahedi-Langrudi, M. 1996. *The Syntax, Semantics and Argument Structure of Complex Predicates in Modern Farsi*. Doctoral dissertation, University of Ottawa.

Williams, Edwin. 1997. "Lexical and Syntactic Complex Predicates". In *Complex Predicates,* Alsina et al. (eds.). CSLI Lecture Notes, Number 64. Stanford, Calif: CSLI Publications.

Vendler, Zeno. 1967. "Verbs and Times". In *Linguistics and Philosophy*, Zeno Vendler (ed.). Ithaca: Cornell University Press.

Vergnaud, Jean-Roger. 2000. "Primitive Aspects of the Syntactic Code". Paper presented in Paris, October 6.