

ITALIAN PARASYNTHETIC VERBS ARGUMENT STRUCTURE

Silvia Darteni

Thèse

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Jury :

Mme Léa Nash	Professeur, Université Paris 8	Directeur
M. Phoevos Panagiotidis	Professeur, University of Cyprus	Rapporteur
Mme Lucia Tovenà	Professeur, Université Paris 7	Rapporteur
Mme Bridget Copley	Chercheuse, CNRS	Examinatrice

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List of abbreviations

BN, denominal parasynthetic verb of type “(make) X become(s) an N”
DPV, deadjectival parasynthetic verb
EI, event identification
ICV, implicit creation verb
LDD, long distance dependencies
ME, magnitude estimation task
PR, pseudo-resultative construction
SC, small clause

sg, singular
pl, plural
m, masculine
f, feminine
perf., perfect
det., determinant
ger., gerund

Résumé de thèse

La présente thèse porte sur la structure argumentale des verbes parasynthétiques italiens et français. Elle est divisée en deux parties en relation avec la catégorie grammaticale des bases et les types de phénomènes générés.

Avant d'entrer dans le vif du sujet, la thèse s'ouvre par des réflexions générales à propos de : (i) l'état de l'art et les différents cadres formels qui prennent en compte la structure argumentale et aspectuelle des prédicats verbaux ; (ii) la méthode de récolte des données typique de la grammaire générative et quelques possibles améliorations ; (iii) la morphologie des verbes parasynthétiques. Elles sont décrites dans les chapitres 1, 2 et 3.

La première partie porte sur des verbes parasynthétiques à base nominale qui participent à une construction pseudo-résultative (Levinson, 2007), et ne présentent pas d'ambiguïtés aspectuelles, comme *impilare* 'empiler', *accatastare* 'amonceler'. Elle contient les chapitres 4 et 5.

La deuxième partie porte sur des verbes parasynthétiques à base adjectivale qui présentent des ambiguïtés de lecture entre une interprétation stative et une événementielle. Elle contient les chapitres 6, 7 et 8. Ce dernier applique au domaine du traitement automatique du langage naturel une partie des résultats précédemment obtenus. En particulier, il se propose de définir les règles utiles à l'identification de verbes statifs utilisables sans l'intervention humaine.

Notes méthodologiques

Le chapitre 1 analyse la méthodologie utilisée habituellement par la grammaire générative en matière de récolte des données, et décrit d'autres méthodologies issues des sciences cognitives, comme la psycholinguistique, qui se révèlent exploitables également dans le domaine théorique.

Le chapitre insiste sur la possibilité de collaboration entre les sciences cognitives et la grammaire générative pour ce qui concerne les méthodologies, ainsi que pour les finalités. Pour cela, des protocoles expérimentaux plus stricts doivent être respectés.

En grammaire générative, la méthodologie habituelle de collecte de données est l'introspection (Cowart, 1997). Celle-ci, ainsi que les jugements de grammaticalité, est la première forme d'accès aux données. Ces méthodologies cependant présentent des inconvénients. Parmi ces inconvénients, on trouve : la difficulté de réplication de l'expérience ; l'impossibilité de conduire des analyses statistiques sur les données ; la difficulté de discriminer les épiphénomènes ; l'utilisation de connaissances linguistiques explicites ; l'exposition prolongée aux mêmes données.

Les jugements de grammaticalité présentent des caractéristiques particulières par rapport aux méthodologies des autres sciences cognitives : (i) nombre d'informateurs trop exigü ; (ii) informateurs non naïfs ; (iii) nombre d'options de réponse trop exigü ; (iv) utilisation de pool expérimentaux trop petits ; (v) analyse des données non systématique (Schütze & Sprouse, in press).

Les expériences composées de jugements de grammaticalité ne respectent pas, normalement, la méthode scientifique, en particulier pour ce qui concerne leurs généralisations, comment affirment Gibson & Fodorenko (2013) : “*the results obtained using this method are not necessarily generalisable because of (a) the small number of experimental participants (typically one) ; (b) the small number of experimental stimuli (typically one) ; (c) cognitive biases on the part of the researcher and participants ; and (d) the effect of the preceding context.*”.

En outre, il est difficile de contrôler des autres paramètres pouvant influencer le jugement des locuteurs, notamment pour ce qui concerne le contexte d'interprétation, la fréquence des mots utilisés, la plausibilité sémantique et l'identification de l'objet d'étude par les participants.

Les participants aux expériences ont, en effet, la tendance à juger la grammaticalité des constructions selon un contexte qu'ils produisent. Or, si le contexte d'interprétation n'est pas rendu explicite dans les instructions, chaque participant est mené à s'en construire un qui sera différent par rapport à ceux des autres. Les jugements exprimés ne seront pas commensurables.

La fréquence dans la langue du matériel lexical dont les items expérimentales sont composés peut rendre plus ou moins facile l'interprétation des constructions syntaxiques. A parité de construction syntaxique, des mots moins fréquents rendent moins acceptable la construction¹.

Les jugements de grammaticalité sont souvent menés de manière informelle. Cela dérive du fait que les informateurs font souvent partie de l'en-

¹Cela est déterminé par le réseau cognitif que chaque mot construit : mineure est la distance entre deux mots et majeure est la probabilité qu'un locuteur puisse établir un lien qui mène à une possible interprétation, même en présence d'une agrammaticalité.

tourage du chercheur. Cela peut causer une *observer expectancy* (Gibson et al. 2013 : 100), un biais par lequel les informateurs auront tendance à juger les items expérimentaux en fonction des connaissances qu'ils ont de l'objet d'étude du chercheur et non en fonction de leurs. Des informateurs conscients de l'objectif de l'étude à laquelle ils participent sont portés à tomber victime de biais de confirmation (Gibson et al. 2013 : 99) et de croyance (Evans, Barston, Pollard 1983).

Tous les biais possibles décrits sont plus fréquents dans le cas de l'utilisation de la méthode dite d'auto-investigation, dans laquelle l'informateur et le chercheur sont une seule et même personne (Levelt 1972).

Toutefois, la présente thèse reconnaît la valeur de l'auto-investigation dans deux cas spécifiques. Le premier est le cas d'une investigation scientifique sur un phénomène linguistique qui n'a jamais été circonscrit davantage. En effet, dans ce contexte, le chercheur doit forcément procéder à une auto-investigation pour comprendre les points d'intérêt possibles, la façon la plus adaptée pour le décrire, ainsi que les méthodes expérimentales les plus conformes à l'investigation de l'objet d'étude. Le deuxième cas consiste dans la recherche dans les faits basiques d'une langue (ordre des mots, accord sujet-verbe, ...).

Ce chapitre décrit l'approche et les solutions théoriques appliqués au cours de la thèse. La syntaxique lexicale des verbes est formée de trois projections fonctionnelles : rP, vP, VoiceP.

rP est une projection relationnelle non-événementielle (Acedo-Matellan 2006) qui met en relation l'objet direct et la base verbale qui a nature de racine. La présence de cette projection détermine la sémantique causative de la dérivation (Hoekstra 1988 ; Schäfer 2008).

La projection vP a comme tête une tête fonctionnelle dont la valeur sémantique change selon l'*aktionsart* du verbe. Dans le chapitre 7, par exemple, deux sémantiques sont proposées v_{BECOME} pour les verbes événementiels du type *abbellire* 'embellir' ; v_{RELATION} pour les verbes statifs causatifs.

VoiceP est responsable pour l'introduction de l'argument externe (Kratzer 1996).

Le chapitre 1 poursuit en décrivant les imprécisions de certaines données linguistiques rapportées dans des études de linguistiques formelles et qui ont été mises en lumière dernièrement. Le statut des données en linguistique formelle, en particulier en syntaxe formelle, fait l'objet d'une réflexion propre dans les dernières années par un nombre croissant de chercheurs (Edelman & Christiansen (2003), Ferreira (2005), Wasow & Arnold (2005), Featherston (2007), Gibson & Fedorenko (2010a, 2010b), *inter alia*). Le chapitre rapport

des cas où les données, récoltées grâce à l'utilisation de méthodes informelles se sont révélées être problématiques : constructions anglaises à double objet et *heavy NP shift* ; facteurs influençant la position de la préposition dans les phrases anglaises (Wasow & Arnold, 2005) ; interprétation des constructions relatives du sujet et de l'objet ; extractions multiples de pronoms *wh* (Gibson & Fedorenko, 2013).

Il a été souligné que le recours à des méthodes de collecte de données plus stricte est particulièrement important pour les langues qui possèdent un grand nombre de variables diatopiques.

Le chapitre se poursuit en décrivant les facteurs qui peuvent influencer les résultats des jugements de grammaticalité (Keller, 1998), ainsi que différentes méthodologies expérimentales qui peuvent s'avérer utiles pour les syntacticiens formels.

Des jugements de grammaticalité plus structurés peuvent améliorer la qualité des données en grammaire générative. Pour cela, il a été démontré que quatre facteurs peuvent influencer négativement les données recueillies et ils doivent être contrôlés. Ils sont : l'échelle d'évaluation, les instructions, différentes problématiques liées aux sujets expérimentaux, différentes problématiques liées aux tâches expérimentales.

Le chapitre 1 décrit certaines des méthodologies qui pourraient être utiles en grammaire générative. En particulier, il prend en compte : *acceptability judgment test* (AJT), *Magnitude Estimation Task* (MET) (Bard, Robertson and Sorace, 1996), *Truth Value Judgment Test* (TVJT) (Gordon & Chafetz, 1986), lecture auto-segmentée. Pour chacune de ces méthodologies expérimentales, les sections proposent une petite description du design et les aspects les plus utiles pour des syntacticiens. Il ne décrit pas les méthodologies utilisées au cours de la thèse. Elles sont exposées dans les chapitres où leurs données sont utilisées pour la construction de la théorie.

En conclusion, le chapitre 1 prend en considération certaines problématiques que l'utilisation de petites expérimentations, qui souvent ne respectent pas la méthode scientifique, peuvent entraîner. Le chapitre ne vise pas à mettre en discussion l'utilité du recours aux jugements de grammaticalité non-structurés et de l'auto-analyse. Il reconnaît une place à ces méthodologies dans les phases préliminaires d'étude d'un phénomène linguistique, ou dans le cas de phénomènes qui regardent des faits basiques de la langue (ordre des mots, accord sujet-verbe, ...). Il tient à mettre l'accent sur la prise de conscience de la part de la plupart de syntacticiens génératifs à propos de l'importance du respect de protocoles expérimentaux plus stricts. Le changement a deux conséquences envisageables. La première regarde la possibilité d'échanges avec les autres disciplines cognitives qui ont comme objet d'étude les langues et le langage. La deuxième regarde la fondation de la même en-

treprise générative sur des données qui puissent être contrôlées grâce à la reproductibilité des expériences avec lesquelles elles ont été récoltées.

Cadres formels : état de l'art

Le chapitre 2 fournit une description des cadres formels qui s'occupent de la définition de la structure argumentale des verbes. En particulier, il résume les théories qui rendent compte de la sémantique des verbes morphologiquement dérivés.

La relation entre structure argumentale, nombre d'argument et leurs rôles sémantiques est intimement liée au type de *aktionsart* des verbes. La structure argumentale d'un verbe est impliquée par la sémantique événementielle du même verbe en différentes manières.

- | | | |
|-----------------------------------|-----------|-----------|
| (1) Daria court trois kilomètres. | AGENT | BUT |
| (2) Daria mord son frère. | AGENT | EXPÉRIENT |
| (3) Daria aime sa femme. | DÉTENTEUR | FIN |

Dans les exemples du (1) au (3), le type de *aktionsart* du verbe détermine le rôle sémantique des arguments. Pour cela, une étude approfondie des nombre et type d'arguments d'un verbe est nécessaire dans le cadre d'une recherche sur les ambiguïtés aspectuelles.

Le chapitre 2 propose une aperçue des différents cadres formels portant sur la structure argumentale dont quatre en particulier sont développés. En particulier, il en prend en compte quatre : théorie du gouvernement et liage ; Hale & Keyser (1993 ; 2002) ; Ramchand (2008) ; Borer (2005).

Après avoir décrit la théorie du gouvernement et du liage, dans laquelle le lexique et la syntaxe parlent deux langages différents qui ont besoin de règles de conversion pour pouvoir dialoguer, et dans laquelle la question de la détermination de l'événementialité du verbe n'est pas prise en considération, le chapitre se poursuit avec la théorie proposée par Hale & Keyser (1993 et ss.), où la syntaxe est responsable soit de détermination de l'événementialité du verbe soit du rôle des arguments dans cette événementialité. Le même arrive dans Ramchand (2008), où la *first phase*, organe syntaxique, est responsable de la définition du nombre et du type d'arguments, ainsi que de l'*aktionsart*. Toutes ces théories reconnaissent, à des degrés différents, le lexique comme porteur d'informations utiles à la création syntaxique.

Le cadre formel de Borer (2005), au contraire, n'attribue guère d'importance syntaxique au lexique. Dans ce dernier ils sont emmagasinées seulement

des racines, sans aucune information sur les structures dans lesquelles elles peuvent être insérées.

Une autre forte différence qui distingue les cadres formels précédemment décrits et celui de Borer (2005) consiste dans les principes retenus déterminants de l'*aktionsart*. Pour Hale & Keyser (1993, ss.) and Ramchand (2008), le principe déterminant est le type et le nombre de sous-événements présents. Pour Borer, le plus important est la présence ou absence de télicité.

Le chapitre analyse comment chacun des quatre cadres représentent les verbes statifs des différents groupes. Aucun d'entre eux ne propose une solution satisfaisante, et certains ne prennent pas du tout en considération la question, comme la théorie du gouvernement et du liage.

Verbes parasynthétiques

Le chapitre 3 décrit le processus de dérivation parasynthétique. La parasynthèse est un processus morphologique des langues romanes qui dérive d'une réinterprétation d'un autre processus de dérivation de la latinité tardive : les verbes préfixés ont été interprétés comme synonymes de leurs correspondants non-préfixés (Iacobini, 2004). La parasynthèse ne regarde pas seulement le domaine verbal, mais ainsi les domaines nominal et adjectival. Cette thèse s'occupera seulement du premier.

La première définition de la parasynthèse a été proposée par Darmesteter (1894). Cette dernière la décrit comme un processus lexical impliquant un préfixe, une base et un suffixe qui se combinent simultanément et dont le produit de dérivation intermédiaire n'est pas attesté dans le lexique de la langue. Cette hypothèse de formation (Darmesteter, 1894; Iacobini, 2004) est une des trois formulées dans la littérature. Scalise (1990) considère la parasynthèse comme le produit d'une suffixation à laquelle succède une préfixation. Corbin (1987) la considère comme un produit d'une préfixation à laquelle succède une suffixation.

Chacune de ces hypothèses sur les étapes de dérivation de la parasynthèse présent des problèmes. La première ne respecte pas l'hypothèse de la ramification binaire. La deuxième ne semble pas respecter le *mirror principle*. La troisième assigne aux préfixes la faculté de changer de catégorie grammaticale, ce qui ne se vérifie dans aucun autre cas de la langue. L'hypothèse de Scalise (1990) semble être celle qui pose moins de problèmes.

Le chapitre se poursuit en décrivant les deux groupes de verbes parasynthétiques qui constituent l'objet de cette étude, en les plaçant dans leurs groupes d'appartenance.

Les verbes dérivés des adjectifs ont une sémantique causative qui peut être décrite par la paraphrase “faire l’objet plus A”. Le degré du changement qui a lieu sur l’objet et qui est exprimé par la base verbale est laissé inexprimé (Iacobini, 2004). Ces verbes se divisent en deux configurations syntaxiques : ils peuvent alterner entre une structure transitive et une inchoative pronominale, ou entre une structure transitive et une inchoative non pronominale. 221 verbes italiens ont été identifiés comme appartenant à cette catégorie, comme *abbellire* ‘embellir’, *annerire* ‘noircir’, *appesantire* ‘alourdir’ (DPVs)². Il font l’objet d’étude de cette thèse.

Les verbes dérivés des substantifs peuvent être divisés en trois groupes selon la sémantique de la base sur laquelle ils sont formés : causatifs, locatifs et instrumentaux. Le premier groupe à son tour se divise entre trois sous-groupes selon la paraphrase que les verbes génèrent : “faire devenir S³”, “faire devenir comme N”, “causer/prendre N”. Les verbes dérivés des substantifs peuvent participer à quatre configurations syntaxiques transitifs ou intransitifs, alterner entre une structure transitive et une intransitive ou entre une structure transitive et une intransitive pronominale. 57 verbes de la catégorie causatifs du type ‘faire devenir S’ ont été identifiés. Seule leur configuration transitive a été prise en considération dans cette étude, car elle est la seule à pouvoir participer à la construction pseudo-résultative (Levinson, 2007), comme *impilare*, ‘empiler’, *accatastare*, ‘empiler de façon désordonnée’.

Première partie : verbes non-ambiguës

La première partie de cette thèse analyse certains verbes parasynthétiques à base nominale. Elle en analyse le comportement dans la construction pseudo-résultative.

La construction pseudo-résultative (Levinson, 2007) est constituée d’un adjectif qui modifie l’entité dénotée par la base du verbe. Dans l’exemple suivant, on peut voir que l’adjectif *high*, ‘haut’, modifie la base verbale *pile*, ‘pile’.

- (4) John piled books high. → John made a high pile of books.
Jean empila les livres hauts. → *Jean fit une haute pile de livres.*

La construction pseudo-résultative est grammaticale en anglais, et cela ne pose aucun problème théorique car l’anglais peut former des *strong resultatives* (Washio, 1997) de type adjectival. L’étude de cette construction dans les langues romanes est plus intéressante car elles sont de type *verb frame*

²La liste complète est reportée dans l’appendice.

³Où S correspond à la base nominale.

(Talmy, 1991) et par conséquent ne peuvent pas participer aux constructions *strong* résultatives.

Dans ce cadre, une étude a été menée pour recueillir des données sur l'italien et le français. En particulier, des expériences d'interprétation ont été conduites sur des locuteurs natifs d'italien et de français pour vérifier la grammaticalité de la construction pseudo-résultative (PR) dans ces deux langues.

Le chapitre 4 reporte les résultats d'une expérience de décision sémantique qui a été conduite sur 106 locuteurs natifs de l'italien. Il montre comme les locuteurs natifs de l'italien acceptent la construction PR dans 85% des cas analysés quand l'objet direct est explicite (5), et dans 99% des cas quand l'objet direct est pronominal (6).

(5) Giovanni ha im-pila_i-to i libri alti_i.
G. a im-pile-PERF. DET.M.PL. livre.M.PL. haut-M.PL.
G. a empilé les livres hauts.

(6) Quando Giovanni ha messo a posto i libri,
Quand G. a mis-PERF. à place DET.M.PL. livre-PL.,
li ha impilati alti.
3.M.PL.ACC a im-pile-PERF. haut-M.PL.
Quand G. a rangé les livre, il les a empilés hauts.

L'accord morphologique explicite des adjectifs italiens est particulièrement utile dans la confirmation de l'hypothèse avancée par Levinson (2007) sur la structure de la construction PR. En effet, le fait que l'adjectif soit accordé morphologiquement avec l'objet direct, alors qu'il modifie l'entité implicite (la base) du verbe, est pris comme un comportement révélateur de la nature de la base verbale. Elle est une racine et pas un substantif catégorisé.

Deux autres points permettent de mettre en évidence la nature catégorielle de la base verbale. Le premier est constitué du fait que la (a)telicité (Pustejovsky 1991 ; Jackendoff 1991) des verbes participants à la construction PR n'est pas affectée par le type de base présente. Par exemple, la phrase n'indique pas clairement le nombre de piles que le sujet a créées. Cela est révélateur du fait que la base verbale, en n'étant pas catégorisée, n'est pas spécifiée pour le trait de nombre.

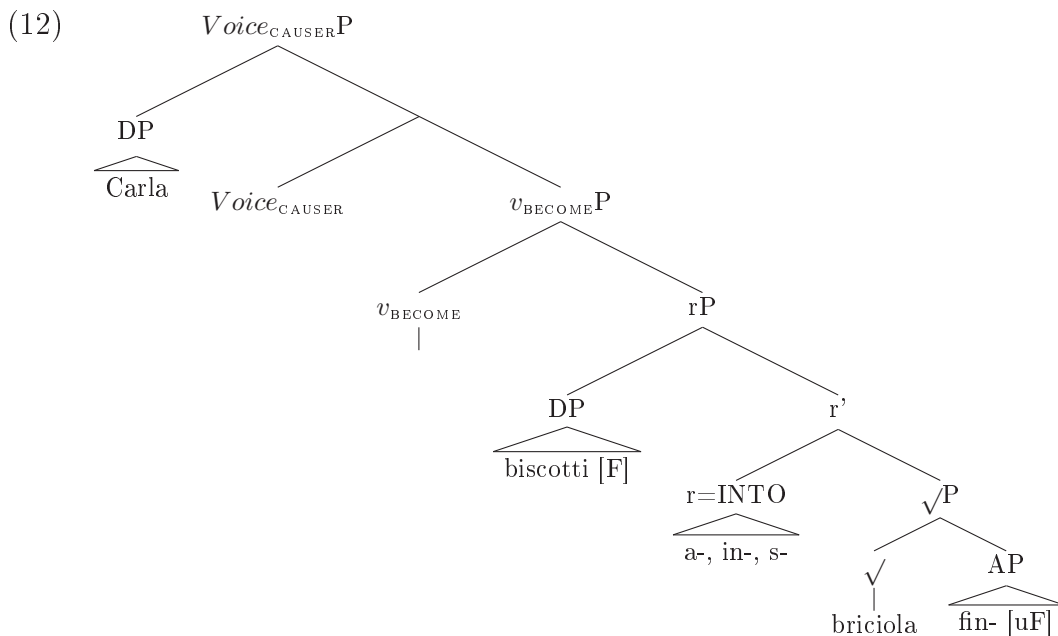
(7) Jean empila les livres.

Le deuxième point est constitué d'un test lexicale. Il est basé sur l'hypothèse qu'un verbe dérivé d'une racine peut être modifié par des adjoints référant au même champ sémantique sans générer des phrases inacceptables, contrairement à un verbe formé sur un substantif catégorisé.

- (8) Sandro ha allineato le tessere del domino lungo una circonferenza.
Sandro a aligné les domino le long d'une circonférence.
- (9) ... Si sono spinti giù per la rampa e hanno ammassato in un mucchio le coperte che fanno da letto ai nuovi ospiti⁴.
Ils ont descendu la rampe et ils ont mis dans un tas les couvertures qui font de lit aux nouveaux hôtes.
- (10) Oggi appaiono separati uno dall'altro non solo per le successive erosioni operate sulla dorsale dal Torrente Cormor, ma anche per l'azione di due sistemi coniugati di faglie verticali che in tempi recenti hanno spezzato in segmenti la dorsale spostandone leggermente le singole porzioni.⁵
Aujourd'hui ils semblent séparés l'un de l'autre par les érosions qui ont opéré sur la dorsale du torrent Comor, mais aussi par l'action de deux systèmes de failles verticales qui ont cassé en segments la dorsale en déplaçant chaque portion dans les temps récents.

Grâce à ces points, la structure argumentale de la phrase en (11) est supposée être celle reportée en (12).

- (11) Carla sbriciola i biscotti fini.
Carla fait des fines miettes de biscuit.



⁴<http://ricerca.repubblica.it/repubblica/archivio/repubblica/2010/08/30/nei-box-sotterranei-hot>
 18/10/2016.

⁵http://www.geoscienze.units.it/geositi/vedigeo1.php?ID_GEO=221,
 18/10/2016.

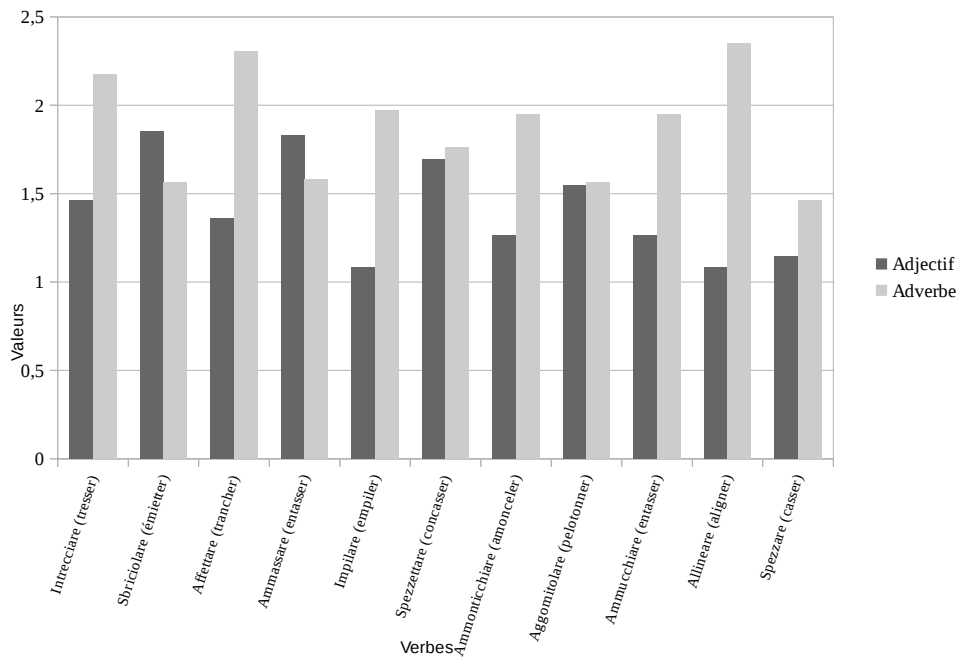


FIGURE 1 : Estimation d'ampleur, résultats.

Les locuteurs natifs de l'italien participant à la première expérience sur phrases comme (13) et (14), ont exprimé de manière informelle leur préférence pour des phrases comme (15), où la modification est faite par un adverbe.

- (13) Quando giocano, i bambini incolonnano i lego storti.
Quand les enfants jouent, ils empilent les lego tordus.
- (14) Quando giocano con i lego, i bambini li incolonnano storti.
Quand ils jouent aux legos, les enfants les empilent tordus.
- (15) Quando giocano con i lego, i bambini li incolonnano confusamente.
Quand ils jouent aux legos, les enfants les empilent confusément.

Une expérience d'estimation d'ampleur (Bard, Robertson, Sorace 1996) a été menée pour déterminer si les sensations reportées de manière informelle par les locuteurs étaient scientifiquement confirmées. Les résultats, reportés à la section 4.5 et dans le graphe (à la page xxiv), montrent que les adverbes synonymes des adjectifs en fonction pseudo-resultative sont effectivement préférés.

La section propose une motivation à cette facilité d'interprétation des adverbes par rapport aux adjectifs dans la construction PR. Notamment, les adverbes peuvent avoir deux *scope* quand ils modifient un verbe résultatif.

Un *lower scope* se produit quand l’adverbe modifie la partie résultative, un *wide scope* quand il modifie la partie verbale.

L’objet de cette étude est particulièrement intéressant dans le panorama des prédications secondes dans les langues romanes (Talmy 1991, 2000 ; Acedo-Matellán 2012 ; Folli 2001 ; *inter alia*). En effet, l’italien montre des caractéristiques singulières par rapport aux autres langues de la même famille. Si les constructions résultatives prépositionnelles sont pleinement productives, comme on s’y attend, les constructions résultatives adjectivales le sont partiellement (Folli, 2001 ; Napoli, 1992), alors que on s’attendrait à qu’elles ne le soient pas.

Pour cela le chapitre 5 analyse l’accessibilité à la construction pseudo-résultative de 44 locuteurs natifs du français grâce à une expérience d’interprétation sémantique⁶ équivalente à celle conduite pour l’italien.

- (16) Quand Jean essaye de ranger ses affaires, il les amoncelle hautes sur le bureau.

Les résultats sont intéressants car ils montrent que l’accessibilité à cette construction est en français aussi plus faible qu’en italien. En particulier, sur 8 verbes testés, seulement 3 ont reporté des valeurs compatibles avec une hypothèse de grammaticalité de la construction : *empiler*, *trancher*, *tresser*. Il est assez remarquable que ces verbes soient les seuls qui ont un rapport phonologique direct avec la base verbale.

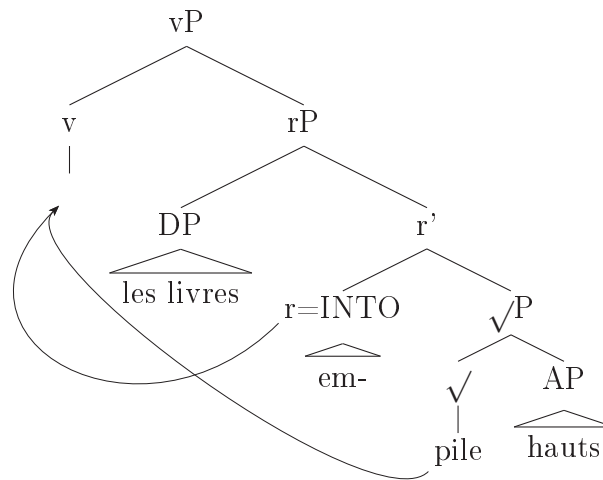
- (17) a. empiler → pile
b. tresser → tresse
c. entasser ↗ tas
d. amasser ↗ amas

Le fait qu’ils aient un rapport phonologique transparent avec leurs bases est le facteur déterminant pour la possibilité d’y construire la PR. En effet, si la base est accessible phonologiquement aux locuteurs, elle l’est aussi syntaxiquement. Cela permet à l’adjectif de la modifier (19).

- (18) ... empile les livres hautes.

⁶Dont les items expérimentaux sont reportés dans l’appendice. Toute l’expérience a été validée du point de vue de la correction linguistique par un locuteur natif.

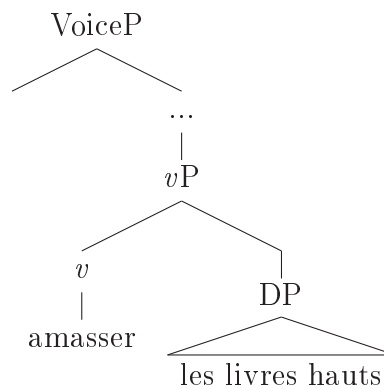
(19)



Au contraire, les verbes qui ne possèdent pas un rapport phonologique transparent avec leurs bases ne sont pas perçus par les locuteurs natifs comme syntaxiquement dérivés. Cela empêche à l'adjectif de modifier la base verbale, cette dernière n'étant pas présente dans la dérivation (21).

(20) ... amasser les livres hauts.

(21)



Pour résumer, la première partie de la thèse prend en considération des verbes parasynthétiques italiens et en étudie les interactions avec la construction pseudo-résultative (PR). Grâce aux résultats de deux expériences conduites sur des locuteurs natifs de l'italien, l'acceptabilité de la construction PR a pu être précisée. Elle est préférée quand l'objet direct est pronominalisé (99% de taux d'acceptabilité) plutôt que lorsqu'il est l'objet direct explicite (85% de taux d'acceptabilité).

Les adverbes synonymes des adjectifs (s'ils sont présents dans le lexique de la langue) reçoivent plus facilement une interprétation PR. Cela est expliqué par leur plus grande correspondance entre syntaxe et sémantique.

Pour vérifier si l’italien occupe une position particulière dans le panorama des langues romanes pour ce qui concerne la construction PR, comme pour les secondes prédications adjectivales (Di Napoli 1992 ; Folli 2005), le chapitre 5 reporte les résultats d’une expérience d’interprétation sémantique conduite sur le français. Ils montrent qu’en français la construction PR n’est pas généralement acceptable, sauf pour les verbes dérivés qui ont une relation phonologique explicite avec leur base. Dans ce cas l’acceptabilité de la construction monte significativement.

Deuxième partie : verbes ambiguës

La deuxième partie de cette thèse porte sur les verbes italiens parasynthétiques causatifs du type “faire N plus A”, qui entretiennent une double lecture aspectuelle : stative et événementielle.

(22) Daria abbellisce la stanza.
Daria embellit la chambre.

(23) Le foto abbelliscono la stanza.
Le photo embellissent la chambre.

Cette partie touche différentes problématiques liées aux questions de la stativité, de la causalité et de leur rapport. En particulier, il est mis en évidence que stativité et causalité ne sont pas opposées, mais qu’elles peuvent être présentes dans un même verbe ; le fait qu’elles soient souvent séparées est dû à des questions cognitives qui déterminent une facilité de construction d’environnements causatifs dans le cas de verbes événementiels. Le cadre formel appelé *force-dynamic* (Copley & Harley, 2015) a été adopté.

Les verbes parasynthétiques à base adjectivale pris en compte sont divisés en trois groupes, selon la sémantique de leur base : psychologiques (*ins-tupidire*, ‘abrutir’), de forme (*ingrandire*, ‘agrandir’), de surface (*ingiallire*, ‘jaunir’). Seuls les deux derniers sont étudiés, dans le chapitre 7. En particulier, les verbes de forme sont supposés impliquer un changement physique, qui donc entretient une causalité énergétique et qui en conséquence dérive une lecture événementielle (24). Les verbes de surface sont supposés générer deux lectures qui sont mises en évidence par l’(in)animacité de l’argument externe. Dans le cas d’arguments externes inanimés, les verbes de surface ont une lecture stative ; dans le cas d’arguments externes animés, ils ont une lecture événementielle⁷ (25).

⁷Au moins qu’ils ne sont pas interprétés comme inanimés, comme en :

(1) Pierre illumine la pièce par sa présence.

- (24) a. Daria appesantisce la barca.
Daria alourdit le navire.
- b. La cassa di cemento appesantisce la barca.
La caisse de béton alourdit le navire.
- (25) a. Daria ingiallisce la casa.
Daria jaunit la maison.
- b. L'erba secca ingiallisce la casa.
L'herbe sèche jaunit la maison.

La distinction entre différentes lectures aspectuelles impose une autre problématique théorique, notamment celle liée aux diagnostics de la stativité. Le chapitre 6 prend en considération les diagnostics les plus fréquemment utilisés dans la littérature, pour en analyser la fiabilité. Les diagnostics qui se révèlent être pertinents sont utilisés dans le chapitre 7, qui après une partie descriptive, propose une mise à jour du cadre formel *force-dynamique* pour pouvoir y insérer les verbes statifs causatifs.

Le chapitre 8 reporte les résultats d'une collaboration dans un projet international entre CNRS-SFL (France) et Emory University (Georgia, US) à propos de la détermination automatique de l'aspect verbal. En particulier, il décrit les étapes qui ont été suivies pour la création d'un gradient de stativité/événementialité des verbes anglais extrapolés d'un corpus de Twitter.

Diagnostics pour la stativité

Le chapitre 6 analyse les différents diagnostics de la stativité présents dans la littérature. En particulier, il les divise en deux groupes selon le phénomène qu'ils mettent en évidence. Le premier groupe est constitué de diagnostics qui utilisent des critères syntaxiques. Le deuxième de ceux qui utilisent des critères sémantiques.

Parmi les diagnostics qui utilisent des critères syntaxiques, donc la dichotomie grammatical/agammatical, on trouve l'impossibilité pour les verbes statifs de participer de manière licite à l'impératif et à la périphrase progressive (Bertinetto, 1991 : 30). Le chapitre met en évidence le fait que ce type de diagnostics n'est pas fiable.

Pour ce qui concerne l'agrammaticalité des statifs dans la périphrase progressive, on peut voir que ce diagnostic semble fonctionner comme prévu avec des verbes statifs prototypiques (26). Toutefois, comme affirmé par Grossmann (2004 : 347), cela n'est pas le cas pour la totalité des verbes statifs, comme *soffrire*, 'souffrir', en (27), ou *amare*, 'aimer', en (28).

- (26) *Sta possedendo cinque case.
Il est en train de posséder cinq maisons.
- (27) Sta soffrendo.
Il est en train de souffrir.
- (28) Maria sta amando questo caffè.
Marie est en train d'aimer ce café.

Il faut remarquer que l'exemple (28) décrit une situation ponctuelle. En effet, le progressif italien force une lecture particulière, limitée dans le temps : “[...] *the Italian diachronic data show that at the beginning the progressive refers to purely durative situations and only later has it specialized as an aspectual form, not expressing purely durativity, but imperfectivity*”, (Squartini 1998 : 102). En d'autres termes, des états permanents ou des activités qui durent toute la vie d'un individu (29)⁸ sont agrammaticales dans cette construction aspectuelle. A ce propos, Squartini (1998), tout en affirmant l'exclusion des statifs du progressif, affirme la majeure acceptabilité des SLP⁹ dans cette construction.

L'usage du progressif est en expansion dans l'italien contemporain (Berretta, 1993 : 220), ce qui peut en expliquer la grammaticalité de certains statifs, notamment les SLPs.

- (29) Maria sta lavorando a scuola.
Marie est en train de travailler à l'école.

L'autre diagnostic souvent utilisé dans la littérature pour discriminer entre verbes statifs et événementiels, sur la base de critères syntaxiques, est l'impératif. Selon Squartini (1990) et Levin (2007), l'agrammaticalité qui se produit est due à une manque d'agentivité, ce qui automatiquement exclu les verbes statifs. Toutefois, on peut voir dans les exemples suivants que, même en étant dépourvus d'agent, ils sont parfaitement acceptables sous l'impératif.

- (30) Ricordati di santificare le feste.
Pense à observer le jour du repos.
- (31) Non desiderare la donna d'altri.
Tu ne commettras pas d'adultère.

⁸Cet exemple est agrammatical là où il est interprété comme si l'activité de Marie se déroule de manière durable pour toute la vie de Marie, interprétation possible pour le progressif espagnol.

⁹Stage level predicates.

Le chapitre se conclut en formulant l'hypothèse selon laquelle l'agrammaticalité de l'impératif ne réside pas dans l'*aktionsart* du verbe, mais dans l'impossibilité de la personne à laquelle l'impératif s'adresse d'influencer l'événement.

En conclusion, ni l'impératif ni la périphrase progressive ne sont des diagnostics fiables pour la discrimination de l'*aktionsart* statif en italien.

Du côté des diagnostics reposant des ambiguïtés sémantiques comme discriminant entre verbes statifs et événementiels, on trouve : l'interprétation sous verbe modal, l'orientation temporelle et la contribution à l'avancement d'une chaîne narrative.

Giorgi & Pianesi (1997) prennent en considération les différentes interprétations que les verbes modaux anglais génèrent, en particulier *must* 'devoir' : déontique ou épistémique. L'interprétation déontique concerne un ordre sur une action qui doit être réalisée. L'interprétation épistémique concerne une hypothèse à propos de l'état des choses, une spéculation sur une situation présente.

La différence de lecture que les verbes modaux peuvent engendrer est liée à l'*aktionsart* du verbe lexical. Les verbes statifs peuvent générer les deux lectures (32), les verbes événementiels seulement la lecture déontique (33).

(32) Daria doit aimer Pierre...

- a. pour commettre une erreur si bête.
- b. pour être une bonne femme.

(33) Daria doit courir le Marathon de Paris...

- a. # pour abîmer ses chaussures de cette façon.
- b. pour mincir.

Le chapitre reporte les résultats d'un test d'interprétation sémantique¹⁰ qui a été conduit sur 188 locuteurs natifs de l'italien, et qui avait comme objectif l'étude de la validité de cette distinction de lecture en italien.

Les résultats montrent que le verbe modal italien *dovere* 'devoir' conduit à différentes interprétations selon l'*aktionsart* du verbe lexical. Les verbes, qui ont été inclus dans l'expérience pour être probablement statifs, ont été

¹⁰Une réplique d'un autre test conduit sur locuteurs natifs de l'anglais et dont les résultats sont contenus dans le chapitre 8.

jugés, sous verbe modal, comme générateurs de lectures épistémiques et déontiques¹¹. Au contraire, les verbes inclus en étant probablement événementiels ont généré seulement une lecture déontique (Tableau 6.4).

Des exemples d'items expérimentaux sont fournis dans les phrases suivantes.

- (34) Carla deve conoscere il contenuto del testamento di Maria.
Carla doit connaître le contenu du testament de Marie.
- (35) Il libro sulla storia d'Italia deve interessare Maria.
Le livre sur l'histoire italienne doit intéresser Marie.
- (36) Sandro deve sciogliere del burro.
Sandro doit faire fondre le beurre.

La possible ambiguïté de lecture générée par les verbes modaux est liée à l'orientation temporelle des phrases qui les contiennent. Une phrase contenant un verbe statif sous modal requiert que la situation soit réalisée dans le présent ; au contraire, une phrase contenant un verbe événementiel sous modal requiert que la situation soit réalisée dans le futur (Condoravdi 2002 : 69) : “*Note that the temporal interpretation of the complement in [a stative sentence] is present-like, while in [an eventive sentence] is future-like. [The stative one] means that given what we know now it follows that you love Lin now, while [the eventive one] means that to be in line with requirements you need to kiss Lin sometime in the future*” (Katz 2006).

- (37) Daria deve amare Maria oggi/*domani.
*Daria doit aimer Marie aujourd'hui/*demain.*
- (38) Daria deve correre la maratona di Parigi oggi/domani.
Daria doit courir la marathon de Paris aujourd'hui/demain.

Un autre diagnostic qui utilise des critères sémantiques qui sont capable de distinguer entre statifs et événementiels est constituée des différentes possibilités d'avancement de la chaîne narrative par les deux *aktionsarten* (Dry, 1983 ; Katz, 2003).

L'exemple (39) crée une chaîne narrative qui s'ouvre par Daria qui arrive à la maison, et se poursuit par l'événement de sa fille qui s'assoit et par l'événement du chien qui s'endort. L'exemple (40) crée une chaîne narrative qui s'ouvre avec l'arrivée de Daria pendant que sa fille était assise et le chien était endormi¹².

¹¹Même si cette dernière a été sélectionnée moins fréquemment.

¹²Les imparfaits sont des statifs dérivés.

- (39) Daria est arrivée. Sa fille s'est assise sur le canapé et le chien s'est endormi sur le tapis.
- (40) Daria est arrivée. Sa fille était assise sur le canapé et le chien était endormi sur le tapis.

La contribution à la narration différentes dans les deux exemples précédents est en outre démontrée par le fait que, pour le premier, un changement dans l'ordre d'apparition des verbes conduit à une narration différente, tandis que, pour le deuxième, un changement dans l'ordre d'apparition des verbes ne conduit à aucun changement dans la narration.

- (41) Daria est arrivée. Le chien s'est endormi sur le tapis et sa fille s'est assise sur le canapé.
- (42) Daria est arrivée. Le chien était endormi sur le tapis et sa fille était assise sur le canapé.

En conclusion, le chapitre 6 porte sur les tests syntaxiques et sémantiques qui sont normalement utilisés comme diagnostics de stativité. Il démontre que les diagnostics qui utilisent des agrammaticalités ne sont pas fiables. Au contraire, ceux qui utilisent des ambiguïtés sémantiques sont capables de trancher une ligne nette entre verbes statifs et événementiels.

Le chapitre 6 rapporte les résultats d'une expérience de Gennari & Poeppel (2003), qui met en évidence une différence des temps de lecture des verbes statifs par rapports à ceux des verbes événementiels dans le cadre d'une expérience de lecture auto-segmentée. Les verbes statifs sont lus plus vite que les verbes événementiels, à parité de conditions (Tableau 6.1).

Verbes à base adjectivale

La détermination des éléments responsables de la stativité est un problème complexe. L'étude des verbes qui présentent une alternance systématique entre deux *aktionsarten*, et qui constituent donc des paires minimales, peut l'éclaircir.

Les différences aspectuelles qui peuvent avoir lieu dans les verbes parasynthétiques à base adjectivale sont analysées. En particulier, le chapitre 7 analyse la sémantique causative qui génèrent deux lectures en relation à la sémantique de la base verbale.

L'approche théorique utilisée est la *force-dynamique* (Colpey & Harley, 2015) qui a été revue et dont certains éléments ont été modifiés, ou des nouveaux introduits. C'est le cas de *abduction*, une composante causative, introduite dans la dérivation par le locuteur, qui est responsable de la lecture

stative-causative et dont la correspondance cognitive est confirmée par la présence d'un paramètre de juge (Laherson, 2005 ; Stephenson, 2007).

Ambiguïtés de lecture aspectuelle

Différents types d'ambiguïtés entre *aktionsarten* existent. Des verbes statifs peuvent être utilisés dans des structures qui en forcent l'interprétation événementielle (43). Des verbes événementiels peuvent être utilisés dans des structures qui en force l'interprétation stative (44). Des verbes peuvent être lus soit comme événementiels soit comme statifs à parité de structure syntaxique et d'éléments lexicaux (45). Ce dernier cas est le plus intéressant du point de vue théorique car il permet de déterminer les éléments, internes à la structure lexicale, qui sont à l'origine de la stativité.

(43) Ce café est en train de plaire beaucoup à Daria.

(44) Daria court des Marathons.

(45) a. Les arbres entourent le château.
b. Les soldat entourent le château.

Il faut souligner que, contrairement à ce qui a été constaté dans la littérature, les verbes statifs ne constituent ni un groupe homogène ((Rappaport Hovav & Levin 1998 ; Harley 1995 ; Ramchand 1998), ni un primitif aspectuel (Pykkänen 2000 ; Rothmayr 2006). Par conséquent, des structures différentes pour la macro-catégorie de statifs peuvent être supposées.

Composantes morphologiques

La deuxième partie de la thèse porte sur les verbes parasynthétiques à base adjectivale dont la paraphrase est “faire l'objet A, faire l'objet plus A”, où A correspond à la base adjectivale du verbe.

L'étude a circonscrit 221 verbes italiens dont la paraphrase est “faire l'objet A, faire l'objet plus A” et qui rentrent dans ce type (appelés DPVs), parmi eux *accecare* ‘aveugler’, *addolcire* ‘doucifier’, *ingiallire* ‘jaunir’, *sgrezzare* ‘rendre moins brut’¹³.

La section 7.3.1.1 démontre que la nature de la base verbale est celle de l'élément non catégorisé (racine) grâce à deux indices : l'échelle et la modification. Pour ce qui concerne la première, si la base était catégorisée, on s'attendrait à voir une influence de l'échelle¹⁴ adjectivale sur la sémantique

¹³La liste complète est dans l'appendice.

¹⁴L'échelle est définie comme : “a pair $\langle S, \preceq \delta \rangle$ consisting of a set of objects and an asymmetric ordering relation along some dimension δ ” (Kennedy & McNally 2002 : 8).

verbale. Les DPVs, d'un coté ne sont pas formés sur une classe spécifique d'adjectifs (Tableau 7.1 à la page 142), de l'autre, ils ne montrent pas de comportements différents liés à la présence d'adverbes de degré *completamente* 'complètement', *parzialmente* 'partiellement'.

- (46) Il ghiaccio ha completamente infreddolito i bambini.
La glace a complètement refroidi les enfants.
- (47) La pioggia ha infradiciato parzialmente i panni stesi.
La pluie a mouillé partiellement le linge mis à sécher.
- (48) Il sole ha completamente arrostito Giovanni.
Le soleil a complètement rôti Jean.
- (49) La vincita al Lotto ha parzialmente arricchito Maria.
Le gain au Loto a partiellement enrichi Marie.

En outre, les DPVs ne peuvent pas être formés sur des bases modifiées. Le fait que les morphèmes modificateurs ne puissent pas apparaître dans la base verbale est signe du fait que la base n'est pas catégorisée.

- (50) bello - bellissimo - *abbellissimare
beau - extrêmement beau - faire extrêmement beau
- (51) grande - grandissimo - *ingrandissimire
grand - extrêmement grand- faire extrêmement grand

Les résultats des tests montrent clairement que la détermination du type d'échelle de la base verbale n'est pas possible. Pour cela, la base verbale est considérée comme une racine, dont la sémantique n'a pas été limitée par le catégorisateur. La structure proposée est donc la suivante.



L'autre composante morphologique des DPVs est le préfixe, dont la distribution parmi les trois classes (*a-*, *im-*, *s-*) est reportée dans le Tableau 7.3 (à la page 144).

En accord avec Scalise (1990), les préfixes sont considérés comme responsables de l'introduction de la sémantique causative. En effet, dans certains cas, les DPVs peuvent alterner, sans effets sur le sens, avec les verbes correspondants formés à l'aide du suffixe causatif *-izzare* ou *-ificare*.

- (53) lombardo - lombardizzare
Lombard - lombardiser
- (54) virtuale - virtualizzare
virtuel - virtualiser
- (55) illombardire (attendu)
faire lombard
- (56) invirtualire (attendu)
faire virtuel

Pour cela, ils sont positionnés dans la tête fonctionnelle *r*, qui est responsable de l'introduction de la sémantique causative.

Rôles du sujet

D'après Kratzer (1996), le sujet n'est plus considéré comme introduit par le verbe lexical, mais plutôt par une tête fonctionnelle appelée *Voice*. *Voice* doit être sémantiquement accordée avec l'*aktionsart* du verbe lexical. Cela entraîne deux conséquences importantes : le sujet n'a aucune influence sur l'*aktionsart* du verbe car la relation est de type ascendante (de *v* à *Voice*) ; le rôle du sujet est un reflet de l'*aktionsart* du verbe.

La section 7.4 reporte la méthodologie et les résultats d'une expérience qui enquête sur de possibles différences d'accessibilité entre sujets animés et sujets inanimés des DPVs italiens. En conclusion, aucune différence d'accessibilité liée à l'(in)animacités des sujets n'a été mise en évidence. On peut donc conclure que les DPVs sont plausibles tant avec des sujets animés qu'avec des sujets inanimés.

Différentes catégories des DPVs et leurs *aktionsarten*

La section 7.5 analyse les différentes catégories de DPVs en relation avec la sémantique de la racine constituant la base verbale. Selon la qualité décrite par la base, on peut distinguer trois groupes de DPVs : de forme, de superficie et psychologique.

Le premier groupe, constitué par les DPVs qui ont une base de forme comme *allargare* 'élargir', *appiattire* 'aplatir', *rimpicciolire* 'réduire', décrit un changement physique qui a lieu sur l'objet direct. En d'autres termes, l'objet subit un changement dans l'une de ses caractéristiques intimes, et cela entraîne en une différence clairement identifiable, un δ sur une caractéristique prise en compte par la base. Par exemple, si un mur est large de dix centimètres et qu'il a été élargi de cinq centimètres, une différence physique a été produite sur une des caractéristiques fondamentales du mur, sa largeur.

Le deuxième groupe, constitué par les DPVs qui ont une base de surface comme *imbiancare* ‘blanchir’, *insozzare* ‘salir’, *annerire* ‘noircir’, décrit un changement externe à l’objet même qui ne modifie pas vraiment une de ses caractéristiques internes. Si un mur est peint en bleu, on peut pas identifier clairement un δ sur la couleur du mur, il n’y a pas eu une modification intrinsèque du mur.

Le troisième groupe est constitué par les verbes qui ont comme base une racine psychologique, comme *instupidire*, ‘abrutir’, *rimbecillire*, ‘abrutir’ et *inristire*, ‘attrister’. Ce groupe n’est pas pris en compte dans l’étude.

La section 7.6 utilise les diagnostics de stativité décrits par la section 6 afin de mettre en évidence les différentes lectures générées par les DPVs de forme et les DPVs de surface. En particulier, les diagnostics suivantes sont utilisés : interprétation sous verbe modal *dovere* ‘devoir’ - exemples (57) à (60); interprétation de l’adverbe *già* ‘déjà’, - exemples (61) à (62); la contribution à la chaîne narrative - exemples (39) à (40); et les adjoints instrumentaux possibles - exemples (65) à (66). Ces diagnostics soulignent comment les deux groupes n’ont pas les mêmes possibilités de générer une lecture stative. Seuls les verbes de surface peuvent la générer. Un résumé est présenté dans le tableau 1.

- (57) a. Giovanni deve allargare il muro entro domani affinché il lavoro sia finito.
G doit élargir le mur avant demain afin que le travail soit terminé.
- b. L’umidità deve allargare il muro entro domani affinché il lavoro sia finito.
L’humidité doit élargir le mur avant demain afin que le travail soit terminé.
- (58) a. Giovanni deve appiattare il cuscino entro cinque minuti per andare a letto.
G doit aplatir le coussin dans cinq minutes pour aller se coucher.
- b. I collanti devono appiattare il sedere di Giovanna in un’ora affinché possa andare alla festa.
Les collants doivent aplatir le derrière de G. dans une heure afin qu’elle puisse aller à la fête.
- (59) a. Il pittore deve imbiancare la tela entro domani per finire il lavoro.
Le peintre doit blanchir la toile avant demain pour terminer le travail.

- b. *La pittura deve imbiancare la tela entro domani per finire il lavoro.
**La peinture doit blanchir la toile avant demain pour terminer le travail.*
- (60) a. Il delinquente deve insozzare la porta entro due minuti affinché il lavoro sia finito.
Le délinquant doit salir la porte dans deux minutes afin que le boulot soit terminé.
- b. *Il fango deve insozzare la porta entro sabato affinché il lavoro sia finito.
**La boue doit salir la porte avant samedi afin que le boulot soit terminé.*
- (61) a. *Giovanni allarga già il buco del salotto.
G élargit déjà le trou dans le salon.
- b. *L'umidità allarga già il buco della cucina.
**L'humidité élargit déjà le trou dans le salon.*
- (62) a. Il pittore imbianca già la tela del Caravaggio.
Le peintre blanchit déjà la toile du Caravaggio.
- b. La pittura imbianca già la tela del Caravaggio.
La peinture blanchit déjà la toile du Caravaggio.
- (63) a. Daria è arrivata, ha ingrandito il buco e si è seduta sul divano.
Daria est arrivée, elle a agrandi le trou et s'est assise sur le canapé.
- b. La muffa si è formata, ha ingrandito il buco ed è morta.
La moisissure s'est formée, elle a agrandi le trou et est morte.
- (64) a. Daria è arrivata, ha imbiancato la tela del Caravaggio e si è seduta sul divano.
Daria est arrivée, elle a blanchi la toile du Caravaggio et s'est assise sur le canapé.
- b. La vernice è stata stesa, ha imbiancato il muro e ha schiarito la stanza.
La peinture a été étalée, elle a blanchi le mur et éclairci la pièce.
- (65) a. ??La muffa ha allargato il muro con le sue spore.
??La moisissure a élargi le mur avec ses spores.
- b. La muffa ha allargato il muro a causa delle (sue) spore.
La moisissure a élargi le mur à cause de ses spores.

- (66) a. ??La nebbia ha allungato la rotta con la sua densità.
 ? ?*Le brouillard a allongé la route avec sa densité.*
- b. La nebbia ha allungato la rotta a causa della (sua) densità.
 Le brouillard a allongé la route à cause de sa densité.

Les résultats des tests de stativité montrent que les verbes de forme peuvent générer seulement une lecture événementielle. Au contraire, les verbes de surface peuvent générer une lecture stative ou une lecture événementielle. Ces deux lectures sont mises en évidence par l'(in)animacités du sujet : un sujet animé est lié à une lecture événementielle¹⁵, un sujet inanimé est lié à une lecture stative.

¹⁵Même s'il faut souligner que, comme on s'y attend, un sujet animé peut être lu comme inanimé, en générant une lecture stative.

		Dovere	Già	Contrib. Temp.	Adjoint
DPVs de forme	Animé	deontique	*	✓	<i>con</i> , instruments
	Inanimé	deontique	*	✓	<i>a causa</i> , instruments
DPVs de surface	Animé	deontique	*	✓	<i>con</i> , instruments
	Inanimé	épistémique	✓	-	<i>con</i> , not instruments

TABLE 1 : Résumé des tests de stativité (DPV).

La section 7.7 analyse au moyen de paraphrases si les DPVs des deux groupes présentent une sémantique causative. Si, d'un côté, les DPVs de forme ne posent aucun problème en étant toujours événementiels, de l'autre côté, les DPVs de surface, en pouvant être interprétés comme statifs et événementiels, posent un défi. En effet, la coexistence de stativité et causalité n'est pas souvent prise en compte par les cadres formels génératifs, surtout par ceux qui considèrent la structure argumentale comme étant un produit de sous-événements.

Les paraphrases reportées dans la section 7.7 montrent que soit les DPVs de formes (67), soit ceux de surface (68) ont une sémantique causative.

- (67) a. Giovanni ha allargato il buco. → G. ha fatto qualcosa per causare il fatto che il buco sia più largo di prima.
G a élargi le trou. → G. a fait quelque chose pour causer le fait que le trou soit plus large.
- b. L'umidità ha allargato il muro. → L'umidità ha fatto qualcosa per causare il fatto che il muro sia largo.
L'humidité a élargi le mur. → L'humidité a fait quelque chose pour causer le fait que le mur soit plus large.
- (68) a. Il pittore ha imbiancato la tela. → Il pittore ha fatto qualcosa per causare il fatto che la tela sia (più) bianca.
Le peintre a blanchi la toile. → Le peintre a fait quelque chose pour causer le fait que la toile soit (plus) blanche.
- b. La pittura ha imbiancato la tela. → L'esistenza della vernice sulla tela ha causato il fatto che la tela sia bianca.
La peinture a blanchi la toile. → L'existence de la peinture sur la toile a causé le fait que la toile soit blanche.

Causalité et *force-dynamics*

Les relations de causalité sont exprimées différemment dans les langues, notamment par : des moyens morphologiques ; des moyens syntaxiques ; sans moyens spécifiques. L'étude des deux premiers cas nous montre que la sémantique causative entraîne un changement dans la structure argumentale. Pour cela, l'étude de l'expression de la causalité est intrinsèquement liée à l'étude de la structure argumentale.

Les sections précédentes ont souligné que des phrases comme (69) et (70) génèrent deux lectures aspectuelles différentes. Grâce à l'emploi des adjoints, nous avons pu voir que les chaînes causatives sont elles aussi différentes (71) et (72).

- (69) Daria embellit la chambre (avec des tableaux).
- (70) Les photos embellissent la chambre (avec leurs couleurs).
- (71) L'enfant égaye la fête avec les petites chansons.
- (72) La musique égaye la fête avec son rythme/*avec le stéréo.

Pour rendre compte de ces comportements, cette thèse utilise le cadre formel de *force-dynamic* (FD). Cette approche formelle est née dans les sciences cognitives, mais peut être mise à profit en linguistique formelle (Copley & Harley 2015; Copley & Wolff 2014; Copley 2015) parce qu'elle identifie les parties constitutives qui sont responsables de la causalité. La section 7.8.1 décrit d'une façon détaillée cette approche, et en propose une extension capable d'expliquer les verbes statifs causatifs. Notamment, il introduit le concept d'*abduction*, une "force virtuelle" qui est introduite dans le système par le locuteur et qui est responsable de la création du lien causal entre les individus de la situation (Source et Thème¹⁶).

En étudiant les principes cognitifs qui déterminent les différents patterns argumentaux, l'approche FD est arrivé à identifier que l'élément fondamental est la transmission de force d'un participant à l'autre. La causalité est donc une interaction asymétrique entre entités.

Ces entités peuvent avoir des tendances de type différent : au mouvement ou à la stase. Les tendances des entités impliquées dans la situation se somment et donnent lieu à la causalité. Par exemple, en (73) *Daria* a une tendance contraire à celle de la porte : *la porte* a une tendance au mouvement, à se fermer ; *Daria* a une tendance à la stase. *Daria*, même en restant immobile, applique donc une force de sens contraire à celle appliquée par la *porte*, et cela entraîne dans l'état résultant de la porte ouverte.

- (73) Daria ouvre la porte.

Les avantages de l'approche FD sont plus clairs dans le cas des verbes de stase comme *garder* (74a), ou *rester* (75a). Même en étant événementiel, ce type de verbes n'implique pas des événements, voire la grammaticalité des périphrases progressives (74b et 75b). Les cadres formels qui analysent la causalité comme un sous-événement ont des difficultés à en rendre compte.

- (74) a. Daria garda la porte ouverte.
- b. Daria est en train de garder la porte ouverte.
- (75) a. Daria resta au lit toute la matinée.

¹⁶Sujet et complément d'objet

b. Daria est en train de rester au lit.

Pour traduire en linguistique les éléments appartenant à la force-dynamique des sciences cognitives, il faut que ces éléments aient une validité linguistique. En d'autres termes, les forces cognitives doivent être discriminées dans la langue.

Les expériences de Wolff (2003) ont montré que différents types d'événements causatifs dans le monde sont décrits par différents moyens linguistiques. Notamment, des chaînes causatives indirectes (77) donnent lieu à des causatives lexicales, et des chaînes causatives directes (76) à des causatives syntaxiques.

(76) Daria ouvrait la porte (*par Pierre).

(77) Daria fit ouvrir la porte (par Pierre).

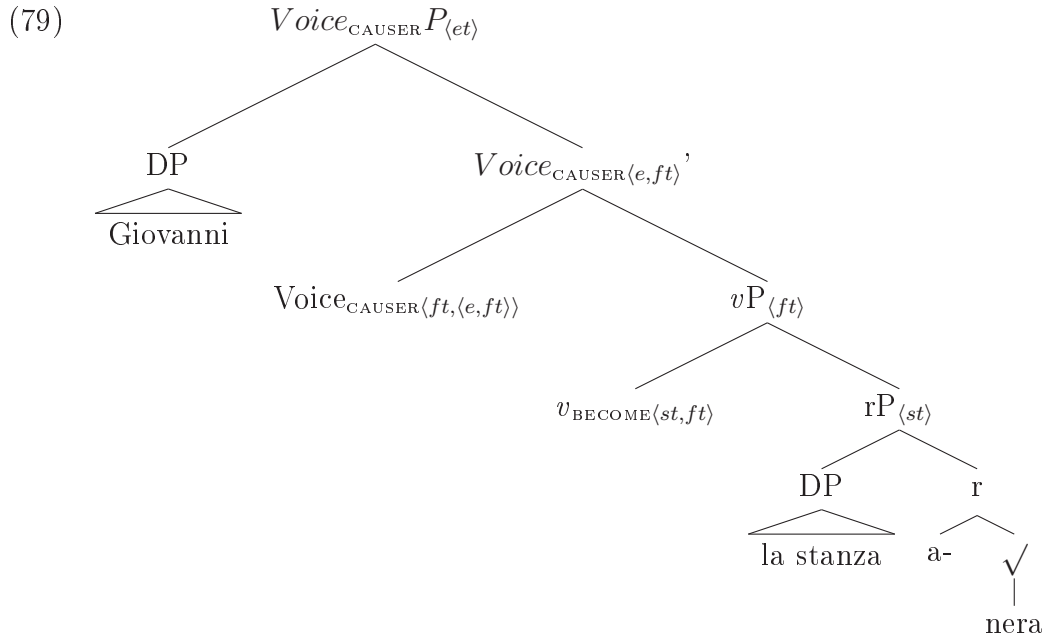
La section 7.8.1.1 résume les principes fondamentaux de l'approche FD nécessaires à sa traduction dans la linguistique formelle (Copley & Harley 2015 ; Copley 2015 ; Copley & Martin 2014). En particulier, les deux principes de base sont : la force linguistique (f) et la situation linguistique (s).

Une force linguistique (f) est temporellement et spatialement située et se produit à partir des individus présents dans la situation et de leurs propriétés. Elle est définie comme : “*a function from an initial linguistic situation s to the (ceteris paribus, linguistic) final situation s' , which corresponds to a conceptual net force φ . The latter is a (mental representation of) an input of energy that arises from all the individuals and their property attributions in a conceptual situation σ* ” (Copley & Harley 2015 : 15). C'est une fonction de type $\langle s, s \rangle$, de situation à situation.

Une situation linguistique (s) est formée des objets et de leurs propriétés (Barwise & Perry 1983 : 7 ss.), elle est délimitée par le locuteur dans son acte de langage. Elle est définie comme : “*a conceptual situation σ , which is a spatio-temporally bounded annotated snapshot of individuals and their property attributions*” (Copley & Harley 2015 : 14). Elle est de type situation, $\langle s \rangle$.

Avec ces deux moyens formels, l'approche formelle FD est capable de formaliser les verbes causatifs événementiels. Par exemple, les verbes DPVs de forme (donc événementiels) comme *appesantire* ‘alourdir’ (78) sont formalisés par (79).

(78) Giovanni annerisce la stanza.
John blackened the room.



La contribution sémantique des têtes fonctionnelles petit v_{BECOME} et $\text{Voice}_{\text{ACTIVE}}$ est :

$$(80) \quad \llbracket v_{\text{BECOME}} \rrbracket = \lambda p \lambda f. p(\text{fin}(f))$$

$$(81) \quad \llbracket \text{Voice}_{\text{ACTIVE}} \rrbracket = \lambda \pi \lambda x \lambda f. \pi(f) \ \& \ \text{source}(x, f)$$

La sémantique de Voice est dynamique, puisqu'elle est de type $\langle \text{ft}, \langle \langle e, \text{ft} \rangle \rangle$ et elle sélectionne proprement l'argument externe qui est dénommé Source dans la terminologie originale de Copley & Harley (2015), et ici Causer.

Ces moyens formels se révèlent inadéquats pour la formalisation des verbes statifs. En effet, la présence d'une force énergétique génère automatiquement des verbes événementiels, car elle garantit le passage d'une situation linguistique (et cognitive) à l'autre. D'autres moyens pour inscrire les verbes statifs causatifs dans l'approche FD sont requis (section 7.8.2.2).

Tout premièrement, il faut souligner la différence entre changement et causalité (Copley & Harley, 2015). Si, d'un côté, un changement implique nécessairement un événement causatif, de l'autre côté, la causalité n'implique pas forcément un changement. Cela est clairement présenté par les verbes de stase de (74) et (75), où aucun changement est produit.

Dans l'étude présente, on considère qu'il y a du changement quand un individu n'est pas dans le même état à deux moments t_1 et t_2 . Par conséquent, le changement est intimement lié au temps. Il en dérive que les prédicats événementiels, étant les seuls à pouvoir faire avancer le temps de référence, sont les seuls à pouvoir donner lieu à des chaînes causales.

Nous avons vu que les prédicats statifs également peuvent impliquer la causalité. Nous avons avancé l’hypothèse qu’il soit dû à la présence d’une phrase réduite (SC) dans la partie basse de la dérivation, de la même manière que pour les verbes événementiels causatifs. La SC est donc responsable seulement de la définition d’un état de l’objet direct. Le fait que pour les verbes événementiels, l’objet direct entre dans un état nouveau (déterminant un changement), et pour les verbes statifs, l’objet direct est dans un état (sans en déterminer un changement), est du au type de tête fonctionnelle v .

Pour résumer, nous croyons que la présence d’une rP dans la partie basse de la dérivation est responsable de la sémantique causative et que le changement est déterminé par la présence d’une tête verbale événementielle v_{BECOME} qui est capable de faire progresser le temps de référence et donc de permettre l’instauration de deux états pour le même individu en t_1 et t_2 .

Le fait que les concepts de changement et de causalité apparaissent souvent ensemble dans la langue est dû au fait que dans la réalité nous sommes capables de voir les liens de causalité entre individus grâce au changement. Par exemple, si quelqu’un touche un bouton et que juste après la lumière s’allume, on peut constater “*Quelqu’un a allumé la lumière*”, même si le bouton est cassé et que l’allumage est conséquence d’un pic électrique. Certaines contraintes doivent être respectées pour pouvoir établir une relation de causalité, notamment : une priorité temporelle, une contiguïté temporelle, une contiguïté spatiale et une covariance (Hume 1739/1969, 1748/1955).

Des exemples où un lien de causalité erroné est établi, ainsi que les résultats des expériences de Thorstad & Wolff (2016) à propos de l’illusion de causalité et de la perception de causalité sont reportés à la section 7.8.2.1.

Nous avons démontré que la présence d’un changement implique forcément la présence de la causalité, toutefois le contraire n’est pas vrai : la présence de la causalité ne détermine pas forcément un changement.

Causalité sans changement

Après avoir défini l’autonomie de la causalité par rapport au changement, la thèse se poursuit avec la section 7.8.2.2 qui prend en compte le cas de la causalité sans changement, c’est-à-dire le cas de la causalité statique (opposée à causalité énergétique).

La section 7.8.2.2 démontre la non-appartenance de la causalité statique au modèle FD. En outre, elle montre l’importance de la psyché dans les expressions linguistiques. La langue distingue entre phénomènes qui ont une réalité physique dans le monde et phénomènes qui ont une réalité psychologique. Elle le distingue par des moyens morphologiques. Cela est très important pour pouvoir établir une autre type de causalité, celle statique. Ce

type de causalité est censé prendre ses origines d'une réalité psychologique, notamment celle créée par la psyché du locuteur.

On imagine que la personne qui prononce (82) établit un lien entre individus dans une même situation, entre *the drape* et *the room*. La subjectivité du lien entre individus et, en conséquence, la nature génératrice de la psyché du locuteur est soutenue par le fait que plusieurs personnes peuvent décrire la même situation par des moyens linguistiques différents : *Cela est une chambre*, ou *Cela est un magasin*, ou *Cela est un ensemble insensé de choses*.

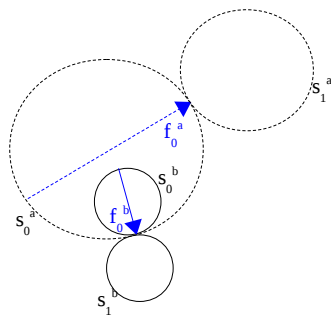
La relation entre sujet et objet n'est pas celle de *Figure-Ground*, comme proposé par Ramchand (2008 :55) pour les ILPs.

(82) The drape darkened the room.
Le drap a assombri la chambre.

(83) Mary darkened the room.
Mary a assombri la chambre.

Le fait que la causalité statique ait un statut bien différent par rapport à la causalité énergétique est mis en évidence par l'impossibilité de constater un changement sur l'état de la chambre. Pour ce qu'on sait de (82), *the room* est sombre maintenant, elle était sombre dans le passé et elle sera sombre dans le futur. Aucun changement de la chambre n'est exprimé linguistiquement. En outre, aucune force énergétique est présente. Cela entraîne que, contrairement à une phrase comme (83), il n'y a aucune transition de situation.

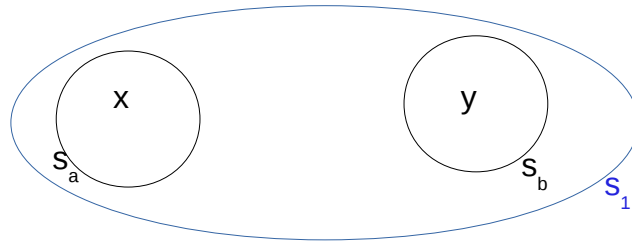
Le modèle FD représenté en (84) ne peut pas être appliqué.



(84)

Un autre modèle doit être formulé pour donner représentation aux statifs causatifs. Notamment, ce modèle ne peut pas impliquer deux situations, étant donné l'absence de forces énergétiques qui pourraient garantir le passage d'une situation initiale à une finale.

La section 7.8.2.2.2 avance l'hypothèse que la causalité statique implique la présence d'une seule situation qui contient un individu et ses propriétés. Car les DPVs de surface sont des verbes à deux arguments, ils impliquent deux situations (s_a et s_b), chacune contenant un individu et ses propriétés (x et y).



(85)

Il faut se demander quel est l'élément responsable de l'instauration du lien de causalité entre les deux individus, étant donnée l'absence de forces énergétiques. Nous proposons que le lien de causalité est introduit par la personne qui prononce la phrase. En effet, aucun rapport de causalité entre les deux individus de (82) n'arrive dans le monde. Une personne est responsable de son établissement, grâce à sa capacité abductive. Elle considère qu'il y a une relation causale entre les deux individus, pour ce qu'elle connaît du monde.

L'abduction entre en jeu quand, par exemple : “[o]ne morning you enter the kitchen to find a plate and cup on the table, with breadcrumbs and a pat of butter on it, and surrounded by a jar of jam, a pack of sugar, and an empty carton of milk. You conclude that one of your house-mates got up at night to make him- or herself a midnight snack and was too tired to clear the table. This, you think, best explains the scene you are facing. To be sure, it might be that someone burgled the house and took the time to have a bite while on the job, or a house-mate might have arranged the things on the table without having a midnight snack but just to make you believe that someone had a midnight snack. But these hypotheses strike you as providing much more contrived explanation” (<http://plato.stanford.edu/entries/abduction/>, Douven : 2011). L'abduction est présente quand une personne établit un lien entre deux entités, en croyant que la propriété de l'une d'entre elles est responsable d'une des propriétés de l'autre, sans qu'un lien physique de causalité puisse être rencontré.

Cela a deux conséquences importantes : sans la présence d'une personne pour constater et établir une relation de causalité entre deux individus, la causalité statique n'existe pas ; la présence dans la situation cognitive des deux individus est obligatoire. Par exemple, une situation sans la présence d'un canapé ne peut pas conduire à la phrase (86).

(86) Le canapé assombrit la pièce.

La causalité statique ne produit pas de changements, il n'y a pas d'effets visibles, une personne ne peut donc pas tirer des liens de causalité entre deux individus à moins que ceux-ci soient présents. De la même manière, comme seul un individu conscient est capable de produire l'abduction, seule sa présence rend possible la création d'un lien de causalité entre *le canapé* et *la pièce*.

La causalité statique est le lien entre deux propriétés de deux individus faite par la capacité abductive d'un être pensant. Le lien n'est pas physique, mais il est instauré par la psyché de l'être pensant.

Quand une personne établit un lien de causalité entre s_a et s_b de (85), elle établit qu'une propriété non-précisée de x est responsable d'une propriété de y , qui est représentable par $p(y)$. Cela est possible car les objets (dans ce cas : x et y) ont des caractéristiques particulières qui sont interprétables comme antécédents. Par exemple, *le béton* en (87) ne possède pas de caractéristiques qui peuvent être interprétées comme antécédents de *l'arbre jaune*, contrairement à *le guano*. Cela explique la diversité sémantique entre les deux exemples.

(87) ??Le béton jaunit l'arbre.

(88) Le guano jaunit l'arbre.

En effet, *le guano* a une tendance vers les *arbres jaunes* qui *le béton* ne possède pas.

Pour résumer, la causalité statique et la causalité énergétique se distinguent par deux facteurs fondamentaux. Premièrement, l'élément générateur de la causalité statique est l'abduction, contrairement à la causalité énergétique dont il est la force énergétique. Par conséquent, dans la causalité statique, les situations sont nécessairement contemporaines, comme il est représenté par s_1 en (85). Deuxièmement, les tendances des individus sont vers "l'être" dans la causalité statique et vers "l'agir" pour la causalité énergétique.

L'absence d'une force énergétique explique la variété de profils argumentaux pris par les verbes statifs.

La manque de force énergétique (qui, étant une force vectorielle, est caractérisée par un vers) permet aux humains d'utiliser différents profils argumentaux pour exprimer une même situation cognitive statique. Ils utilisent ce flou pour pouvoir mettre en évidence différents éléments, car aucune hiérarchie argumentale n'est produite dans la réalité.

(89) a. Les photos sont sur le mur.

- b. Les photos embellissent le mur.
- (90) a. Daria a peur des cauchemars.
b. Les cauchemars effraient Daria.

Dérivations

La section 7.9 reporte les dérivations de l-sémantique et l-syntaxe des DPVs événementiels et statifs.

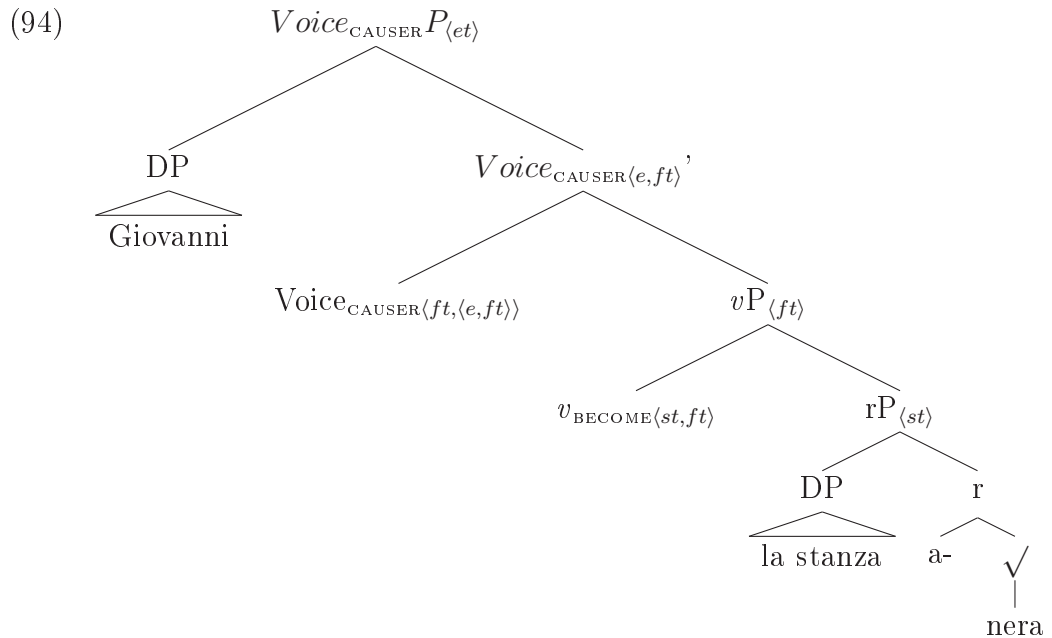
Les deux catégories de verbes ne se distinguent ni dans leur causalité (comme on a déjà vu, elles sont causatives à cause des préfixes), ni dans la nature de leurs bases (qui sont des racines). Elle se distinguent par la sémantique de la tête fonctionnelle v : les DPVs statifs ont v_{RELATION} ; les DPVs événementiels ont v_{BECOME} . La sémantique de v détermine également une sémantique différente de la tête fonctionnelle *Voice*, qui est responsable de l'introduction de l'argument externe : $Voice_{\text{SOURCE}}$ ou $Voice_{\text{CAUSER}}$.

(91) $\llbracket v_{\text{BECOME}} \rrbracket = \lambda p \lambda f. p(\text{fin}(f))$

(92) $Voice_{\text{CAUSER}} = \lambda f. \text{causer}(x, f) p(\text{fin}(f))$

(93) Giovanni annerisce la stanza.

Jean noircit la pièce.

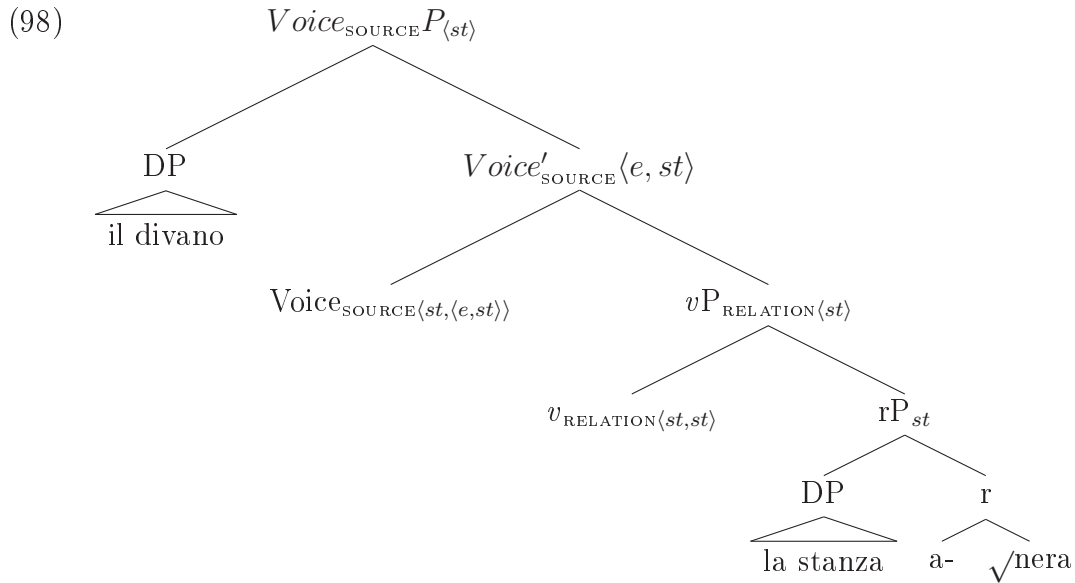


Il faut remarquer que la tête fonctionnelle v_{RELATION} est une tête prédicative qui assure la relation causale entre une propriété du sujet et une propriété de l'objet.

(95) $\llbracket v_{\text{RELATION}} \rrbracket = \lambda p \lambda s. p(s)$

(96) $\text{Voice}_{\text{SOURCE}} = \lambda s. \text{source}(x, s)p(\text{suc}(s))$

(97) Il divano annerisce la stanza.
Le canapé noircit la pièce.



La différence entre statifs causatifs et statifs non-causatifs est prise en compte à la section 7.10. En particulier, nous faisons que la causalité est générée par la présence d’une tête fonctionnelle relationnelle rP (Schäfer, 2008) dans la partie basse de la dérivation. La différence entre un verbe statif causatif et un verbe statif non-causatif est la présence d’une phrase réduite dans la l-syntaxe du premier. Cela est confirmé par le fait que la tête fonctionnelle verbale des DPVs de surface est une tête prédicative, de la même manière que par les verbes statifs non-causatifs.

Paramètre de goût personnel

La section 7.11 analyse la présence d’un paramètre pragmatique de goût dans les DPVs.

Le paramètre de goût est introduit par un prédicat de goût personnel, il représente une opinion et pas une question de faits objectifs (Laherson 2005). Cela est évident en (99) et (100) où l’affirmation peut être relativisée par la question : “pour qui ?”.

(99) Le gâteau est bon.

(100) La voiture est belle.

Dans les DPVs le paramètre de goût personnel est introduit par la racine verbale. DPVs statifs et événementiels se distinguent par les parties que ce paramètre peut relativiser. Ce phénomène est visible grâce au recours aux tests de désaccord (Stephenson 2007), dans lequel les prédicats de goût personnel admettent une contradiction (101), contrairement aux autres types de prédicats (102).

(101) A : La voiture de Daria est super.

B : Oui, elle l'est.

C : Non, pas vraiment.

(102) A : La voiture de Daria est rouge.

B : Oui, elle l'est.

C : # Non, pas vraiment.

Le test de désaccord peut être appliqué aux DPVs de différents *aktionsarten* et il met en évidence que le paramètre de juge peut relativiser toutes les parties dans le cas de DPVs statifs (105 et 106). Il relativise la partie resultative dans le cas de DPVs événementiels (103 et 104).

(103) A. Cosa fa Giovanna ?

Qu'est que fait Jeanne ?

B. Abbellisce la stanza.

Elle embellit la pièce.

C. Oh no, non la abbellisce per niente, quei quadri sono disgustosi !

Oh non, elle ne l'embellit pas du tout, ces cadres sont dégoûtants.

(104) A. Cosa fa Giovanna ?

Qu'est que fait Jeanne ?

B. Abbellisce la stanza.

Elle embellit la pièce.

C. ???Oh no, non fa niente !/Oh, no, lava i piatti !

Oh non, elle ne fait rien !/ Oh non, elle lave les assiettes.

(105) A. Qu'est que font ces fleurs sur la table ?

B. Elles l'embellissent.

C. Oh non, elles ne l'embellissent pas du tout.

(106) A. Pourquoi la table est-elle ainsi ?

B. C'est à cause des fleurs.

C. Oh non, ce n'est pas pour ça, c'est à cause de la lumière.

La possibilité du paramètre de juge de relativiser aussi la partie causative dans le cas de DPVs statifs est déterminée par la nature même de la causalité stative. La causalité stative est générée par l’opinion personnelle du locuteur. Cela permet à un autre locuteur de mettre en question ce lien causatif entre Source et Thème. En ce sens là, la nature d’abduction est révélée.

La stativité peut être détectée automatiquement

Le chapitre 8 décrit les étapes qui ont servies à la réalisation, de manière automatique, d’un gradient de stativité des verbes anglais. Il consiste en une collaboration à un projet plus vaste (CNRS-SFL et Emory University) qui a comme but l’identification automatique de l’orientation temporelle de phrases de corpus.

Nous avons vu dans le chapitre 6 que les verbes statifs entraînent des contraintes temporelles différentes des verbes événementiels. Il est clair que l’identification des verbes statifs est fondamentale pour un projet qui porte sur la définition automatique de l’orientation temporelle.

Il y a deux façon de procéder. La première consiste à lister “à la main” les verbes anglais qui normalement ont une sémantique stative. La deuxième consiste à traduire les diagnostics les plus efficaces en règles qui soient compréhensibles par un *parser* (dans ce cas : Tregex). Le chapitre 8 décrit les points forts et les faiblesses de chaque approche et montre comment la deuxième est préférable.

Le chapitre se poursuit en expliquant les diagnostics choisis, notamment périphrase progressive, alternance causative et *simple present*, et en reporte leurs traductions pour Tregex.

Dans le but de générer un seul gradient de stativité, les résultats obtenus par la fouille dans un corpus de *Twitter* des règles Tregex doivent être normalisés. Il faut comprendre quelles sont les règles les plus puissantes, celles capables d’identifier un verbe statif d’une manière efficace. Pour cela, des données humaines (section 8.2.2) ont été recueillies au moyen d’un test d’interprétation sémantique soumis à 25 locuteurs natifs de l’anglais. Les résultats obtenus ont été normalisés par une fonction de régression logistique entre jugements humains et valeurs obtenues dans la fouille de corpus. Celle-ci rend une équation qui assigne un poids à chaque règle Tregex et qui peut être incluse dans le projet principal.

Conclusions

La thèse porte sur la structure argumentale de deux types de verbes parasynthétiques italiens.

Dans sa première partie elle s'occupe de la définition de la grammaticalité de la construction pseudo-résultative en italien et en français. Pour cela, on a recouru à la récolte des données de locuteurs natifs des deux langues. Une réflexion sur les méthodologies expérimentales de la grammaire générative fait partie des études préliminaires.

La deuxième partie porte sur la définition de l'existence et de la représentation de la causalité statique.

Le dernier chapitre applique certaines découvertes de l'étude au domaine du traitement automatique du langage naturel.

Introduction

The single engine hypothesis (Marantz 1997, ff.; Harley 2005; *inter al.*) argues for the existence of only one single linguistic generative engine which is responsible for the creation of both sentences and words by means of the same syntactic rules. Thus, the internal structure of words, the combination of morphological building blocks, is syntactic in nature.

Therefore, the study of words and their structure is useful to the general syntactic discussion. Furthermore, since the lexical-syntactic (l-syntax) structure of verbs contains functional heads responsible for the introduction of verbal arguments, the study of derived verbs is particularly informative about syntax. In fact, derived verbs can lead to the identification of the role and the merge position of morphological components with respect to the arguments of the verb (i.e. Hale & Kayser 2002).

This work focuses on “morphological” derived Italian verbs, namely parasynthetic verbs (Iacobini 2004, *inter al.*). The *parasynthetic* morphological process of derivation creates verbs, adjectives and nouns in almost all Romance languages, it is in fact a Latin process maintained in its historical evolution.

The label *parasynthetic verb* identifies morphological products characterized by the simultaneous presence of a prefix and a suffix and the lack in the lexicon of intermediate derivational steps. It includes many different subclasses, distinguished for the categorial nature of their base (adjective or noun) and for the semantics they generate (causative, locative, ...). Chapter 3 proposes a general overview of the whole class, with historical references and morphological issues in order to contextualize verb sub-classes studied in this work.

Parasynthetic verbs are interesting for a general discussion about argument structure and lexical-syntax building blocks because their morphology is particularly transparent, exception made – as we will see – for the complex prefix-suffix nature.

The present work analyses two sub-groups of parasynthetic verbs, which arise specific theoretical issues depending on the categorial nature of their base, nominal or adjectival. The different nature of theoretical concerns

involved leads to the two distinct parts of the present work. The first part deals with the l-syntax of denominal verbs and their role in pseudo-resultative construction (Levinson 2007). Thus, it involves the general discussion about grammaticality of secondary predications in Romance languages, particularly in Italian and French. The second part aims to elucidate the nature of stativity and stative verbs. It is divided into three chapters: (i) stativity diagnostics, (ii) l-syntax of causative deadjectival parasynthetic verbs and their double aspectual readings (eventive and stative), (iii) an application of syntactic and semantic stativity diagnostics for the automatic extraction of temporal orientation of sentences.

Chapter 1 contains an introductory section about methodology. A small contribution to the debate about methodology in generativism is proposed, focusing particularly on experimental protocols of data collection and possible biases produced by the employment of small experiments and auto-analysis. The production of reliable data allows more profitable inter-disciplinary exchanges with other sciences investigating languages and language faculty.

Chapter 2 summarizes syntactic frameworks about syntactic structure of causative and stative verbs. Furthermore, it specifies the framework and the theoretical assumptions which are going to be employed in this study.

The first part is entitled non-ambiguous verbs, as the verbs in question do not entertain different aspectual readings.

Chapter 4 concerns the general domain of secondary predications (i.e. weak and strong resultatives) in Romance languages, with particular attention to Italian. The chapter demonstrates that denominal parasynthetics belong to the implicit creation verb class which is fundamental to the discussion about pseudo-resultative construction.

Results of a linguistic questionnaire conducted on Italian native speakers show that pseudo-resultative construction is grammatical in Italian, particularly if the construction involves a pronominal direct object. Since informal opinions collected after the questionnaire point out that speakers prefer a corresponding adverb to the pseudo-resultative adjective, a magnitude estimation task (Bard, Robertson, Sorace 1996) has been conducted. It confirms the opinion of informants, showing the higher acceptability of adverbs synonymous to pseudo-resultative adjectives. We will see that adverbs can have two scopes, as expected when occur with resultative verbs. Adverbs scope either over the result projection, being adjuncts of SC, or over the eventive projection, being adjuncts of little *v*)P.

The availability of pseudo-resultative construction has been tested for French by means of a structured questionnaire (chapter 5). The results affirm the particularity of Italian with respect to secondary predication within

the Romance panorama. The pseudo-resultative construction is much less available in French than in Italian. A possible explanation to this variance resides in the French lower phonological correspondence between verbs and base nouns. This makes harder for speakers to access the base noun. Consequently, it leads to the impossibility of establishing a predication between the base noun and the pseudo-resultative adjective.

The second part develops the topic of stativity-eventivity alternation. It concerns stativity diagnostics for Italian, the behaviour of parasynthetic deadjectival verbs and a practical application of syntactic diagnostics for the automatic extraction of specific structures from a corpus.

The notion of verbal stativity is controversial, some researchers consider it as the simplest aspectual class (Dowty 1979; Van Voorst 1992), others assume that statives are not a simple and uniform class and that stativity can combine with other aspectual influencing elements, such as causativity (Pylkänen 2000). Thus, stativity and its nature became a central issue of the syntactic debate in the last decade.

In fact, before starting a debate about the nature of stativity, it is worth isolating syntactic structures or semantic constraints that are involved in the expression of stativity. Just as a biologist interested in the study of roses must define what criteria define a rose, a syntactician interested in stativity must define a set of rules which define a stative verb.

For this reason, chapter 6 reports stativity diagnostics which have been proposed in the literature and shows that some of them are not reliable since they discriminate for phenomena related to stativity. I propose other diagnostics which are more trustworthy and apparently cross-linguistically valid. In particular, we will see that syntactic constructions capable to identify statives (i.e. imperative and progressive) do not offer a good level of exactitude, while semantic tests (interpretation under modals, interpretation with temporal adverbials and temporal narrative constraints) are more reliable and cross-linguistically valid. Furthermore, chapter 6 describes some behavioural experiments that can be employed as stative diagnostics.

Some of the stativity diagnostics described are employed in chapter 7, which analyses parasynthetic verbs with adjectival base. We will see that this type of verbs can generate a double aspectual reading (stative or eventive) depending on the semantics of the base. The semantics of the base is shown to determine whether the verb can alternate between the two aspects. Namely, if it involves a semantics of form, dimension or weight the resulting verbs do not alternate between a stative and an eventive reading; if it involves a semantics of color, brightness or beauty the resulting verbs can alternate between the two readings. This is shown to be related to the physical change

of the Theme: if a change occurs, the stative reading is excluded.

We will see that the whole class of parasynthetic deadjectival verbs involves causal readings, in both eventive and stative interpretations. For this reason, a new approach to causation is explored and partially updated to account for stative causatives, namely the force-dynamic approach to causation (Copley & Harley 2015; Copley & Martin 2015; *inter al.*). We will see that causation does not involve change, even if change automatically involves causation.

In the case of parasynthetic stative causatives, it is assumed that causation is introduced by a static force called abduction which is introduced in the system by the speaker and which generates a causal link between the Causer and the Theme. The state of the Theme is caused by the Causer's existence, without the intervention of energetic force or change. The presence of a judge parameter (Stephenson 2007) further confirms the speaker's role in the introduction of causal meaning. The judge parameter is a pragmatic modifier which relativizes the proposition such as a *for the speaker* was added. The judge parameter does not have the same referential possibilities, when the verb is interpreted as eventive the judge parameter can relativize to the speaker's opinion only the result of the verb. When the verb is interpreted as stative, the judge parameter can relativize to the speaker's opinion: the result, the fact that a causation has taken place, and the individual responsible for the causation.

I argue that the presence of a predicative result projection (rP) (Acedo-Matellán 2006) which involves the direct objectsSC in both aspects is responsible for the causal meaning. The lack of rP would derive in a non-causal meaning. The difference between stative causative and eventive causative structures resides in the semantics of the little *v* functional projection. Stative causatives involve a static v_{RELATION} , while eventive causatives involve an eventive force-dynamic v_{BECOME} .

We will see that a reliable identification of stativity is important outside the theoretical world. Chapter 8 reports my contribution to a wider natural language processing project (held by Dr. Copley, CNRS, and Dr. Wolff, Emory University) whose aim is the automatic detection of temporal orientation of sentences.

The target of the present study was to produce syntactic rules for the automatic identification of stative verbs in a corpus. Chapter 8 reports different steps which conducted to the definition of syntactic rules for stativity that can be used by a parser. The chapter further describes how we were able to define a gradient of stativity for English verbs. The gradient was obtained with the interpolation of the results of the parsing of a twitter corpus and the results of a semantic interpretation task conducted on English speakers.

Stativity plays a big role, as it is shown throughout this dissertation, in the temporal sentence orientation, since it imposes different temporal constraints. For this reason, the identification of stative verbs is particularly important in a project aiming to automatically define temporal orientation.

Chapter 1

Methodological notes

1.1 Introduction

This dissertation focuses on the lexical syntax of verbs built on a nominal and on an adjectival base. We will see during the investigation that these verbs play an important role in pseudo-resultatives (chapter 4). Moreover, they can be interpreted as stative or eventive, and can be defined as aspectually variable (chapter 7).

The structures investigated here do not constitute basic and obvious parameters of Italian, like word-order between determinants and nouns, preposition and nouns, verbal morphology and the verb. Rather, they belong to that part of language that cannot be simply investigated with informal methods, since their interpretations depend on external factors, such as contexts, intonation, world knowledge, and lexical material. We will analyze some of these disturbing external factors and we will see how they can influence research results when not properly controlled.

Even though the present work is not meant to be experimental, during its construction a reflection was made about standard methods of data collection in the generative framework. Particularly, I discuss usual methods of the generative enterprise concerning syntactic and semantic phenomena whose grammaticality is not clearly evident to all native speakers. The present research concerns constructions whose (a)grammaticality is often very difficult to determine because of: (i) low frequency in the everyday language, it is the case of pseudo-resultative construction in French and Italian; (ii) the mutual influence that linguistic elements have at the interface between syntax and semantics, such as stative/eventive alternation. We will see in this chapter that the semantic acceptability of sentences is subject to bias, such as frequent exposition to the structure or the respect of the experimenter's

expectancy.

The construction of protocols is sometimes difficult because experimental questions are difficult to translate in everyday language making them comprehensible to naive participants. Possible shortcomings of experimental protocols employed in the present work are presented within dedicated sections (section 4.4.5). Specific experimental designs employed for the dissertation are presented in dedicated sections (6.3.1.1, 4.4.1, 4.5.1, 5.2.1, 7.4, 8.2.2) where their results are fundamental for the theoretic reasoning.

In this chapter, I will face the problem of reliability of experimental protocols in generative syntax, furthermore I will delineate some reasons why the application of experimental protocols employed by other cognitive disciplines, such as psycholinguistics, would be preferable for higher reliability, possibility of an interdisciplinary relationship and scientific adequacy.

The chapter reports possible issues implied in the use of non structured designs, such as the lack of repeated measures and the impossibility of isolating variables. Furthermore, it analyses factors influencing linguistic data collection, such as the lack of context of interpretation, lexical material and its frequency, and target structure awareness by participants. These issues become more important in two cases: (i) studies of languages with a rich socio-linguistic panorama, where different varieties characterized by specific structures coexist; (ii) studies of non-frequent structures (section 1.3.1). In support of more structured investigating methods, different studies have pointed out cases in which non-formal methods of data collection lead to the formulation of incorrect theories, and are reported in section 1.4. Section 1.5 reports a number of designs useful in syntax-semantics research; some of them will be employed in the following chapters, while others are reported for the sake of completeness.

1.2 Data in generative linguistics

Investigation in generative syntax begins with the work by Chomsky (1957), who analyzed and theorized some linguistic facts of the English grammar. An important aspect of his framework is the focus on the grammatical competence of a native speaker, rather than on the analysis of her linguistic competence.

Performance: *Actual observed use of language, production and comprehension. Governed also by principles of cognitive structure, that are not properly aspects of language.* (Chomsky 2006: 105)

Competence: *Ability of the idealized hearer-speaker to associate sounds and meanings strictly in accordance with the rules of his language.* (Chomsky 2006: 103)

Performance provides data for the investigation about linguistic competence, since linguistic competence is the true object of study of generative linguistics. In a generative approach, competence can be defined as the set of rules of a specific natural language internalized by a language user. Competence must not be confused with the more general term of ability (Shohamy 1996: 138).

According to Chomsky (2006: 105), “*to discover the grammar of some language user, we must begin by obtaining information that bears on his interpretation of sentences, on the semantic, grammatical and phonetic structure he assigns to them*”. This means that the generative enterprise does not have direct access to competence, since it consists in the whole set of rules governing the specific language performance, “*the theory of universal grammar deals with the mechanisms used in natural languages to determine the form of a sentence and its semantic content*” (*Ibid*: 107).

The main tools of research in the generative enterprise in the last 50 years comprise grammaticality judgments collected informally. Syntacticians often investigate the opinion of a speaker about the acceptability of a given sentence by means of a direct question, without implementing a strong strategy for the control of other variables. The recur to acceptability judgments is justified by the fact that the speaker’s opinion is considered as a reliable manifestation of her internal grammar, which is the linguist’s ultimate object of study. According to Ionin (2012), “[*a*] sentence which is judged as grammatical by a native speaker is part of that speaker’s mental grammar, while a sentence which is judged as ungrammatical is in violation of a linguistic rule of the speaker’s mental grammar”.

Generative linguists consider the internal grammar of one single language-user as a stable and sufficient representation of the set of rules governing that specific language. This derives in the non respect of experimental protocols typical of other cognitive sciences. According to Schütze & Sprouse (2013), “[*t*]he majority of judgment collection that has been carried out by linguists over the past 50 years has been quite informal by the standards of experimental cognitive science”. These informal methods are represented by unstructured grammaticality judgments which present some issues that we will analyze further.

The question of reliability of data collected informally has always been matter of debate within the wider field of general linguistics. In fact, data are collected in non statistically significant ways, since researchers often refer

to their own intuitions about their mother tongues (introspection) in order to validate their theories, or ask some colleague or relative for judgments.

On the one hand, this issue has represented an uncovered Achilles' heel which all other approaches to syntax could use in order to discredit generativism and its results; on the other hand, it is a profitable method to collect data about basic facts of language (word order, agreement, ...).

With the development of new experimental disciplines on language faculty and languages, new techniques for collecting implicit data have been developed. Since the syntactic analyses have become more and more subtle, involving very delicate judgments, which are easily conditioned by context or other variables, new approaches to data collection are desirable for generative syntax.

The adjustment to more strict experimental protocols is desirable for three main reasons. The first consists in the grounding the theoretic speculation on solid bases, i.e. on reliable data which are not contestable unless the replication of the experiment gives other results. The second consists in the possibility of using information from other disciplines investigating languages under other perspectives. The third consists in the fact that strict protocols help in establishing correlations between data, leading to the possibility of interpolate many different factors.

It is important to point out that introspection remains the first and most powerful tool a linguist has to define the exact object of study. In fact, without introspection no linguist would ever been able to realize the presence of *wh*- movement or verbal aspects, for example. Thus, introspection and small experiments (characterized by a small number of experimental subjects) is a good method to start an analysis. More structured experiments are good to produce more subtle analyses. Linguists using introspection or small experiments must be aware of possible problems that these techniques pose and be careful in the design. In the following section, I will report some of these problems.

1.3 The issue

The usual technique for the collection of data among generative syntacticians consists in the informal collection of grammaticality judgments, or acceptability judgments as Cowart (1997) points out. Since grammaticality is an abstract concept, no questionnaire can guarantee access to it, making better to talk of acceptability judgments, recordable and accessible. In this chapter, I will use quite interchangeably the two terms in this latter meaning.

It is worth noting that a grammaticality judgment is a response of a

speaker to a precise sentence, which (is presumed to) contain(s) the linguistic phenomenon under observation. Generative linguist “*has made an implicit promise that (i) there is a relevant population of speakers for which the reported judgments hold, (ii) the example sentences provided are representative of a class of sentences as described by the linguist, and (iii) with speakers randomly sampled from the relevant populations and sentences randomly sampled from the relevant class, an experimenter would find more or less the same judgments that the linguist reports*” (Marantz 2005: 10). This would be true, if the number of observations (items and subjects) were larger. In every experimental discipline, researchers presume that particular subjects, randomly chosen, are representative of the whole class. What makes the strength of experimental disciplines is the fact that a large number of replications reduces the probability of assigning high weight to a peripheral behavior which belongs only to a particular subject or to a particular observation.

Non-structured grammaticality judgment, if not well conducted, presents different issues, namely it does not respect basic principles of the scientific method: it does not show enough care to the isolation of epiphenomena and parameters which can influence the collection, the use of explicit knowledge to answer, the influence of the context, the time of exposition to the same pool; it does not register physical responses, it does not produce data that can be analyzed by means of statistical techniques of validation.

Usually, the unstructured grammaticality judgments are different from the methods used by other cognitive disciplines investigating natural languages under different perspectives, namely (Schütze et Sprouse *in press*):

- a. Small number of informants
- b. Non naive informants
- c. Small number of response options
- d. Small item pools
- e. Non systematic data analysis

With respect to the question about scientific methods, it is worth noting that it is not a general problem of the generative enterprise, which on the contrary is responsible for having inscribed linguistics within sciences, but a problem of data collection. This fact is particularly challenging for the survival of the generative enterprise within the field of cognitive sciences, which affects fruitful exchanges with other disciplines.

Why do methods of generative syntax, which are composed of small experiments and introspection, not (usually) respect the scientific method?

According to Gibson & Fodorenko (2013), it has been pointed out that “*the results obtained using this method are not necessarily generalizable because of (a) the small number of experimental participants (typically one); (b) the small number of experimental stimuli (typically one); (c) cognitive biases on the part of the researcher and participants; and (d) the effect of the preceding context*”.

In a non-structured acceptability questionnaire, it is difficult to check for other parameters that enter in the judgment. It is well known that speakers are influenced by different factors when judging a sentence, such as the context of interpretation, the frequency of lexical material, semantic plausibility, identification of the object of study, respect of the researcher’s expectation, ...

Speakers are used to create a **context of interpretation** in order to attest whether a sentence is acceptable or not. Non-structured acceptability questionnaires do not (usually) define a possible context of interpretation, leaving to each informant the task of defining it. This leads to the consequence that each evaluation is conducted against an unknown and probably different context of reference.

The context and the linguistic register against which informants are supposed to interpret the experimental pool must be made explicit at the beginning of the experiment. Possible disagreement between informants can be due to a different context of interpretation. If we add the usual small number of informants of non-structured questionnaires, we quickly understand that data obtained cannot be interpreted as being significant of a population (of sentences/structures and of informants).

Highly frequent **lexical material** can facilitate the interpretation of dubious grammatical sentences and, the other way around, infrequent lexical material can lower the acceptability rate of sentences for reasons independent from the grammaticality of syntactic structures employed.

Furthermore, the choice of lexical material is at stake in the prototypicality of word combinations. Each word activates a net of conceptual connections with other words and concepts, the more the link is tight the more it is easy to get a possible interpretation for a sentence, deriving its possible recovery in case of (mild) agrammaticality.

Unstructured acceptability questionnaires are usually conducted within the **small entourage** of the researcher, which is probably aware of her interests. This can entertain problems of observer expectancy (Gibson *et al.* 2013: 100), involuntarily falsifying results. Furthermore, informants can

easily understand the object of study and answer consequently, using their notions about normative grammar, thus using their explicit knowledge: “*if learners recognize which structure is being tested in the AJT, they may draw upon conscious, explicit knowledge, as learned in the classroom, and the results may not inform us about the learners’ underlying grammatical intuitions*” (Ionin 2015).

Aware participants can be victims to confirmation (Gibson *et al.* 2013: 99) and belief bias (Evans, Barston, Pollard 1983).

Whenever informant and researcher are hosted within the same person, recurring to **auto-investigation** method, the researcher must be very careful to more frequent bias. Among them: (i) expectation for finding data in the confirmation of a hypothesis can lead to consider grammatical what is not grammatical; (ii) repeated exposure to stimuli can influence their acceptability (Levelt 1972). It is worth noting that auto-investigation technique is useful and necessary for the first part of the job, the one in which an interesting phenomenon is isolated.

Unstructured acceptability questionnaires are not usually submitted to **repeated measures**. This is a problem under different points of view. Firstly, no possible statistical analysis can be made on data, thus no possible validation is produced. Secondly, individual oscillations cannot be relativized and assume an unrealistic weight.

Unstructured acceptability judgments are conducted with little means, usually by a direct oral question and an unregistered answer. They do not recur to the record of any physical involuntary response of the informants, only to her overt and manifested opinion about a linguistic fact.

However, primary intuitions whenever collected in a formal way can constitute a source of data, but they are not the only one, as argued by Wason & Arnold (2005: 1485): “*[p]rimary intuitions are a legitimate form of evidence for linguistic hypotheses, but they should have no privileged status relative to other forms of evidence*”.

The fact that involuntary responses are not registered is not a big problem if questionnaires are planned and conducted in ways such that the opinion of the informant cannot be influenced.

The question about the status of data in formal linguistics, particularly in formal syntax, arises in these last years with an increasing number of studies, namely Edelman & Christiansen (2003), Ferreira (2005), Wasow & Arnold (2005), Featherston (2007), Gibson & Fedorenko (2010a, 2010b), among others. These studies argue for the need to follow strict experimental protocols for data collection in formal linguistics. They take as evidence cases of data reported by eminent syntacticians which were wrong according to results of

more structured experiments.

Sprouse & Almeida (2012) intervene in the debate assuming the validity of traditional data collection methods. Particularly, they show that traditional methods obtain comparable results as more strict methods, showing a discrepancy of 2%. Their (2013) study takes as reference Adger (2004) introductory manual of syntax, which reports examples of well studied phenomena and basic English structures.

Whoever asked if example 107 is grammatical in English will answer quite easily that it is not. This is due to the fact that it involves word order. As already mentioned, basic syntactic facts are easily collected, independently of the methodology employed.

(107) *John eats apple the.

The corpus tested by Sprouse & Almeida (2010) is constituted of sentences like (107). The position taken by Sprouse & Almeida has been challenged by Gibson & Fedorenko (2013), who reply by showing the importance of using quantitative methods in linguistic research.

Gibson & Fedorenko (2013) hence GF (2013) illustrate that the mathematical tools and reasoning implied by Sprouse & Almeida (2013) are not adapted and consequently derive an optimistic result.

The ratio of 5% which is used is not adequate, in fact it can be sufficiently conservative when applied to single contrasts, but not when applied to a pool of contrasts. In this latter case, it is impossible to establish which contrasts belong to the 5%, so it remains unknown which are correct and which are not. Imagine to analyze an article in which 60 contrasts are reported (without any quantitative measurement), you know that the global reliability rate arise to 95%, this implies that there are 3 wrong contrasts. You don't know which they are. The identification of the correct combination of wrong and correct contrasts must be found among a lot of combinations, exactly 34220 combinations. In other words, you have a box containing 6 balls, 4 of which are white and 2 black. You have to extract the two black balls first, without looking inside the box. How many times should you repeat the extraction in order to get both black balls extracted? This is a case of simple combination. The number of extractions you have to make in order to get the right catch ($C_{\{n,k\}}$) is determined as follows, where n is the total number of balls, k is the number of white ball we want to extract.

$$(108) \quad C_{n,k} = \frac{D_{n,k}}{P_k} = \frac{n!}{k!(n-k)!}$$

In the case of the extraction of balls, we have 1/15 probability to get the two black balls extracted first. In the case of 60 linguistic contrasts, the probability of catching the wrong contrast is one over 34220.

This leads to the impossibility of constructing a reliable linguistic theory, since it must generalize over all examples reported, wrong ones included. Then “*non quantitative methods have no hope of recognizing these errors. [...] Experimental methods were required to do this evaluation because experimental methods are the only way to objectively determine which hypothesized contrasts are real*” (Gibson, Pianadosi and Fedorenko 2013: 233).

The conduction of quantitative experiments in linguistics makes theories comparable because clear acceptability rates allow to discover discrepancies between reality and data (*ibidem*: 238).

Moreover, small experiments for collecting linguistic data cannot account for linguistic variation. We already said that not all sentences can receive straightforward judgments as (107). Cases in which linguistic variation is at stake are much more problematic in an informal questionnaire. According to Wasow & Arnold (2005), the level of acceptability of sentences (109) to (111) is not uniform among all American English speakers.

- (109) Chris might can go. Wasow & Arnold (2005, ex 1a)
 (110) Pat’s a Red Sox fan, and so aren’t we. Wasow & Arnold (2005, ex 1b)
 (111) He don’t like that. Wasow & Arnold (2005, ex 1c)

Quantified experiments are capable, contrary to the non-structured and non-quantified, to account for linguistic variability.

Using small unstructured questionnaires can generate some issues even in the case of more subtle linguistic phenomena, such as ambiguous eventive readings. I identify two main reasons in favor of more strict experimental protocols in data collection in the syntax-semantics interface. The first has to do with the use of specific theory-internal terminology, the second concerns the importance of the context.

For example, a non-structured questionnaire about aspectual readings must previously define to the informant each aspectual class. This automatically communicates to the informant the position of the researcher about the topic, consequently leading to expectancy biases.

The context appears to be fundamental in the interpretation, but in a small test, it is not strictly controlled. Then, it can influence results without being considered among variables of the experiment. Imagine that in a small experiment, the researcher is introducing sentence (112) with the two contexts below respectively, which differ in just one word.

- (112) Il grumo ostruisce l’arteria.
The clot is clotting the artery.

- (113) a. Dopo attente analisi, dopo aver ricontrollato l'esito di queste contro differenti pareri, i medici hanno dato il triste referto alla famiglia del paziente: **da ieri** il grumo ostruisce l'arteria.
After attentive analyses, after having double checked medical reports, doctors gave the sad new to the patient's family: since yesterday the clot was obstructing the artery.
- b. Dopo attente analisi, dopo aver ricontrollato l'esito di queste contro differenti pareri, i medici hanno dato il triste referto alla famiglia del paziente: **da sempre** il grumo ostruisce l'arteria.
After attentive analyses, after having double checked medical reports, doctors gave the sad new to the patient's family: since always the clot obstructs the artery.

It appears clear that two contexts can influence judgments. Consequently, context must be encountered within the controlled variables of the experiment.

I suppose that there are more reliable methods to collect data at the syntax-semantics interface. For example, on-line experiments are better suited for disentangle two readings, by means of unconscious answers (reading times, place of ocular fixation, ...), and not only of explicit judgments.

1.3.1 In the present study

The present study analyses, for the most part, some facts of Italian. The sociolinguistic panorama of this language is particularly¹ colorful, and I assume that this dimension must be considered in the process of data collection.

1.3.1.1 Italian linguistic panorama

Italian is the national language of the Italian Republic and it is taught and spoken all over its territory, in the Vatican City, in the Republic of San Marino, in two Switzerlan cantons (Marazzini 1994: 458). Besides these countries in which Italian plays an official role, other communities in the world use Italian as their first language, namely Italian first generation emigrants.

On the Italian territory there are many dialects that must be recognized as languages, autonomously derived (for the most part) from Latin.

¹I do not want to commit myself whether Italian is particular as opposed to other languages in this respect, or whether this state of affairs results form the availability of a big amount of data that has emerged from dialectological and sociolinguistic research, not conducted in other linguistic areas of the world.

A classification of linguistic areas, based on linguistic features, has been conducted by linguists, even though the panorama is still evolving, since “*a static nature of dialect territories does not exist and has never existed*” (Rohlf 1972: 11, my translation). Two isoglosses, imaginary lines joining points of deep breaking in the dialectal continuum, are identified: La Spezia-Rimini and Roma-Ancora. The derived three geographic parts consist in the three dialectal super-varieties of Italian: the Northern, the Central and the Southern (Marazzini 1994: 466).

Italian is the national language, which is taught in schools and which is vehicle for mass-media and art. However, even though the unification of Italy dates from 1861², Italians still have a good relationship with their own dialects. According to 2006 ISTAT³ statistics, 48% of Italians declare to speak alternatively standard Italian and a dialect; only 45% of Italians declare to speak exclusively standard Italian (D’Agostino 2007: 55).

The label Italian does not describe a uniform language throughout the national territory. According to De Mauro (1972): there are different *regional Italian languages*. These regional Italian languages are different uses of the national language which are made in each region. They derive from historical melting of dialects and national language.

Regional varieties must be considered in experiments. Firstly, if a non-structured questionnaire is used, possible correlations between a linguistic fact and a particular regional Italian could not be established. Secondly, asking for judgments in an informal way can be interpreted as a test of standard Italian competence by informants, deriving in censure about syntactic structures which are otherwise well judged and employed.

Italian is only one of the languages presenting a complicated picture of varieties. Languages in the world present specific sociolinguistic frames, derived for substratum languages, social factors such as education rate or prestige versus popular divide.

According to Cowart (1996: 39) “*we use experiments to estimate the properties of a population on the basis of tests applied to a sample drawn from that population*”. In order to do that, a scientist must exactly define the population previously to the experiment.

I suggest an attentive treatment of languages with a complex sociolinguistic panorama, they require careful data collection, since linguistic variation, in relation with geographic or social factors, can play a big role in the (a)grammaticality judgments.

²Not all territories were conquered at this period. Veneto region was annexed in 1861; Trento, Trieste and their regions at the end of the First World War.

³National institute for statistics.

Another factor that must be considered in the choice of structured methods of data collection is the frequency of structures studied in the everyday language.

The investigation of non-frequent structures, built on particular verb classes, prevent the researcher to confirm intuitions against a corpus analysis, since the low frequency does not depend on the agrammaticality of those structures but on the intrinsic low rate of productivity.

In the first part of the present dissertation, I will analyze a non-frequent structure of Italian, namely pseudo-resultative construction (Levinson 2007). It is clear that structured and quantitative methods are very important in order to guarantee reliability of the whole theoretic apparatus.

1.4 The importance of being reproducible

In this section, I will report cases in which informal data collection gave wrong data or in which the data were unable to determine significant influencing factors.

[L]anguage should be analysed by the methodology of the natural sciences, and there is no room for constraints on linguistic inquiry beyond those typical of all scientific work.
(N. Smith, Foreword to Chomsky 2000: vii)

With the advent of the minimalist program and its claiming for a unique place of grammatical representations (the generative engine), the methodological tradition should evolve in this direction.

According to Wasow & Arnold (2005), linguistics should follow the usual methodological expectations of other cognitive disciplines, such as psychology or psycholinguistics. Particularly (*ibid*: 1483-84):

- The number of subjects should be large enough to allow testing the results for statistical significance.
- The order of presentation of stimuli (that is, linguistic examples) should be randomized.
- Subjects should be ignorant of the hypotheses being tested, preferably with double-blind presentation of stimuli (naive speakers).
- Data collected should be subjected to appropriate statistical analysis.

The respect of more rigid experimental protocols facilitate the recognition of generative linguistics as a cognitive science and allows bidirectional exchanges with other disciplines.

It has been noticed that non-structured data collection can lead to the spread of wrong data, on which a part of theory has been built.

For example, Wasow & Arnold (2005) henceforth WA (2005) study the positions of NPs in different problematic syntactic environments, such as double object pattern or heavy NP shifts. Fillmore (1965: 29–30) assumes that sentences such as the one in (114) and (115) are agrammatical because of the interrogation of the first object of a double object construction.

(114) Who did I buy a hat?

(115) Who did you give this book?

Langendoen et al. (1973) performed a test on 160 English native speakers, asking them to insert the dative preposition *to* in double object questions without changing their meaning.

If Fillmore were right, the expectation is that only one answer is grammatical, consequently only one insertion place is allowed, namely the one in which the dative preposition marks the dative object, and follows the verb.

(116) Who did you offer **to** the man?

(117) Who did you show **to** the woman?

However, Langendoen et al. (1973) discovered that many speakers place the dative preposition at the end of the sentence, as it were an occurrence of preposition stranding consequent to the questioning by the *wh* pronoun of the dative object.

(118) Who did you offer the man **to**?

(119) Who did you show the woman **to** ?

These results contradict Fillmore's hypothesis, since the questioning of the internal object of double object constructions should be agrammatical, and then unrecoverable for speakers.

These first findings were further supported by another structured test about possible answers to double object questions of the usual type. If they were agrammatical, the answer should involve the reading in which the internal dative object is in place. But again, many informants answer in the presumed impossible way.

(120) Who did you show the woman?

- a. I showed the woman my daughter.
- b. I showed my daughter the woman.

WA (2005: 1490) further analyze another popular statement about influencing factors of the position of English particle-verbs constructions. It has been said that the internal complexity of nominal constituent (number of intermediate nodes) is determinant for the separation of the particle from the verb (Chomsky 1975).

WA (2005) conducted some tests questionnaires and corpus search in order to verify the veracity of Chomsky's statement. They constructed minimal pairs of sentences which were equal in number of words, but differing in syntactic complexity.

- (121)
- a. The children took everything we said in. (WA 2005: 1490, ex.8)
 - b. The children took in everything we said.
 - c. The children took all our instructions in.
 - d. The children took in all our instructions.

Two conditions are interpolated: complexity of the internal object and position of the particle with respect to the verb.

	More Complex	Less Complex
V ... part	a	d
V-part	b	c

In order to test whether complexity of NPs plays a role in syntax, WA build other quadruples on different structures involving different orders: dative alternation (122), and heavy NP shift (123).

- (122) (WA 2005: 1490, ex. 9)

The company sends what Americans don't buy to subsidiaries in other countries.

- b. The company sends subsidiaries in other countries what Americans don't buy.
- c. The company sends any domestically unpopular products to subsidiaries in other countries.
- d. The company sends subsidiaries in other countries any domestically unpopular products.

- (123) (WA 2005: 1491, ex. 10)

Nobody reported where the accident took place to the police.

- b. Nobody reported to the police where the accident took place.
- c. Nobody reported the location of the accident to the police.
- d. Nobody reported to the police the location of the accident.

WA (2005) discovered that, in the case of Verb-Particle construction, Chomsky's intuition about the influence of NP's complexity for the determination of particle's position was confirmed: "[a]n analysis of variance revealed that the interaction between complexity and ordering was significant ($P > 0.001$) by subjects, but not by items ($P < 0.1$)" (*ibid*: 1491).

The above findings confirm Chomsky's intuition about the influence that constituent complexity has on preposition position in sentences. However, WA do not exclude that length does not play a role, contrary to Chomsky. For this reason, they study two English corpora (written and oral)⁴. Results about the order in Verb-Particle constructions show that length is a significant factor but complexity is not. On the other hand, results about double object construction are more clear since the relative length between the two objects is determinant. Either length or complexity play a role in the order of objects, as figure 1.4 shows (WA 2005: 1493, Table 1).

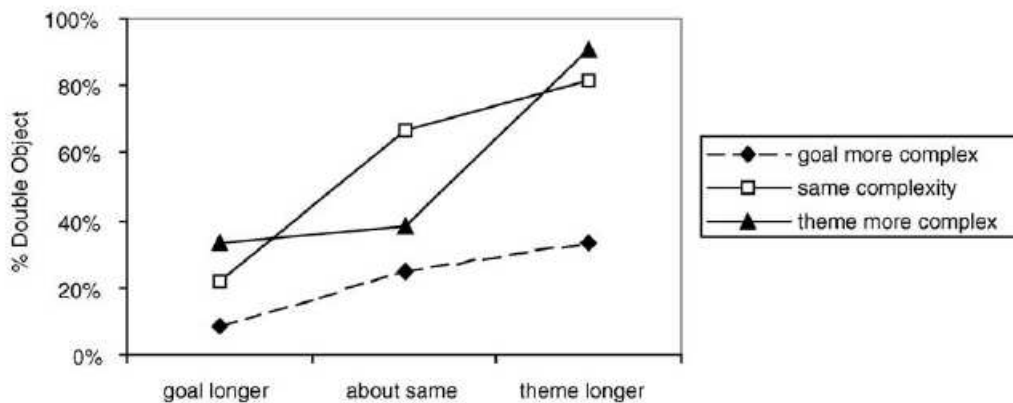


Figure 1.1: Relation between length and complexity in double object construction ordering, (Wasow & Arnold 2005: 1493, Table 1).

⁴Of the selected 1393 occurrences of dative alternation and 3268 occurrences of verb-particle construction, they make a three-points scale depending on the complexity of the NP involved and a scale of word lengths of NPs.

These results show that experiments with a more strict protocol must be conducted in order to determine the grammaticality of a construction and the reasons of (a)grammaticality.

Gibson & Fedorenko (2013: 102 ff.) point out that some well-known judgments reported in the literature happen to be incorrect, for this reason they analyze in depth three phenomena.

The first concerns subject and object modifying relative clauses. The usual assumption is that double nested relative clauses are more difficult to be understood when they modify a subject (124) than double nested relative clauses modifying the object (125).

(124) The man that the woman that the dog bit likes eats fish. (Gibson 1991, ex. 342b)

(125) I saw the man that the woman that the dog bit likes. (Gibson 1991, ex. 351b).

From the untested assumption that (124) is more complicated than (125), a theory of nested relatives has been formulated, according to which the structure of (124) has a higher number of open dependencies, which determines this difficulty.

In a third phase, an on-line test recording reading times (Gibson, Desmet *et al.* 2005) shows that sentences like (124) are read faster than sentences like (125), contradicting the intuition formulated in previous analyses.

The second and the third cases analyzed in Gibson & Fedorenko (2013) involve multiple wh-extraction effects.

The second case regards the asymmetry in the extraction of two wh-words in wh-questions (Chomsky 1977):

- (126) a. Who ate what?
b. *What did who ate?

The higher grammaticality of (126a) is supported by quantitative experiments (Clifton, Fanselow and Frazier 2006; Fedorenko *et al.* 2006), but the subsequent claim by Kayne (1983) stating that the acceptability of (126b) improves when a third wh- pronoun is inserted (127) is contradicted.

- (127) *What did who ate where?

The third case analyzed concerns data which led Chomsky (1986) to formulate the Vacuous Movement Hypothesis in order to explain the (presumed) difference in acceptability between sentences like the following (Chomsky 1986, ex. 108; reported by Gibson & Fedorenko 2013: 108).

- (128) a. What do you wonder who saw?
 b. *I wonder what you saw.

A battery of tests was conducted by Gibson & Fedorenko in order to check for the presumed higher acceptability of (128a) than (128b). Results contradict this assumption and reveal the opposite, confirming the low rate of acceptability of both examples and the lower acceptability of (128a).

We must underline that data collected from naive speakers can be representative of the high variability linked to general linguistic variation (diatopic, diaphasic, ...). However, as Cowart (2006: 26) points out “*stable natural phenomenon of sentence acceptability; we find that for all the syntactic phenomena considered [that-trace, NP-extraction, antecedent in coordination] native speakers of American English exhibit stable, clear-cut patterns of acceptability differences across sentence types*”.

In order to get rid of this variation, the number of informants and items involved is fundamental, “[t]he procedures described in this pool assume the existence of error variance in sentence judgments and apply various measures to control that variance. The most important of these measures are the use of multiple informants and multiple instances of any sentence type whose acceptability is to be estimated” (Cowart 2006: 37).

1.5 Different designs

The respect of strict experimental protocols protects us from many different types of bias, as we showed in previous sections. The type of experimental protocol leads to different consequences, it influences the results, since each design leads to different data⁵.

According to Keller (1998), we can identify four main factors influencing grammatical judgment tests: evaluation scale, instructions, various subject-dependent factors and various task-related factors.

Grammatical scale type determines the type of statistic treatment that can be applied, and the nature of judgments. Evaluating scales can be nominal, ordinal and interval. Values reported in the first two types do not suit on a regular scale, this means that the distance between two points could not be the same. Values in a nominal scale cannot even be ordered, contrary to ordinal scale. In an interval scale, points are ordered and the distance between them is constant. Interval scales guarantees that distance between two

⁵A small experiment leads to a certain type of data, the same way bigger experiment with a strict protocol.

points is constant, this permits to treat data in a continuous way, allowing statistical analyses for normal distributions.

The influence of instructions on results is a matter of debate. Keller (1998: 6) assumes that, along with the naivety of informants, concepts such as *grammatical* or *ungrammatical* if not defined in the instructions are not significant, leading to the incomprehension of the task. On the other hand, an experiment by Cowart (1997: 55-61)⁶ shows that no matter what the instructions are, informants have little capacity to change their range of judgments.

“Subject-related factor” label meets various phenomena about the influence that informants can have in the experiment results. Among them, one is particularly interesting and consists in the naivety of the subject. Beyond the intuition we can have about it (Cowart 1997: 60; Schütze 1996: 187), it has been demonstrated that there are significant differences between judgments given by linguists and the one given by naive subjects (Dabrowska 2010). A series of experiments by Dabrowska (2010) shows that judgments about Long Distance Dependencies (LDD) differ significantly between naive informants and professional linguists working in various theoretical frameworks. The magnitude of judgments made by naive speakers is less accentuated than the one made by linguists, both in positive and in negative (Dabrowska 2010: 13). Linguists show a prototypicality effect in the judgment of LDD (*ibid*: 20).

Unfortunately, Dabrowska’s (2010: 11) procedure contains a false belief in the instruction phase, since instructions differ between the experiment administered to naive informants and the experiment administered to linguists. The latter contains explicit reference and asks the informants *not to rely on what they had learned in the course of their linguistic training*. This kind of request cannot be satisfied since the judgment we have on a sentence is unique and cannot be split in two: the one we would have if we weren’t linguists and the one we have since we are linguists.

Another task-related factor capable of influencing judgments consists in the presentation order of experimental items. Order of presentation and repetition of experimental items can affect results in different ways: decreasing the grammaticality rate (if repetition happens in a short amount of time) as demonstrated by Nagata (1987 and ff.), blurring or increasing grammaticality rate in the case of *linguists’ disease* (Schütze 1996)⁷.

⁶Two experiments equal in the experimental items and different for the type of instructions: one intuitive and one prescriptive. No significant differences are found in the given judgments.

⁷The extended exposure to the same structure makes its grammaticality more uncertain.

In the following sub-sections, I will report some designs which are useful for syntactic studies.

Different designs are theorized in the literature and their appropriateness depend on the type of phenomenon investigated, or on the type of statistical analysis to be performed on results. In the following section we will see some of them, without the presumption of being thorough.

1.5.1 Acceptability Judgment Test (AJT)

The Acceptability Judgment Test (AJT) is a structured version of the usual unstructured grammaticality judgment test.

AJT is an explicit test that asks participants to evaluate plausibility of sentences following personal intuitions. In order to prevent informants from identifying the structure under investigation, it is important to: (i) mix experimental items and filler items, which are responsible for hiding the target structure; (ii) time the task timed (Ionin 2012) in order to force informants to answer without access to their explicit knowledge.

Precision and clarity of instructions are mandatory in order to guarantee that informants perform as expected. If instructions are too technical or too complex or too short, people may not properly understand what they are asked for.

Different types of rating scales exist: binary, Likert (on 5, 7 or 10 points), continuous (see section below for Magnitude Estimation). Each scale is appropriate in relation to the type of linguistic fact that must be investigated: binary scale is appropriate for clear and strong contrasts, Likert scale for more nuanced one (Ionin 2000).

Imagine that we want to test the acceptability of the pre-nominal position of Italian appositive adjectives. We test two conditions: Adj + N and N + Adj.

- (129) a. Giovanni possiede un **rosso libro**.
G. owns a red book.
- b. Giovanni possiede un **libro rosso**.
G. owns a book red.

The same informant should not judge both conditions (129a) and (129b), since it would compromise the results due to repeated expositions. By means of a Latin square, we obtain two experimental pools, each of which contains all experimental items differentiated for their conditions: in pool 1 we insert condition 1 of sentences 1 and 2 and condition 2 of sentences 3 to 4, in pool 2 we do the opposite.

Item	Condition 1	Condition 2
1	rosso libro	libro rosso
2	giallo telefono	telefono giallo
3	bianca statua	statua bianca
4	...	

Each group of experimental items must then be randomized. In this dissertation, I resort to a randomizer <http://www.sfl.cnrs.fr/EVO/scripts/randomisation->designed by Dr. Coralie Vincent⁸.

1.5.2 Magnitude Estimation Task (ME)

Bard, Robertson & Sorace (1996) theorize a Magnitude Estimation task (henceforth ME) design because they consider usual scales: (i) too condensed to help the needs of linguistic theories (*ibid*: 38) and (ii) not involving a constant distance between two points.

ME was first applied to physical phenomena in perception studies (Stevens 1956) since it “*provides better than ordinal scales for measuring impressions*” (*ibid*: 40).

Bard *et al* (1996: 41) consider it a valuable technique for linguistics too because: (i) it does not restrict the number of values; (ii) an interval scale is subsumed by judgments on a ratio-scale. For what concerns the mathematical consequences of this design, it is worth noting that “*the straight line in log-log coordinates means that equal ratios on the physical dimension give rise to equal ratios of judgments*” (Bard *et al* 1996: 41).

This design is employed in chapter 4, where it is described in detail in section 4.5.1.

1.5.3 Truth Value Judgment Task (TVJT)

The truth value judgment task (henceforth TVJT) has been initially designed for linguistic research on L1 acquisition (Gordon & Chafetz 1986), but it is useful also to investigate child language.

TVJT can be designed in different ways, depending on the age of informants (whether children or adults) and on informants specific cognitive issues.

Since this dissertation does not investigate child language, I do not analyze the particular design for this age, the reader can refer to Conroy *et al.* (2009) where TVJT is used for detect child sensibility to Principle B violations. In this section, I want to underline the usefulness of this design in

⁸CNRS, Laboratoire Structures Formelles du Langage.

cases where context is determinant for the interpretation of sentences with different grammatical readings, particularly where the plausibility of readings differ in different contexts.

Since naive speakers are not frequently asked in everyday life to identify all readings of ambiguous sentences, they are not used to catch all readings of an ambiguous sentence, one reading is often more preferred than others. Consequently, the context of reference helps informants to figure out which of the possible readings is correct/plausible.

Originally, the TVJT recurs to a short story, introducing the informant to the situation, after which she is asked to judge the experimental item grammaticality. This allows the researcher to check if the informant possesses the grammatical structure of the topic of the study (passive, etc.). In adult language, TVJT is not employed to register the grammaticality rate of structures, it is very useful for the identification of readings that a same grammatical sentence can generate in different contexts. The grammaticality of the investigated construction must be previously confirmed by means of other designs.

Even though this dissertation does not recur to the TVJT, the design was considered in all cases where double readings were supposed to exist.

1.5.4 Auto Segmented Reading

Generative linguistics is able to exchange with psycholinguistics, from the formulation of a *single engine hypothesis* (Chomsky 2000). This hypothesis makes possible to account for the *derivational theory of complexity*, which was the main point of discord between psycholinguistics and generative linguistics in the 70s' (Fodor, Bever & Garrett 1974).

According to Marantz (2005: 439), this hypothesis can be formulated as:

[...] the more complex a representation the longer and more complex the linguistic computations necessary to generate the representation the longer it should take for a subject to perform any task involving the representation and the more activity should be observed in the subject's brain in areas associated with creating or accessing the representation and with performing the task.

The Minimalist Program assumes that there is only one module capable to create structures, and that is syntax. The existence of a single place to build representations makes it possible to account for the complexity of representations.

Behavioral tests become to be more meaningful for generative linguists, since they constitute evidence for the structure and the nature of principles regulating the single linguistic engine. Consequently, generative linguistics can fish in the psycholinguistic literature looking for behavioral evidence. In order to do that, the awareness of the importance of structured data collection techniques, of scientific methodologies for data collection and statistical validation has to grow in the generative tradition.

Auto segmented reading is an on-line method that provides for both explicit judgment on (a)grammaticality and for behavioral data.

It is a technique capable of recording reading times, useful whenever a double reading is supposed to be generated by the same structure. Difference in reading times can be interpreted as a reflect of different structures.

Stimuli are made up of sentences split in several segments. The point of cut is established depending on which part of the sentence the investigated structure relies. That is, if the time of processing of animate vs. inanimate subjects is at stake, the first cut will be placed after the subject. If the reading times of stative vs. eventive verbs is investigated, the first cut will be places after the subject and the second after the verb, this way the verb alone constitutes one single segment.

There are several precautions to be employed in the design phase. Since this method compares reading times, all the experimental items must be composed of the same number of letters, otherwise no possible comparison can be made. In order to push informants to pay attention at what they read, a comprehension question must be added at the end of each segmented sentence.

This technique has fruitfully been employed by Poeppel & Gennari (2006), they show that causal semantics entertains correlates in reading times. In particular they show that non-causative statives are read faster than causative eventives. Results of this experiment are analyzed in depth in chapter 7, where they are useful to the development of the reasoning.

1.6 Conclusions

This chapter reports different issues pertaining to the use of small experiments and auto-analysis, which are techniques used in the generative tradition. It means to be a reminder for linguists pointing out the biases caused by using small experiments and auto-analysis. Assuming the importance of these two techniques for the collection of data in a first phase of research, it delineates the reason why more structured designs should be employed for

deeper phases of the research. Furthermore it reports some useful designs which can be employed in the syntactic research.

We have seen that data, derived by auto-analysis, where the researcher and the informant are the same person, can lead to incorrect results and consequently to incorrect theoretic generalizations.

Employing more structured experiments should be particularly important for those languages which have complex socio-linguistic panorama, such as Italian, where the influence of dialects on the national language is still very important. Unstructured questionnaires are not capable of identifying which variety of language is being tested.

The use of structured and quantitative methods can guarantee higher data reliability. Statistical verification can be performed, sociolinguistic features of informants are registered, allowing to identify possible influences they have on judgments. The explicitness of experimental protocol allows the scientific community to verify the correctness of hypotheses and to understand whether the design, the item pools, or the statistic treatment have influenced results.

However, I assume the importance of auto-analysis and very small experiments in the first steps of a research. In fact, they allow the linguist to identify and delineate interesting facts of language. In other words, without auto-analysis linguistics wouldn't exist.

Chapter 2

Argument Structure: State of art

2.1 Introduction

The present chapter reports some of the most common theories on argument structure. In particular, it analyses frameworks which concern causal meaning and morphologically derived verbs. Particular attention is given to the treatment of stativity.

For each framework analyzed, particular attention is paid to the way in which it accounts for different verbal lexical aspects. Frameworks analyzed are: Government and Binding (Chomsky 1981), Hale and Keyser (1993), Ramchand (2008), Borer (2005). Section 2.7 reports the theoretical solutions that will be employed in the present dissertation.

The relationship between argument structure, number of arguments and their semantic roles, as well as the eventuality of the predicate is a central topic of formal linguistics. Many studies along the time have noticed that argument realization patterns are related to syntactic realization of specific semantic roles. Argument structure involves the wider issue of predicate eventuality. A deep investigation on argument structure cannot exclude investigation on eventualities of predicates.

- (130) John runs 10 miles. AGENT-GOAL
- (131) John bites Peter. AGENT-EXPERIENCER
- (132) John loves Mary. HOLDER-GOAL

In the last half-century, different theoretical hypotheses have been formulated in order to clarify these issues. Two main currents are detected, depending on the weight they give respectively to lexicon and syntax.

On the one hand, *lexicalist approaches* claim that a lexical verb comes equipped with syntactic and semantic specifications about the number and type of its arguments. On the basis of this lexical information, it builds up the syntactic structure. On the other hand, for *structuralist approaches*, argument roles do not depend on lexical specification, rather exclusively on the syntactic structure in which verbs are inserted.

2.2 Government and binding

Since Chomsky's (1993) *Lectures on Government and Binding* (GB), the linguistic competence has been divided in four different sub-components: lexicon, syntax (a. categorial component; b. transformational component), phonetic form (PF) component, lexical form (LF) component.

If the relationship between outputs of syntax and PF, and output of syntax and LF have always been maintained (GB, Minimalism, ...), the relationship between lexicon and syntax has become more controversial.

In GB, D-structure (deep structure) is generated by a set of base rules, which are composed by two systems, lexical and syntactic categorial components, “*through insertion of lexical material into structures generated by [syntactic categorial component], in accordance with their feature structure*” (H. Heider & Nettel 1991: 6). Each lexical item is specified in the lexicon for its abstract morpho-phonological structure and for its syntactic features (categorial and contextual).

Base rules generate D-structure through insertion of lexical items into structures that are generated by the categorial component, in accordance with their features. Those are mapped to S-structure by move- α , leaving traces co-indexed with their antecedents.

The fundamental conception of the Projection Principle is that lexical information leads to syntactic structure, syntax is built on the basis of the lexical information contained in the lexicon (Chomsky 1993). Stored lexical units include all pieces of information useful to syntax: “*the initial syntactic representations are literally built on the basis of the thematic representations stored in the lexicon*”, (Belletti & Rizzi 1988).

Being two separate components, lexicon and syntax are guided by two different sets of principles. In order to assure a profitable communication between them, conversion rules must be formulated. For example, the verb *break* is assumed to be stored in the lexicon with its semantic and phonetic data on the one hand, and on the other hand, syntactic information about the argument structure it can create: (i) causative-transitive, such as in (133); (ii) intransitive-inchoative, such as in (134).

(133) John broke the window.

(134) The window broke.

Every occurrence of *break* is stored in the lexicon with relevant pieces of information about its argument and its thematic structure. Two lexical items are assumed for it, two verbs *break* are stored in the lexicon.

Argument structure of *break* in (133) contains a subject and a direct object; argument structure of *break* in (134) contains only a subject. This is represented in thematic grids (135) and (136).

(135) break: V 1 2

(136) break: V 1

Each of the arguments bears a thematic role, which is specified in the thematic structure of the verb.

In order to explain syntactic variability the Uniformity of Theta-Assignment Hypothesis (UTAH) has been formulated (Baker 1988: 46). UTAH assures that arguments with the same thematic role need to be generated in the same syntactic position.

UTAH

Identical thematic relationships between items are represented by identical structural relationships between those items at the level of D-structure.

D-structures of sentences like (133) and (134) are assumed to be equal, and by means of *move- α* and *linking rules*, the latter is derived from the former.

(137) [John [broke [the window]]]

(138) [e [broke [the window]]]

Linking rules relate two distinct linguistic modules (lexicon and syntax), whose principles are different in nature.

Several criticisms have been noticed about this framework (Levin & Rapaport Hovav 2005). Namely, no precise diagnostics for the identification of semantic roles has been elicited. The identification of a specific role can be done only by considering the verbal meaning. This leads role fragmentation, which consists in the division in many different sub-roles, determined by the attempt to find fundamental traits of roles (Dowty 1991). Semantic roles lack internal organization, consequently, possible sets cannot be distinguished by impossible sets (*ibid*: 41).

The correspondence one-to-one between semantic role and argument has been questioned by Jackendoff (1972, 1983) by means of sentences like:

(139) Phil sold the yacht to Mira.

(140) Mira bought the yacht from Phil.

In both sentences *Phil* is the Source, *Mira* is the Goal and *the yacht* is the Theme, but they stay in different syntactic positions. It must be assumed that there is no unique syntactic position generating the same semantic role.

Within GB framework a well-known attempt to derive different argument realization patterns is conducted by Belletti & Rizzi (1988), henceforth BR (1988), with respect to psychological verbs:

(141) Gianni teme questo.

G. fear this.

(142) Questo preoccupa Gianni.

This worries G.

(143) A Gianni piace questo.

To G. like-3SG. this.

G. likes it.

BR (1988: 291) explain their theoretic starting point: “[t]he initial syntactic representation are literally built on the basis of the thematic representation stored in the lexicon”. It follows that, in examples like (141), (142) and (143), the Experiencer argument (*Gianni*) must undergo some conversion rule, which puts it in a proper S-position.

Lexicalist frameworks assign to the lexicon some regulatory function. The existence of rules that link one module to another would spread regularities and endanger the possibility to understand regularities.

Even though sentences (141) to (143) are all occurrences of stative predicates, they are not characterized by the same event structures. Sentences (141) and (143) are not causative, contrary to (142). This suggests that arguments are not in the same syntactic position and they do not share the same characteristics in relation to event structure, if we assume the existence of a causative sub-event head.

Thus GB framework cannot deal with the issue of aspectual differences among verbs, and cannot account for the non correspondence between semantic roles and syntactic positions.

2.3 Hale and Keyser (1993 and ff.)

Hale & Keyser’s (1993) work, henceforth HK (1993), is a historical landmark¹ which leads to a new definition of argument structure, where relations

¹As defined by Marantz (2012).

between arguments are derived from the type of event in which they occur. Even though substantial theoretical differences characterize different stages of HK's work, this main point remains unvaried.

HK's (2002) definition of argument structure can be summarized in three points:

- it is the syntactic configuration projected by a lexical item (lexical projection);
- it consists in the system of structural relations holding between heads and their arguments;
- it is determined by properties of lexical items, and by syntactic configurations in which they must appear.

The relationship between lexicon and syntax has been rethought thanks to an unambiguous system of relations within lexical projections. However, "*the representation of the argument structure of a verb is a syntactic representation of the usual sort*" (HK 1993: 64), where structural relationships are expressed in relation to a head: specifier or complement.

The fact that theta-roles are in a restricted number directly derives from two grammatical (syntactic) principles: (i) nature of syntactic projections, defined by the Unambiguous Path hypothesis (Kayne 1984) and the Single complement hypothesis (Larson 1988); (ii) restrict amount of lexical projections (V, P, A, N).

In HK's (1993) approach thematic roles do not exist, they do not have linguistic validity². HK (1993) argue that theta-roles are associated to specific structural positions, thematic roles can be derived configurationally.

If V is complement of V, we are in presence of a semantic relation of causation. The NP specifier of the higher VP bears a syntactic relation with the causation relation, and this marks it as Agent. The Agent role hence boils down the unambiguous syntactic relation of an NP to the causal relation between two verbs.

$$(144) \quad e_1 \rightarrow e_2$$

$$(145) \quad n > e_1 \rightarrow e_2^3$$

²HK (1993) show that the *Thematic hierarchy* (Grimshaw 1990) and the *UTAH* (Baker 1988) do not have any status in the grammar and can be derived by means of structural configurations.

³Where ">" expresses the semantic relation that a subject entertains with a V'.

If a prepositional phrase is complement of V, a semantic relation of change is established. The NP subject of change entertains an unambiguous syntactic relation with V, being its specifier and it is commonly interpreted as Theme.

$$(146) \quad e \rightarrow r$$

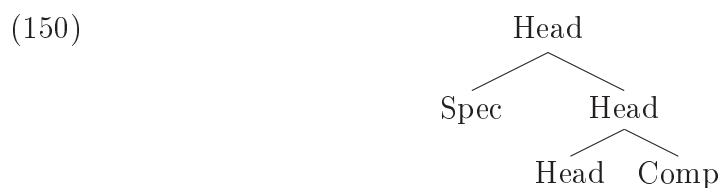
$$(147) \quad n > e_1 \rightarrow r$$

If an adjectival phrase is complement of V, a changing event gives rise to a state. The NP subject of embedded V is interpreted as Theme being subject to change.

$$(148) \quad e \rightarrow s$$

Since not all languages realize those structural relations with the same morpho-syntactic category, HK (2002) abandon these structural positions related to specific grammatical categories, in favor configurations which are cross-linguistically valid.

In the newest version of HK's framework (2002), there are three possible types of lexical argument structures, described without resorting to functional categories.



Structure in (149) is called *monadic*; structure in (152) is the simplest case of a single head without complement and specifier; structure represented

in (150) is a basic *dyadic* type, the head projects both a complement structure and a specifier; structure in (151) does not involve the projection of a complement and can be used only in composition with another head.

Not all verbs can participate in the inchoative alternation, some verbs can project only an inchoative structure. This fact is determined by the “*fundamental nature of the root*” (HK 2002: 3): nominal roots can or cannot project a specifier, allowing or not a causative structure. For example, *break* and *cough* do not project the same structural pattern, the difference in argument realization depends on the lexical nature of their roots.

- | | | |
|-------|-----------------------|--------------|
| (153) | The pot broke. | HK (2002: 1) |
| (154) | I broke the pot. | HK (2002: 1) |
| (155) | *The engine coughed. | HK (2002: 1) |
| (156) | I coughed the engine. | HK (2002: 1) |

The syntactic nature of operations conducted on lexical items is fundamental in delimiting the range of possible structures. One of the main syntactic operations to which HK resort consists in *conflation*, which is defined as a “*fusion of syntactic nuclei*” (HK 2002: 47) where the phonological matrix of a head is inserted into the head that governs it, giving rise to a single verbal word (HK 2002: 48). It is concomitant to merge (HK 2002: 61), particularly “*it is a process of copying the p-signature of the complement into the p-signature of the head, where the latter is defective (empty or affixed)*” (HK 2002: 63), the “*syntactic structure is left intact*”⁴, since it is a copying process (HK 2002: 75), rather than a movement. Conflation is particularly important in order to correctly derive positions of heads and it is described as a special kind of *incorporation* “*according to which the phonological matrix of the head of a complement replaces the empty matrix of the governing head*” (HK, 2002: 11).

The authors create a new framework, where: “*the syntax has been shown to reflect relationships between events such as causation and change of state as much as the relationship between entities and events described by thematic roles*” (Marantz 2013). Theta roles lose their importance, semantic roles are defined by the role that participants perform in the event described by the verb. Relationships between individuals, and between individuals and events are defined by structural configurations, “[*p*]participants in the event will only be definable via the role they play in the event or sub-event” (Ramchand 2008: 23). A huge consequence ensues: since participants are defined as part of a

⁴Where P-signature is a set of indexes that must match with indexes contained in vocabulary items.

sub-event, the study of eventualities and their structures becomes fundamental. For this reason a research on argument structure directly involves the research on eventualities.

HK (2002: 219) identify three possible mechanisms capable of creating stativity: (i) prepositions of central coincidence (*in, on, with*), opposed to prepositions of terminal coincidence responsible for change events; (ii) copulas, i.e. all items that introduce a predicate rather than a complement in their argument structure (*be, cost, weight*); (iii) covert head δ , which correlate a DP and an adjectival head. In all these cases, elements are responsible to establish a link between: (i) the entity and an attribute, or (ii) a location, or (iii) a property. It is important to stress that stativity is generally introduced by stasis, which is generated by a relationship of central coincidence, this means that no energy is present in the derivation.

In all these cases, “*stativity [is] never feature of individual lexical items, but features of a whole predicate*”, (HK 2002: 214). For example, even though (157) and (158) involve the same PP *in the room*, they generate different eventualities, which are ascribed to different prepositions. (157) contains a preposition of central coincidence, (158) a preposition of terminal coincidence. This derives in the stativity of (157) and a change of state reading of (158).

(157) With father Jim **in the room**, we have to watch our language. (HK 2002: 217, ex. 25)

(158) Frankie walked **in the room**. (HK 2002: 217, ex. 26)

2.4 Ramchand (2008)

Ramchand’s (2008) framework can be inscribed within the *constructivist* approaches, since the author assumes that only one linguistic component is place to transformations, the “*narrow syntax and semantic computation*” (Ramchand 2008: 9).

The lexicon does not host any kind of rule responsible for semantic realization of verb arguments, because argument structure variability is composed by systematic patterns and predictable forms. However, these patterns are not as systematic as described in constructionalist frameworks (Borer 2005; Marantz 1997), because some pieces of semantic information are still ascribed in the lexicon in order to account for the irregularity of argument structure. Lexical items bear features which instruct the item about the structure in which it can participate. “[*S*] *superset of category features it actually spell out*”

(*ibid.*: 97). This is called principle of under-association. In this regard, Ramchand's framework differs from pure constructionist frameworks inasmuch it still recognizes some kind of information in the lexicon⁵.

Ramchand assumes that there is no need to resort to linking rules, since the regularity of thematic roles is due to syntactic features. The event structure of a predicate is created by the syntactic structure which it selects and in which it can appear.

Ramchand's (2008: 23) approach to argument structure is based on the awareness that "*participants in the event will only be definable via the role they play in the event or sub-event*". From this fundamental concept she proceeds to the identification of primitives that are relevant to event and to argument structure.

Ramchand (2008) sees morpho-syntax as a correlate of the semantics of event structure, as Ritter & Rosen (1998), syntactic projections are based on event structure.

The first primitive individuated is causation, whose presence can determine specific verbal morphology cross-linguistically (Ramchand 2008: 23). Ramchand takes examples of Italian unergative verbs as *glow* and *stink*, which do not involve an Agent even though they involve an external argument. Causation is not necessarily parallel to agentivity.

(159) Giovanni puzza.
John stinks.

This primitive, according to Marantz (1984), underlies the distinction between internal and external argument.

The relevant category for causation is the one of INITIATOR, which is the entity "*whose properties/behavior are responsible for the eventuality coming into existence*" (Ramchand 2004: 24). It can be realized by Agent, Instrument, abstract Cause or Source. This means that, even if important in some environments, "*agentivity is not syntactically relevant*" (*ibidem*).

Differences between external semantic roles⁶ (such as between Causers and Agents) are determined by the interaction with one or more sub-events.

⁵In particular, Ramchand takes this principle to be responsible for possible occurrences of cognate objects with conflation verbs. The item *dance* is specified as [*init, proc, N*]. This means that when the verb comes alone, *John danced*, the [N] feature is realized on a covert complement NP. Otherwise, if the verb comes with a cognate object, *John danced a tango*, the [N] feature can be underassociated on the item and unified with the DP complement.

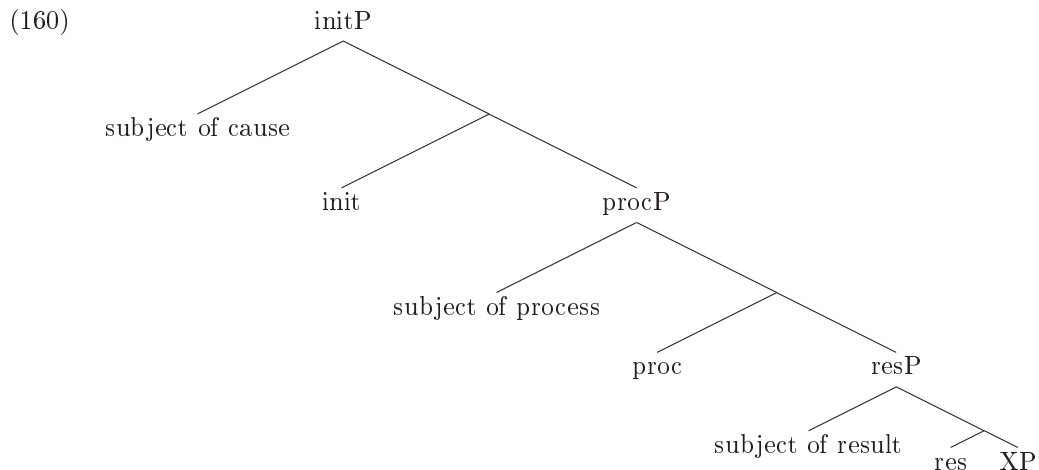
⁶With the term *role* Ramchand does not identify lexical-semantic roles, because arguments are "arguments of predicates introduced by semantic interpretation" (*ibid.*: 44), and not arguments of a lexical item. As consequence a *role* is determined by the specific semantics involved in the sub-event structure of which it is subject.

For example, Causers interact with the sole causative sub-event, while Agents with causation and process sub-events.

Telicity is the second primitive that constitutes the argument/event structure, since it is “*isolable in verbal meaning*” and it is “*associated with morphology and case marking reflex*” in some languages (*ibid.*: 25). As agentivity has been thought to be tightly linked to external arguments, telicity has been thought to be caused by quantized internal objects (Krifka 1992). Contrary to this view, Ramchand assumes that it is not the presence of a specific feature on the object that causes telicity, since it exists even without internal quantized objects and quantized objects do not inevitably yield telicity. Rather, a dynamic event has a part-whole structure, implying a change, which does not necessarily attain a resultant state, as in the case of gradual change. The entity which undergoes this change is the second relevant category, that of UNDERGOER. Its presence does not force a telic reading.

Since the attainment of a resultant state is separated from the undergoing of a change, a third relevant category can be introduced, that of RESULTEE, which is the entity that reaches a final state. Some verbs, such as *break*, *arrive*, *find*, are obligatorily telic in that they systematically involve the achievement of a new state. This means that “*result properties are properties of verbal event structure, not of the interaction between direct object and quantization*” (*ibid.*: 32)⁷.

INITIATOR, UNDERGOER, RESULTEE are defined as *aspectual arguments*, because they are generated by different aspectual projections, by different sub-events: *Causing*, *Process*, *Result*. There are arguments which are not involved in the determination of verbal aspect, such as PATH, which defines the “*measuring scale homomorphic with the event*” (*ibid.*: 30).



⁷ Contrary to Borer (2005) and her transfer of boundedness from DP to empty functional eventive heads which leads to a telic reading.

These layers combine in a structure, called first phase, which is verbal in nature, but in none of its single parts it corresponds to the lexical verb, the same way as the split of C-projection.

ProcP is “the heart of dynamic predicates” and “it is present in every dynamic predicate” (Ramchand 2005: 40), it is the constitutive part of predicates, exception made for statives. *ResP* is present only when a specific resultant state is expressed within the predicate. As already said, it cannot represent telicity and it does not “correlate with semantic and aspectual boundedness” (*ibidem*).

Semantics of the construction is built up recursively from the syntactic structure in “a regular and predictable way” (*ibid.*: 42). The fact that event variables are present in the structure and can be internally complex, identifies this framework as *post-Davidsonian*.

The primitive role types are defined as structural relations between subjects and heads. Initiator and Resultee are states, while Process being the dynamic sub-event denotes an internal change. This latter fact leads to a series of theoretical speculations about formal relationship that intervenes between a possible rhematic complement and aspectual heads. There is no correspondence between usual aspectual classes, such as activities, achievements and accomplishments, and verbal classes of this framework, since they are defined in relation to the number and type of sub-events they are made up with.

For example, verbs of type *init-proc* include both transitives and intransitives. Transitive verbs of this class have a DP subject in [Spec, *initP*], and a distinct DP object which can occur in two positions: (i) UNDERGOER, [Spec, *resP*]; (ii) PATH, [Spec, *PathP*].

If we analyze verbs of creation with two possible readings, we can better point out the difference between DP objects.

- (161) Giovanni pitturò un albero sulla tela (in un’ora).
 John paint-PERF.3SG. a tree on-the canvas (in one-hour)
John painted a tree on a canvas.
- (162) Giovanni pitturò un albero (per un’ora).
 John paint-PERF.3SG. a tree (for one-hour)
John painted a tree.

In (161), the direct object does not undergo a change, since it comes into being as result of the painting process. For this reason the DP object is in [Spec, *pathP*]. On the other hand, in (162), the verb involves a DP object which undergoes a change, since the action is directly performed on it. The object is in [Spec, *resP*].

The process sub-event is heart of dynamic events, thus stative verbs do not contain it. Statives involve neither dynamicity nor causation⁸. In order to define which is the correct event structure for statives, Ramchand (2008) briefly analyses psychological verbs and their argument templates (object-experiencer or subject-experiencer). The fact that they can have real syntactically internal arguments leads to the conclusion that stative predicates are composed of two arguments RHEME and THEME.

Devoid of the *proc* sub-event, statives have an *init* argument, which is argued to generate the state.

(163) Katherine fears nightmares. (Ramchand 2008: 106.

In example above, *Katherine*, because of her disposition, is interpreted as the cause of fearing nightmares. The correspondent structural representation is reported in (164).

(164)  (Ramchand 2008: 56, ex.34)

If they share the same syntax, it remains unexplained why causative statives and non-causative statives should differ. In other words, why (163) and (164) are different if their structures are not supposed to? In Ramchand's framework, the answer resides on the dispositions of subject, which pertain to world-knowledge.

(165) Nightmares frighten Mary.

For this reason, the present work does not adopt this framework. Even though it appears useful for eventive verbs, it does not seem capable of accounting for variable behavior of stative verbs.

2.5 Borer (2005)

Borer's (2005) approach is defined as exo-skeletal. This term emphasizes the independence from the lexicon, "[it] is independent of the properties of specific listemes" (Borer 2005: 7). As we can see below, the feature responsible for differentiating events is telicity, conditioned by quantity. Since the structure is external to the lexicon, lexical semantics of listemes "*doesn't or can't play*

⁸In Ramchand's opinion, but we will see in further chapters that this is not true for causation.

any role in the determination of telicity. [...] We must reject any account of telicity which crucially relies on the assignments of some particular role to some particular argument” (*ibid.*: 122).

“Argument structure is licensed by functional syntactic structure, and specifically, functional structure that is interpreted as event structure”, (*Ibid.*: 30). An under specified listeme (possibly a root) enters in the structure where it can be verbalized by the functional structure itself⁹. Since the functional structure is not dependent on lexical features¹⁰, consistent polysemy in the verbal domain is generated¹¹. However, a syntactic structure cannot generate polisemy in itself, since the semantic module interprets a syntactic structure in a unique way, but two distinct structures can receive the same interpretation.

Tenny (1987, 1992, ff.) is the first who proposes a change in the nature of argument roles: from semantic roles linked to the argument semantics, to eventive roles expressing the relationship between the argument and the event expressed by the verb. Consequently, aktionsart is a syntactic object which is syntactically represented and shows sensitivity to syntactic structure. From this perspective, the role assigned to a direct object of a transitive verb will be the same assigned to an Exceptional Case Marking object of an intransitive verb: they both contribute to the telicity of the event.

If Kratzer (1996) severs external argument, Borer severs also the internal one. In fact, each verbal argument is projected by a functional head. In other words, the verb enters different structures, which are endowed with different arguments, depending on the aktionsart they create, and not the other way around.

As it has been noted several times since Verkuyl (1972), quantized objects influence telicity of predicates. Borer applies Krifka’s (1992) conception of event quantization that assumes that “all verbs are inherently atelic, in the sense that they do not specify a culmination point, but only a path” (*Ibid.*: 74). Telicity arises in the structure, by means of a particular functional projection, it “is structurally represented, while atelicity is that which emerges in the absence of telicity” (*Ibid.*: 64). Generally, telicity is generated by the syntactic projection Asp_q^{max} , in the specifier of which is merged a DP that receives accusative case and is defined as subject of change; the head, and its c-commanded domain, corresponds to a quantity predicate.

⁹I leave apart the distinction between L-head and L-domain, listeme and lexeme, which can be thought as the difference between a nude root and the categorizing head, Arad’s (2002) terms.

¹⁰The listeme brings lexical information on the arbitrary pairing between *sign* and *content*. Lexical features of listemes function as sort of structure modifiers.

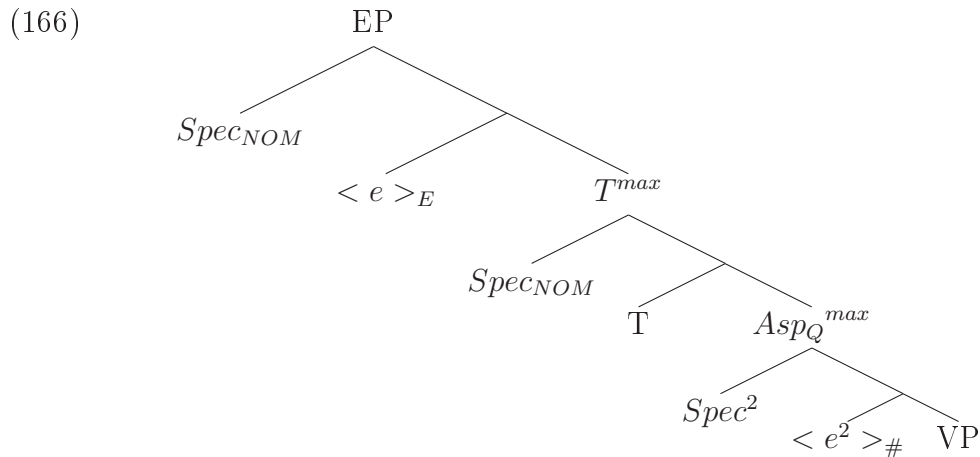
¹¹*Ibid.*: 30.

The subject-of-quantity DP (s-o-q) that expresses a quantity is capable of ranging over an empty value ($\langle e \rangle_{\#}$) in the head of Asp_q^{max} . If the predicate is Asp_q , the event is interpreted as telic, whereas, if the predicate is not Asp_q it is interpreted as atelic.

In a quantized transitive structure the Asp_q^{max} is projected. Different conditions are responsible for the projection of Asp_q^{max} : (i) phonological (assigned a Case) and semantical (ranged by s-o-q¹²) interpreted, giving rise to a transitive telic predicate; (ii) semantically interpreted, giving rise to an unaccusative predicate; (iii) phonologically licensed (case is assigned, vacuous head), giving rise to a transitive atelic predicate. The latter case does not involve a telic head, no Asp_q^{max} is structurally present, and a generic Functional Projection (FP) is generated in its place.

A quantity listeme merges in Asp_q^{max} specifier position, becoming a s-o-q and ranging over its head, receiving accusative case from Asp_q . The other verbal argument is merged in TP where it receives nominative case before moving upwards in [Spec, EP] to license this projection by ranging over the head. Arguments in [Spec, EP] are interpreted as originator, respecting Burzio's generalization: accusative case is assigned iff nominative case is assigned to a *distinct chain*.

The tree below represents the structure of a quantity transitive predicate. It is worth noting that Borer does not divide the structure in sub-events, contrary to Ramchand (2008), she assumes that argument structure is only an *epiphenomena* (*Ibid.*: 220) of the event structure.

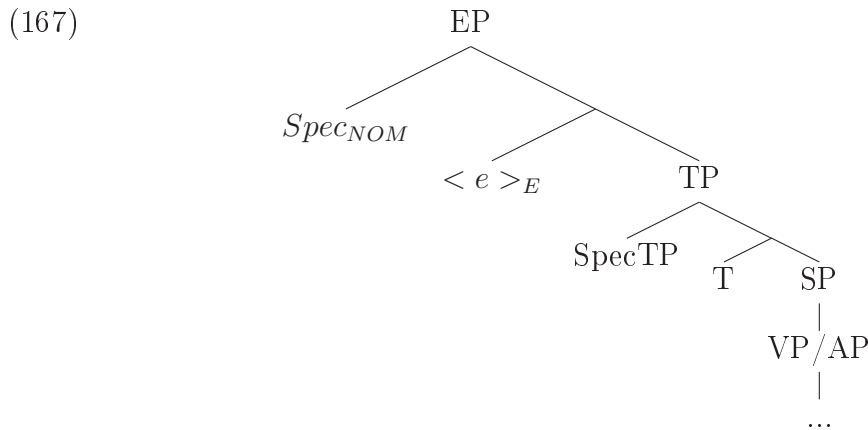


A debate arises if atelic predicates must be split in two groups: eventives (activities) and statives (states). In particular, statives lack the verbalizing head and have a special kind of event projection (EP). The EP projection

¹²Subject of quantity

differentiates statives from verbs of other eventualities and does not occur in structures provided of Asp_q . In other words, predicates of all aktionsarten, except for statives, involve a type of EP, and the presence or absence of Asp_q determines their atelicity. The presence of Asp_q excludes statives, because it implies an internal event non-homogeneity.

The nature and role of the structure responsible for stativity remains unexplained. In fact, Borer (2005: 265) affirms: “[...] *the differences between eventive and stative events should not be captured in terms of the properties of EP, but rather in terms of properties of some other structure, subordinate to it*”. The author argues for the structure stative verbs should have, which is characterized by a stative projection (SP). SP is able to pre-empt the verbalizer part. In other words, the SP is capable to invalidate the verbalizer part before the structure is spelled out.



Pre-emption of verbal content in statives accounts for copular/adjectival sentences and for adjectival stative predicates. Whether pre-emption is an operation that takes part in the derivation of all statives is not evident. Pre-emption works in English, where stative verbs cannot combine with (for example) progressive form, unless they are coerced in an eventive reading. This can be derived from the fact that English progressive can combine only with verbs provided of a verbalizer head, stranding stative verbs. The case of causative statives is left behind and rises some issues. In Borer’s framework, causation can apply only to verbalized structures, consequently it cannot combine with emptied structures such as stative. The derivation of causative statives is left unexplained.

I will not adopt this framework because it does not give any role to the lexicon. On the one hand, I agree that different readings are generated by different structures, but on the other hand, possible patterns in which a lexical item can merge are defined by its lexical properties. I assume that impossi-

bility to appear in several structures resides in the fact that eventuality and argument structure are interconnected, contrary to Borer's opinion.

2.6 Categorizers and roots

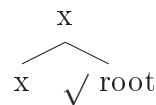
An issue that concerns all frameworks, independently on their assumptions about the role of lexicon and syntax, is the way in which words enter the syntax.

Two main theories about word formation processes can be found in the literature: (i) theories about double nature of words; and (ii) theories about the syntactic nature of word formation processes. Marantz (2000) tries to conciliate them and proposes that words can be formed starting from both roots and actual words. In other words, categorizing heads (categorizers, such as *n*, *v*, *a*) can merge above a root or above another categorizer.

A categorizer is a head bearing the required distinctive features, necessary at LF for the interpretation of root, they are interpretive perspectives on concepts (Panagiotidis 2010).

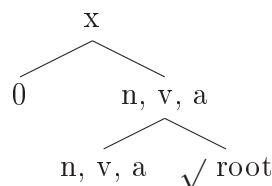
Inner (from root) and outer (from word) derivations are responsible respectively for regular or non-transparent meaning of derived words. Root-derived words (lower derivation) can present idiosyncrasy, while word-derived words (upper derivation) cannot. The categorizer coerces its interpretive perspective on the root, of which selects a partial interpretation. This process prevents a further upper categorizer to have access to the root.

(168)



When the root merges, it denotes meanings compatible with nominal, verbal or adjectival environments. In all cases, at some point of the derivation the root must combine with a categorizer responsible for categorial features and the meaning delimitation of the root in a given context. When the root merges with a categorizer, the complex can be further categorized, however the categorizer does not have complete access to the root semantics, since the first categorizing head already narrowed it down.

(169)



This process has been specifically formalized by Arad (2003: 747) in the locality constraint 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 is assigned, it is carried along throughout the derivation*”.

Different diagnostics have been put forth in the literature in order to distinguish between word derived by roots and words derived by categorized words.

When the meaning of a root has been narrowed by a categorizer, it is not completely available in the context. Consequently, adjuncts describing further specifications of the meaning of the root are not allowed.

(170) *She taped the picture to the wall **with push-pins**.

(171) String him up **with a rope!**

In (170) by Kyparsky (1982), the verb *tape* is supposed to be noun-derived. The root first merges with the categorizer *n*, blocking possible access to the whole range of root’s interpretation. Agrammaticality of (170) derives from the contrast between selected range of meanings by the first categorizer and further specification of instrument (i.e. push-pins). On the other hand, the verb *string*, in (171), is root-derived, since a further specification of the instrument used to accomplish the action is allowed.

Derivational morphology is specific of each syntactic category, it can attach only to a categorized element and not to a bare-root. In fact “*any further derivation takes as its input not the root itself, but an element whose semantic and phonological properties have been cashed out*” (Arad 2003: 2). We will use this evidence in chapter 4 and 7 in order to demonstrate that parasynthetic verbs are built from roots rather than from nouns or adjectives.

It is worth noting that in the present approach, roots can be complement of an element called [r] which is responsible (in Romance transitive causative verbs) for the introduction of a relation between the verbal base and the internal object (Acedo-Matellan 2006). In Romance prefixed causative transitive verbs, semantic content of roots is narrowed down when they conflate in little *v*, which is supposed to be the verbal categorizer.

2.7 The present approach

I adopt that line of reasoning which considers the verbal configuration as an isomorphic representation of the event structure (Ramchand 2008; Copley & Harley 2015; *inter al.*). I will propose that the configuration is divided

into three main layers: the lower projection (a Small Clause) which can be present or not; the verbalizer little-*v* (Folli & Harley 2005, *inter al.*); the introducer of the external argument *Voice* (Kratzer 1996).

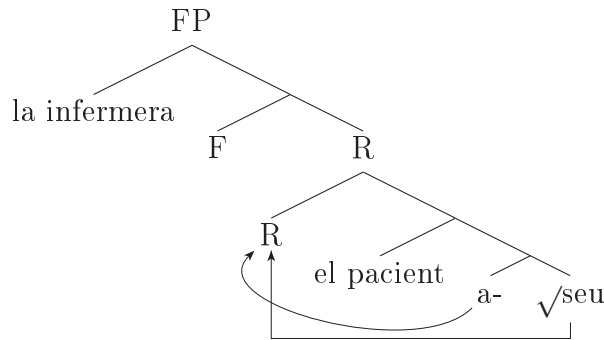
The lower part of the derivation is supposed to be a predication relation, a sort Small Clause¹³ (SC). When SC is present, the verb has causative meaning (Hoekstra 1988; Schäfer 2008; Folli & Harley 2005). In chapter 7, I propose that the presence of a lower SC is possible either in stative or eventive verbs

Prefixed Romance verbs are assumed to contain the expression of a relation between the internal object and the verbal base (Acedo-Matellan 2006). This relation is expressed by the prefix. Adopting Mateu’s (2001) approach to argument structure, Acedo-Matellan (2006) (henceforth AM) argues that the prefix is in the head of a [r] projection, a non-eventive relation projecting both a complement and a specifier. The nature of [r] complement is root, since it is not introduced by a “*prepositional element with spatial meaning* (*ibid.*: 12), contrary to Latin whose prefixes have a prepositional nature.

The structure proposed for transitive prefixed Romance verbs by AM (2006: 13) is expressed in terms of Figure-Ground-Path (173), where: Figure is the individual who moves or is stationary, Ground is the reference of movement, Path is the relational element between Figure and Ground.

(172) La infermera assen el pacient. (Catalan)

(173)



I translate AM’s (2006) proposal in a tripartite argument structure adopted in the present work.

AM’s [r] codifies a non-eventive relation and it corresponds to Path, which is the *component which relates Figure and Ground* (*ibidem*). In Romance languages, it selects roots because they are not introduced by a syntactic complete prepositional element. I will show in chapter 4 and 7 that the root nature of the complement of [r] is supported by Italian data, in particular I will resort to Kiparsky’s (1982) tests about the agrammaticality of further specifications of categorized elements.

¹³I will better define its nature further. For simplicity, I call it SC for the moment.

I argue that [r] head is a predicative head (Bowers 1993) selecting a root. Moreover, prefixes are its lexical manifestation. For simplicity, I stick to AM's terminology for this head, therefore I will call it *r* and its projection *rP*.

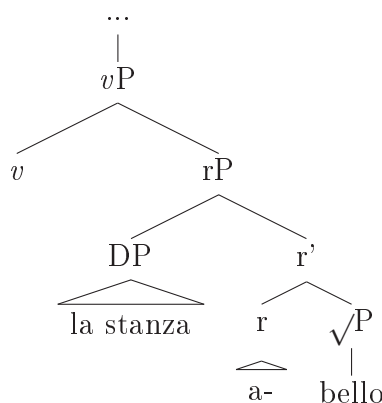
Contrary to AM's (2006) and Mateu's (2001), I will show (chapter 7) that the presence of a *rP* projection in the verbal derivation is responsible only for the causative meaning of the verb and it does not involve any change of state reading undergone by the Theme. The change of state reading is determined by a higher functional projection.

AM's [R] is an eventive head *projecting a complement but only optionally an external argument* (*ibid.*: 8). In my proposal, the functional eventive head is little *v*; I will argue that it comes in different flavors which are responsible for different *aktionsarten*. In this respect, I assume that AM's [R] corresponds to my little *v* since they both determine the eventuality of the verbs, with one difference, namely that little *v* can be responsible also for stative verbs.

Different eventualities (stativity or eventiveness) arise because of different flavors of the same higher projection called little *v*. The presence of a lower *rP* does not determine *per se* the achievement of a result of the Theme, but only its state: causative stative verbs do not involve a result, while causative eventive verbs do.

A change of state is perceived when an individual (*x*) is in a different state in two times of his life (t_1 and t_2). The change of Theme state interpretation is licensed by the presence of an eventive functional head, which is responsible for moving forward the time of reference. Stative functional heads are not capable of moving the time of reference, consequently they cannot represent different states of the same individual. A change of state of the Theme is determined by the presence of an eventive flavor of little *v*.

(174)



The functional projection called little *v* is responsible for making the

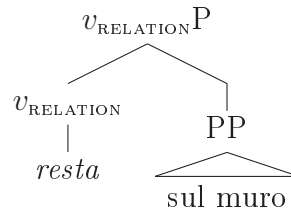
structure a verbal structure. However, since different *aktionsarten* exist in the language, little *v* is not the same for all verbs, but it comes in different flavors (Folly & Harley 2005; Copley & Harley 2015; *inter al.*).

In particular, in eventive verbs little *v* comes in different flavors (Copley & Harley 2015): v_{BECOME} in case of change of state eventive verbs (177 and 178), v_{APPEAR} in case of accomplishment with incremental Theme, v_{EMERGE} for denominal verbs of birthing. The present work analyses eventive verbs of change (denominal parasynthetics like *impilare*, ‘to pile’; and deadjectival parasynthetic verbs like *annerire*, ‘to blacken’), for this reason, only v_{BECOME} will be analyzed in details.

I will propose that stative verbs (causative and non-causative) are created by only one flavor of little *v*, namely v_{RELATION} (175 and 176), which is a predicative head establishing a relation between the external and the internal argument. The fact that a stative verb is causative or not is determined configurationally, it depends on the presence or the absence of the lower *r* projection (refer to chapter 7).

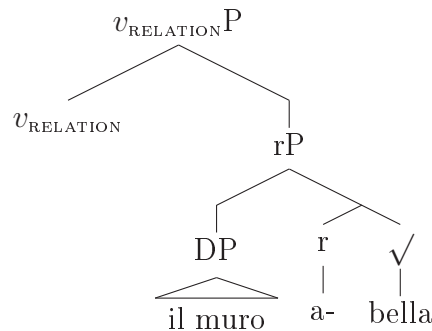
- (175) a. La foto resta sul muro.
The picture stays on the wall.

b.



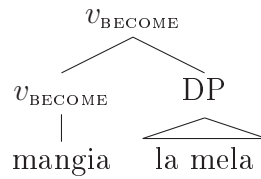
- (176) a. La foto abbellisce il muro.
The picture embellishes the wall.

b.



- (177) a. Daria mangia la mela.
Daria eats the apple.

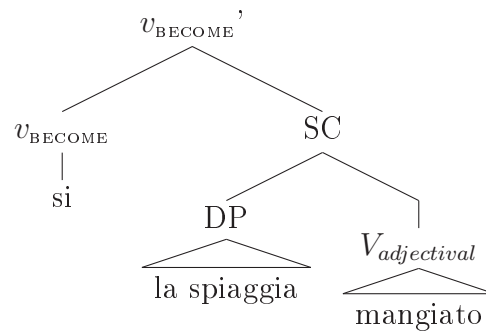
b.



(178) a. *Il mare mangia la spiaggia. (Folli & Harley 2005: 14)
The sea eats the beach.

b. Il mare si è mangiato la spiaggia.
The sea eats the sea up.

c.



The specifier of AM's FP projection is the external argument, which is interpreted as the individual who moves, namely to the most prominent individual of the eventuality. I argue that this projection can be translated with the *VoiceP* (Kratzer 1996; Pykkänen 2002; Harley 2012a).

In order to understand the relationship between external arguments and their predicate, it is necessary to recall Kratzer's (1996) analysis about the severing of the external argument from the verb.

In the last decades it has been noticed that internal arguments can very often influence the interpretation of the whole predicate (Marantz 1984), contrary to external arguments.

- (179) a. throw a baseball
 b. throw support behind a candidate
 c. throw a boxing match
 d. throw a party
 e. throw a fit

- (180) a. lanciare la palla
throw the ball
 b. lanciare una sfida
challenge

- c. lanciare una provocazione
provoke
- d. lanciare il dado
roll the dice
- e. lanciare la macchina ai 100 km/h
hurl the car to 100 km/h
- f. lanciare un grido
cry out
- g. lanciare un programma
start a program
- h. lanciare uno sguardo
cast a gaze

Inspired by neo-Davidsonian theories which assume that arguments are introduced by predicative heads, Kratzer (1996) develops a theory which treats subjects as arguments of functional head, with the result that Agents and Holders are no more direct arguments of the lexical verb. This move can explain why internal objects can influence the interpretation of the verb, while external ones do not. Internal objects are proper arguments of the verb, while external ones are added via a distinct functional head.

Kratzer's analysis is based on two theoretical assumptions: arguments are introduced by heads; structural cases (NOM; ACC) are assigned by functional heads. Kratzer assumes, after Hung (1998), that external arguments are introduced by a head called VOICE. Contrary to Hung (1998), Kratzer argues its functional nature for four main reasons:

- a. it explains defective distribution of VOICE. If it were a lexical head, the defective distribution within the paradigm of the same verb could not be explained.
- b. VOICE is related to ACC case assignment, and we know that functional, and not lexical, heads assign structural case.
- c. serial verbs can share the external argument, because verbal complex presents one inflectional morpheme and one external argument. Accordingly, external argument is introduced by an inflectional head (=functional).
- d. this type of analysis is in accordance with previous account to English phrase structure (Pesetsky 1989; Johnson 1991).

Thus, external arguments are introduced in the derivation by a functional head and they combine with it by means of a semantic operation called *event identification* (EI).

(181) Event Identification: $\langle e, \langle s, t \rangle \rangle \langle e, \langle s, t \rangle \rightarrow \langle e, \langle s, t \rangle \rangle$

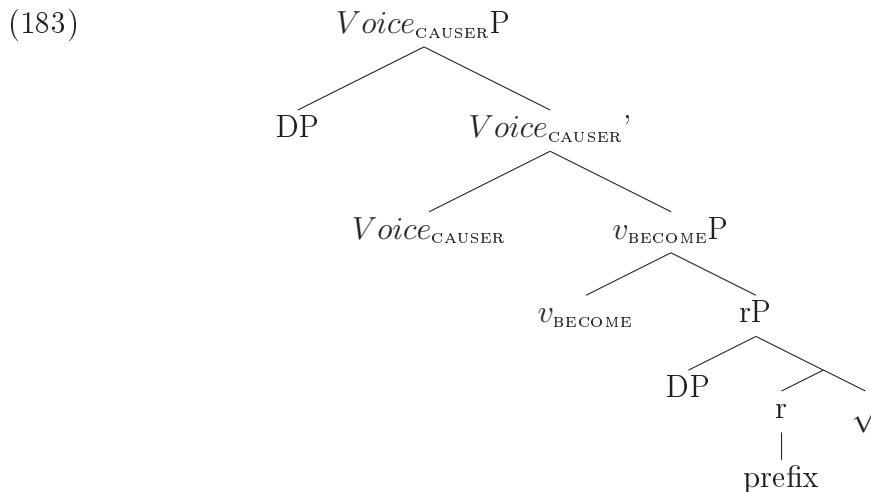
Lambda expression in (182) helps us to understand the role of EI for a transitive verb such as *buy*.

(182) $\lambda x_e \lambda e_s [Agent(x)(e)] [buy(Theme)(e)] \rightarrow \lambda x_e \lambda e_s [Agent(x)(e) \& buy(Theme)(e)]$

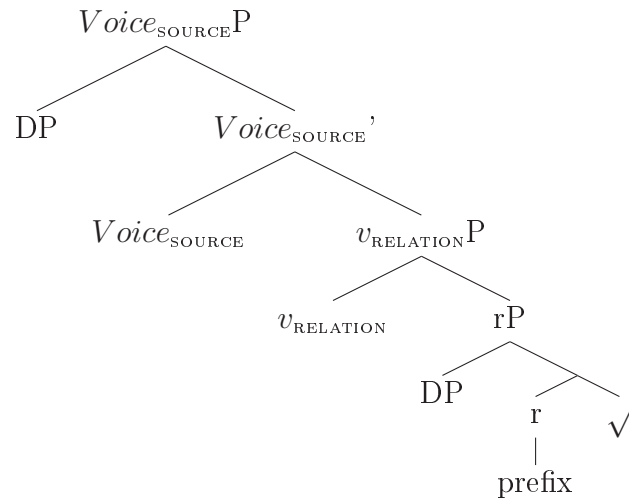
If external arguments are introduced by a distinct functional head, what determines their argument role?

The lexical verb introduces an event argument which defines its eventuality, the external argument is introduced by another functional head whose eventuality needs to be compatible with the one of the lexical verb, consequently the thematic role assigned to the external argument is still related to the eventuality of the lexical verb (whether accomplishment, activities, statives, ...).

In the present work, Voice comes in two flavors (*à la* Folli & Harley 2005), in relation to the eventuality of the predicate; it must accord to the flavor of little *v* in order to get the derivation spelled out (refer to chapter 7). For example, for causative eventive verbs, $Voice_{CAUSER}$ takes as its complement a predicate of forces, and it composes with the external argument which is interpreted as the Causer (183). For causative stative verbs, $Voice_{SOURCE}$ takes as its complement a predicate of situation and composes with the external argument which is interpreted as the source of the internal argument state (184).



(184)



We will adopt the force-dynamic approach to causation (Copley & Harley 2015; Copley & Martin 2014; Copley 2015; Copley & Wollf 2014) with the due changes to account for causative stative predicates. Eventive predicates are generated by energetic (linguistic) forces which correspond to energetic (conceptual) forces. Causative stative verbs cannot be generated by energetic forces (by definition). I assume that stative causative verbs are generated by a virtual ‘force’ called abduction which is introduced in the system by the speaker.

2.8 Conclusions

This chapter reported theoretical bases of different frameworks on argument structure and aktionsart. We saw that frameworks can be divided into two classes depending on the weight they attribute to lexicon and syntax.

We saw that the structure of stative verbs is often not defined.

This dissertation adopts a general l-syntax framework in which arguments are introduced by functional heads which are linked to event structure. Verbal l-syntax determines the syntax and semantics (aktionsart) of the predicate and its arguments.

Specific theoretical choices will be presented in dedicated paragraphs along the dissertation.

Chapter 3

Parasynthetic verbs

3.1 Introduction

The analysis of verbs with clearly identifiable morphological constituent parts is particularly enlightening on the nature of argument structure. In particular, the possibility of determining number and nature of morphological building blocks leads to a deeper understanding of the functional syntactic building blocks responsible for their combination.

For this reason, the present dissertation focuses on the argument structure of deadjectival and denominal verbs. These verbs are all formed by means of a morphological derivational process called parasyntesis. This chapter will present parasyntesis and discuss theoretical issues about the nature of derivational steps in this class of verbs.

We will see a typology of parasynthetic verbs by Iacobini (2004) based on syntactic and semantic properties of this class. We will further focus on two sub-groups that will be the aim of the present dissertation, namely a group of denominals and a group of deadjectivals. Denominal parasynthetic verbs analyzed in the present dissertation are causatives and their semantics can be paraphrased with “*make something a N*”, where N is the base noun, such as *impilare*, ‘to pile’, *accatastare*, ‘to pile up’. Deadjectival parasynthetic verbs are causatives and their semantics can be paraphrased by means of “*make something A*”, where A is the base adjective, such as *abbellire*, ‘to embellish’, *insozzare*, ‘to soil’.

3.2 Parasynthetic verbs

Parasyntesis is a derivational morphological process present in all Romance languages. It yields verbs equipped of a prefix and a suffix and it yields

different semantics.

- (185) Il commesso in-scatol-ò il regalo.
 The cashier in-box-3SG.PAST. DET.SG.M. gift.
The cashier boxed the gift.
- (186) La musica in-stupid-ì i ragazzi.
 The music in-stupid-3SG.PAST. DET.PL.M boys.
The music made the boys dumb.
- (187) Gli operai a-ccatast-arono la spazzatura.
 DET.PL.M workmen a-heap-3PL.PAST. DET.SG.F rubbish.
Workmen made a heap of trash.

Parasynthesis originates from a reinterpretation process in Late Latin, a period in which the semantic content of Latin prepositional prefixes blurs gradually. This leads to a reinterpretation of prefixed denominal and deadjectival verbs: they are interpreted as synonymous to their non-prefixed counterparts, leading to a loss in the semantics of prefixes which become contentless derivational tools (Iacobini 2004).

Traditionally, the definition of parasynthesis, due to Darmesteter (1894), is based on a lexical criterion. Specifically, a verb, a noun, or an adjective are defined as *parasynthetic*, when they are composed of a prefix and a suffix and the intermediate stage of derivation is not attested in the lexicon (Iacobini 2004). We will see that this definition is problematic, since the lack of a derivational product in the lexicon does not imply the oddity of the morphological resulting verb/adjective/noun. I will leave aside parasynthetic nouns and adjectives and will focus only on verbs.

Parasynthetic verbs contain three recognizable parts: a prefix, a nominal or adjectival base, a suffix¹.

- (188) Prefix + Base (N or A) + verbal suffix

Only three prefixes can form parasynthetic verbs, namely *ad-*, *in-* and *s-* without privative meaning (Iacobini 2004). These prefixes are productive only with parasynthetic formations. They do not contribute to the semantics of the compound (Iacobini 2004). Contrary to Iacobini and according to Bertinetto (1986), who argues that these prefixes have an *actional meaning*², I assume that they are morphological manifestation of causation. In other words, they can appear only if causative meaning arises from the structure.

¹We will see that the derivational or inflectional nature of the suffix is at stake in the debate about parasynthesis. The reader should please consider it in more general terms.

²They contribute to the semantics of the acquisition of a new state.

The *-ire* conjunction group is productive only with these three prefixes, otherwise the only productive conjunction in contemporary Italian is *-are*.

From Latin and Late Latin, the original locative semantics introduced by these prefixes switched progressively to a related one, namely that of change of state (Iacobini 2004).

Morpho-syntactic stages of parasynthetic verb formation are controversial in nature and number. The order in which prefix, base and suffix are combined together is matter of debate in the literature and three positions emerge:

- a. simultaneous addition Darmester 1890; Iacobini 2004)
 $[pref[X]_N suffix]_{N/V}$
- b. suffixation followed by prefixation (Scalise 1990)
 $[pref[[X]_N suffix]_V]_V$
- c. prefixation followed by suffixation (Corbin 1987)
 $[[pref[X]_N]_V suffix]_V$

The first hypothesis considers that the prefix and the suffix constitute a discontinuous morpheme, because the otherwise expected intermediate morphological item is not attested in the lexicon (Crocco Galéas & Iacobini 1993).

However, it is problematic for three reasons of different nature. First, a formal issue (Scalise 1990: 218) consists in the fact that the derivation does not respect the binary branching hypothesis (Aronoff 1976). Italian does not present other cases of circumfixes, making this kind of derivation an *ad hoc* procedure.

Second, the definition of circumfix does not fit the case of parasynthetic affixes, in fact “*In a series such as Sp. embalsamar ‘to embalm’ (← bálamo ‘balm’) [...], it is difficult to argue that there is a discontinuous morpheme [en- ... -ar] based on a supposedly obligatory co-presence of the suffix and the prefix. We have to bear in mind that there are corresponding synonymous verbs without the prefix: balsamar, mascarar [...].*” (Serrano-Dolader 2015: 531). We can talk of two distinct morphemes that “[...] are jointly attached to a base” (*ibidem*).

Third, Italian employs two different *in-* prefixes: (i) one with negative semantic value (190) which precedes adjectives (Scalise 1990: 220); (ii) one with intensive semantic value (189) which precedes verbs.

(189) in + verb

- a. in + rompere = irrompere
in + break = burst into
- b. in + porre = imporre
in + place = impose

(190) in + adjective

- a. in + esperto = inesperto
in + expert = unexpert
- b. in + educato = ineducato
in + polite = impolite

As *in-* with aspectual meaning combines with verbs should be an evidence that it composes with verbs also in case of parasyntetic verbs. This leads to the hypothesis that two derivational steps must be assumed for parasyntetic verbs: the first involves the suffix and a change in category of the nominal or adjectival base, the second further adds the aspectual prefix.

- (191) 1. A/N + *-are, -ire* = [A/N – *are/ire*]_V
 2. [A/N – *are/ire*]_V + *a-, im-, s-* = parasyntetic product

The product of the first stage is possible, but not necessarily attested. At the second stage, the actual parasyntetic word is generated. The fact that intermediate products are not attested is considered as unproblematic both by Scalise (1984: 204; 1990) and Corbin (1980: 191), since it is possible for the intermediate product to be a possible but non-attested word.

The second hypothesis has several advantages: it does not assume a specific derivational mechanism such as circumfixation and it respects the binary branching hypothesis. However, it still does not explain morphemes order which do not respect the mirror principle, and furthermore it “[...] *does not explain the relationship between prefixed verbs and non-prefixed verbs with the same stem that are not attested, and neglects the widely heterogeneous character of such relations*” (Serrano-Dolader 2015: 530).

The third hypothesis also assumes two distinct derivational steps, but it charges the prefixes of the change of grammatical category (Corbin 1980). Such a theory is problematic as Italian prefixes normally do not change grammatical category (Scalise 1995: 477). Thus again an *ad hoc* mechanism is assumed.

The nature of verbal suffixes changes in the three theories, as pointed out by Serrano-Dolader (2015: 528):

Another possible interpretation is to argue for the inflectional as well as derivational character of the infinitive ending. If the infinitive is considered to be part of the verbal paradigm, its ending should be classified as inflectional. If, on the contrary, the infinitive is considered to be part of a derivational paradigm, then its ending is derivational.

The challenge of parasyntesis is well represented by these three theories which all present some issues.

The following sections describe denominal and deadjectival parasyntetic classes with particular attention to the sub-groups which are object of the present study.

3.3 Deadjectival parasyntetic verbs

Italian deadjectival parasyntetic verbs show an ingressive meaning, in other words they are causative and they attest that the object is “more A” as result of the event expressed by the verb. According to Iacobini (2004), the resulting grade is left unexpressed, for example in *abbassare* (‘to lower’) the grade of attainment is not specified with respect to the initial state. This happens independently from the base adjective, we will see in section 7.3.1.1 that this is due to syntactic nature of the base which is not a categorized adjective, but rather a root.

The majority of deadjectival parasyntetic verbs alternates between a transitive and a pronominal inchoative form (Iacobini, 2004).

- (192) a. Maria ha innervosito sua sorella.
Mary annoyed her sister.
- b. Maria si è innervosita.
Mary got annoyed.
- (193) a. Daria ha intossicato sua sorella.
Daria intoxicated her sister.
- b. Daria si è intossicata.
Daria got intoxicated

Some verbs alternate between a transitive and a non-pronominal inchoative form.

- (194) a. Daria ingrassa il maiale.
Daria fattens the pig.

bello, ‘beautiful’	>	a-bell-ire, ‘make (more) beautiful’
brutto, ‘ugly’	>	im-brutt-ire, ‘make (more) ugly’
giallo, ‘yellow’	>	in-giall-ire, ‘make (more) yellow’
bianco, ‘white’	>	im-bianc-are, ‘make (more) white with an addition of white color’
	>	s-bianc-are, ‘make (more) white with a loss of another color’
nero, ‘black’	>	a-nner-ire, ‘make (more) black’
grande, ‘big’	>	in-grand-ire, ‘make (more) big’
stupido, ‘stupid’	>	in-stupid-ire, ‘make (more) stupid’

Table 3.1: Morphological constituents of DPVs.

- b. Daria ingrassa.
Daria puts on weight.

In the present study, I focus on the transitive form of verbs whose paraphrases correspond to “make N (more) A”, where A corresponds to the base adjective and N to the affected direct object.

I identified 221 deadjectival parasyntetic verbs (hence DPV), among them: *accecare* (‘to blind’), *addolcire* (‘to sweeten’, ‘to alleviate’), *irrigidire* (‘to stiffen’), *sgrezzare* (‘to make rough’). The full list is reported in appendix.

The base adjective remains accessible in the verb semantics, as explicitly reported in section 7.1.

The discussion about morphological components of DPVs is conducted in chapter 7, where the nature of prefixes and base are analyzed in depth.

3.4 Denominal parasyntetic verbs

Italian denominal parasyntetic verbs can be divided into several sub-groups in relation to the semantics introduced by the base. The relevant meaning of the base involved in the constitution of denominal parasyntetics is difficult to define and it is conditioned by cultural and encyclopedic knowledge of speakers (Iacobini 2004).

Three sub-groups of denominal parasyntetics (causative, locative and instrumental) are identified by means of paraphrases.

The distribution of different verb groups among prefix type is proposed in table 3.2 (page 61).

Instrumental denominal parasyntetics express the instrument by means of which the resultant state is attained. This means that they are causative in nature and the verb focuses on the instrument employed and not on the

Semantics	<i>ad</i> (%)	<i>in</i> (%)	<i>s</i> (%)
Causative	40	36	24
Locative	24	76	0
Instrumental	45	16	39

Table 3.2: Distribution among prefixes of denominal parasynthetics subgroups (Iacobini 2004, table 2).

result itself. The parent noun³ is in the instrumental case, so they can be considered instrument verbs in Clark & Clark’s (1979) terminology.

For example, the verb *abbottonare* ‘to button up’ in example (195) states that *Mary did something to cause that coat to be closed by means of buttons*. It is clear that the resultative-causative semantics is introduced by the verb *abbottonare*, but only because the instrument employed to perform that event is the base.

- (195) Maria abbottonò il cappotto.
Mary buttoned the coat up.

In other words, these verbs contain two semantic portions: the causative portion, *Mary did something to cause the coat to be tied*, and the instrumental portion, *by using buttons* (Clark & Clark 1979: 778).

Locative parasynthetic verbs constitute over 40% of the entire denominal parasynthetic class and they divide between locatum or location verbs, in relation to the case in which the parent noun is (Clark & Clark 1979: 769).

Locatum verbs describe “*the position of one thing to respect to another*” (Clark & Clark 1979: 770), the parent noun is in objective case and it corresponds to the individual which is reorganized in space. For example, in (196), *Daria did something to cause it that the canapé had some butter on it*, where *the butter* is reorganized in space on the *canapé*.

- (196) Daria imburrò la tartina.
Daria buttered the canapé.

Location verbs describe the location in which the object is replaced and the parent noun is in locative case.

- (197) Daria informò la tartina.
 D. put-in-the-oven the canapé.
Daria baked the canapé.

³In Clark & Clark’s (1979) terminology.

In (197), the *canapé* is relocated into *oven*. Base nouns of locative verbs correspond to the place in which the object is placed. The base noun of locatum verbs corresponds to the object which is relocated.

The present study focuses on causative denominal parasynthetic verbs. This category can be further divided into three subgroups in relation to the causative semantics of their paraphrases (Iacobini 2004) and the relationship expressed between the subject and the final state denoted by the base noun.

- (i) *(far) diventare (un) N*, '(make [something]) became (a) N'
- (ii) *(far) diventare come (un) N*, '(make [something]) become as/similar to (a) N'
- (iii) *causare/prendere/acquisire N*, '(make [something])take, acquire N'.

In (i), at the end of the event the object acquires the semantic features of the verbal base (198, 199).

(198) Giovanni ha appallottolato la carta.
John balled the paper up.

(199) Giovanni ha accatastato la legna.
John dumped timber.

In (198), *Giovanni did something to cause it that the paper became (like) a ball*. In (199), *Giovanni did something to cause it that the timber is part of a dump*.

In the second sub-group, the subject becomes similar to the individual denoted by the base that builds the predicate, (200).

(200) Giovanni è incartapecorito.
G. is in-parchment-PERF..
John shrivelled up.

Example (200) shows that, contrary to the previous group, the resultant state seems internally caused, in fact the causative event responsible for the resultant state of the object remains undefined. These verbs are mostly intransitives.

The third group of causative denominal parasynthetic verbs is formed on abstract noun which often express a psychological quality. The paraphrase of (201) consists in *John did something to cause it that Mary is tired*, literally the Italian verb is formed from the noun *fatica*, 'effort'.

- (201) Giovanni ha affaticato Maria.
John tired Mary.

The present study focuses on the first sub-class, whose paraphrase is “(make) X become(s) an N” (henceforth BNs). In particular, I am interested only in this sub-class because, as reported in chapter 4, it can participate in the pseudo-resultative construction (Levinson 2007).

- (202) Quando Daria mangia i biscotti, li sbriciola sottili.
Whenever Daria eats biscuits, she crumbles them thin.

I identified 57 causative denominal parasynthetic verbs in Devoto & Oli (2014). The complete list of them is reproduced in appendix with translation and syntactic configuration. The 57 selected verbs are divided into four syntactic configurations: transitive, alternating transitive/intransitive, pronominal intransitive, reflexive.

- (203) L’orafo ha infilzato le perle. (Transitive)
The goldsmith pierced (and thread together) pearls.
- (204) a Medusa impietriva chiunque la guardasse. (Trans.-Intrans.)
Medusa petrified whoever looked at her.
 b Nella lotta alle difficoltà, l’animo impietriva.
In the fight against difficulties, spirit became a stone.
- (205) Il filo si è aggrovigliato. (Pron. Intrans.)
The line twisted.
- (206) I ragazzi si sono accoppiati per l’esercizio. (Reflexive)
Students paired up for the exercise.

The present study will consider only the transitive group, since it focuses on a specific secondary predication that involves a direct object (chapter 4).

3.5 Conclusions

This chapter describes Italian derivational process called parasynthesis and reports different morphological theories which try to account for its distinctive traits, namely the position and nature of prefixes and suffixes.

Part I

Non ambiguous verbs

Introduction

The first part of the present dissertation analyses the behavior of denominal parasynthetic verbs whose paraphrase is “make X become an N” (henceforth BN).

It examines the grammar of the pseudo-resultative construction (Levinson 2007), which expresses an adjectival secondary predication on the implicit entity denoted by the base.

(207) John piled books high. → John made a high pile of books.

Contrary to English, Italian shows morphological agreement on adjectives. This parameter is particularly useful in the study, confirming Levinson’s (2007) assumption for the structure of pseudo-resultatives.

(208) Giovanni ha im-**pila**-to i *libri* **alti**.
G. has im-pile-PERF. DET.M.PL. book.M.PL. high-M.PL.
Giovanni piled books high.

We will see in chapter 5 that Italian and French, both Romance languages, do not behave in the same way with respect to pseudo-resultative construction. This difference is tied to the general issue of secondary predication in Italian, and confirms the higher availability of adjectival secondary predicates in this language compared to other Romance languages (Folli 2001).

This study belongs to a wider current research about secondary predicates and their productivity in Romance languages (Talmy 1991, 2000; Acedo-Matellán 2012; Folli 2001; *inter alia*). Italian shows some peculiarities in this language family, namely prepositional resultatives are highly productive and adjectival resultatives are partially productive (Folli 2001; Napoli 1992). For this reason, we investigate French pseudo-resultative constructions, by means of a semantic interpretation task (chapter 5). Results of the experiment reveal lower accessibility of this construction in French than Italian. A hypothesis for this asymmetry is made: phonological transparency is lower for denominal French verbs, making impossible to establish a predicative link between the base and the pseudo-resultative adjective.

We will see that Italian speakers prefer synonymous adverbs as predicates of the implicit entity, even if they accept pseudo-resultative adjectives. A Magnitude Estimation task (Bard *et al.* 1996) conducted on Italian native speakers shows the higher acceptability of adverbs than of synonymous adjectives. This is an expected result, since BNs are resultative verbs, which include two possible layers that can be modified by the adverb: the predication in rP, or the verbal layer *v*P. In other words, adverbs can have two readings, one of which modifying the implicit entity (low scope) and the other modifying the verbal projection (wide scope) (section 4.5).

Chapter 4

Parasynthetic denominal verbs

4.1 Introduction

This chapter analyses the behavior of 57 Italian parasynthetic verbs with nominal base and semantics of type “(make) X become(s) an N”, where N is the base and is modified in the pseudo-resultative construction.

In the last decade new insights about the vast topic of secondary predicates distinguish a new class which was previously classified within resultatives. This class is called pseudo-resultative predicates (Levinson 2007) (PR), and is formed by an adjective which predicates over the implicit entity of the primary predicate.

(209) John piled books high. → The pile is high as the result of the action of John.

Pseudo-resultatives can be formed only on an implicit creation verbs (ICV). These verbs denote the presence of an implicit entity accessible for modification by the adjective. Their semantics affirms the coming into being of an entity which is not otherwise present in the argument structure. We will see that this syntactic feature distinguishes them from explicit creation verbs.

This chapter analyses the grammar of pseudo-resultatives in Italian, a Romance language which normally does not accept true adjectival secondary predications. For this reason, a semantic interpretation task was conducted on Italian native speakers. Results of this experiment confirm the acceptability of PR, even though speakers informally report a preference for synonymous adverbs. A Magnitude Estimation task (Bard *et al.* 1996) has been conducted in order to investigate the difference in acceptability of pseudo-resultatives and of synonymous adverbial modifications (section 4.5.4).

Morphological agreement on Italian adjectives in gender and number confirms Levinson's analysis for PR adjectives. Namely, the adjective is a predicate of individual which predicates over the verbal base. As the base is non-categorized, it does not have the possibility to check adjectival ϕ -features. Consequently, the adjective is forced to check its features against the first c-commanding DP, the direct object.

Next, I propose an analysis for PR adverbs, showing that they can be interpreted with either narrow or wide scope.

4.2 Levinson's approach to pseudo-resultatives (PR)

This section presents Levinson's (2007) approach to the pseudo-resultative (PR) construction. Specific features of PR distinguish them from true secondary resultative predications. PR are systematically built on implicit creation verbs (ICV).

The fact that Italian allows PRs is particularly interesting since it cannot normally produce adjectival resultatives (section 4.2.5).

4.2.1 Implicit Creation Verbs: features

Pseudo-resultative construction is built on implicit creation verbs. Verbs of this class can be identified by four specific features (Levinson 2007): (i) they fall under the class of goal verbs (Clark & Clark 1979) (ii) they involve a shadow argument; (iii) the presence of the direct object is mandatory; (iv) the direct object is an affected object.

ICVs fall under the class of goal verbs, in the terminology of Clark & Clark (1979), because the morphological base of the verb (parent noun) is in *goal case*. The verbal base denotes the entity brought into existence, with no mention to the substance which it is made of. Sentence (210), by Clark & Clark (1979), constitutes an example of goal verb and (211) represents its paraphrase.

(210) Edward powdered the aspirin.

(211) Edward did something to cause it to come about that [the aspirin was powder].

The main semantic feature of Goal verbs is their factitivity: "*the shape, entity, form [...] denoted by the parent noun comes to exist by virtue of the action denoted by the verb*" (Clark & Clark 1979: 774). English ICVs have

been shown to correspond mostly to this class of verbs, where the parent noun denotes the entity brought into existence in the event.

(212) John piles the books.

(213) John did something to cause the books to be into a pile.

ICVs involve a shadow argument (Geuder 2000: 79), an argument which is not explicitly present in the argument structure of the verb and which denotes the created object. In (212), *pile* is the shadow argument denoting the implicit entity coming into being as the result of the main predicate. ICVs do not only involve a shadow argument, but actually entail its creation as result of the event.

ICVs require a Theme argument in the direct object position; this denotes that the object has been relocated in the space by the Agent. The lack of direct object makes the sentence agrammatical.

(214) John piled *(the books)

(215) Mary aligned *(the boxes).

The direct object is affected. In the definition by Clark & Clark (1979: 774) this affected object “[...] denotes the entity brought into existence, with no mention of the substance from which it is made”.

4.2.2 Implicit creation verbs differ from explicit creation verbs

The term *implicit creation verb* must not be confused with the generic term *creation verb* since they refer to two different derivations.

ICVs constitute a class of verbs derived from a root which is predicate of individuals and responsible for naming an entity that comes into being as the result of an event. In other words, ICVs entail the creation of an entity which is not otherwise part of the argument structure of the verb (Levinson 2007: 17).

(216) Teresa braided her hair → Teresa made a braid as result of braiding.

For example, in (216), the implicit entity *braid* is not an argument of the verb *braid* which represents the event of creating a braid. The created entity remains implicit in the argument structure and the verb expresses its creation, not only the way by which it has been created.

On the other hand, in the argument structure of explicit creation verbs, the created entity is an explicit argument and is present in the argument

structure. The verb describes the way in which the created entity comes into being. In the following example, the *braccialetto*, ‘bracelet’, is produced by means of a braiding process.

- (217) Giovanni intreccia un braccialetto.
G. braids a bracelets.

This intuition is further supported by cross-linguistic evidence from Finnish and English on benefactive constructions. ICVs, contrary to explicit creation verbs, do not accept benefactive applicatives.

- (218) *Hän leti-tti minu-lle minu-n tukka-ni.
 s/he braid-CAUS.PST 1SG.-ALL 1SG-GEN. hair-POSS-1SG.
 (Levinson 2007, ex.195).

She braided me my hair.

- (219) Hän leti-tti minu-lle pullapitko-n.
 s/he braid-CAUS.PST 1SG-ALL braided.bread-ACC
She braided me a braided bread.

ICVs and explicit creation verbs do not manifest the same behavior and are not built from the same structure. We will see in the following sections that the derivation of ICVs involves an indirect relationship between the direct object and the implicit entity, contrary to explicit creation verbs in which the relation is direct.

4.2.3 Implicit entity is a root

This section analyses the syntactic nature of the implicit entity. Particularly, we need to establish if the entity is a categorized element or a non categorized root. In fact, the difference between a categorized element and a non-categorized root determines different behavior both from a syntactic and from a semantic point of view.

For example, (a)telicity of denominal verbs is determined by the (un)boundedness (Pustejovsky 1991; Jackendoff 1991) of the nominal root in direct object position (Harley 2005).

- (220) John ate apples.

- (221) John ate the apple.

However, (a)telicity of ICVs is not influenced by the nature of the root on which they are built: sentence (222) does not confirm how many piles John built up.

(222) John piled books.

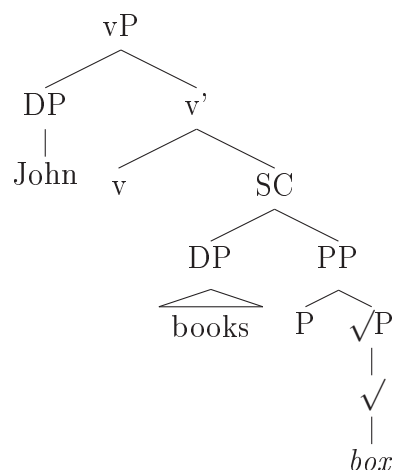
Levinson (2007) argues that this is an evidence of the indirect relationship between the base root and the categorizer. The relationship is mediated by a relational element. I will argue further that the implicit relational elements IN and TO argued by Levinson correspond to the *r* head. Furthermore, I will argue that, contrary to English this element is morphologically expressed by the prefix.

An indirect relation between the base and the categorizer is present also in locative verbs, such as *box*.

(223) John boxed books.

When root is embedded in a relational structure it cannot influence (a)telicity of the whole verbal predicate.

(224)



Therefore, Levinson (2007) proposes that the semantic relation between root and internal object is mediated by a relational element, prepositional in nature. In this respect, the *r* head is similar to the implicit preposition: both create non-eventive relations.

- (225) a. John braided his hair.
 b. John made his hair in a braid.
- (226) a. Jill boxed his books.
 b. John put his books in a box.

With respect to location/locatum verbs, ICVs do not express a simple locative relation between Theme and Goal. Since Goal is made of Theme, a sort of physical/material relation needs to be accounted for and it is ascribable to the semantics of the proper verbal part, another relational element

must mediate between root and internal object (Levinson 2007: 45). I argue that the *r* head is responsible alone for the correct derivation.

Levinson (2007) argues that the relational elements in the derivation are: a configurational component semantically similar to proper preposition *in*; and a mode component *to* (Kratch 2002), whose semantics is predicate-dependent and states that Theme and Goal share the same location. For example, the explicit preposition *in*, in (227) is responsible for the introduction of a locative link between *hair* and *braid*, namely *hair is in a braid*. The explicit cofinal preposition *to*, in (228), establishes a link between *John* and *the store*, assuming that they are in the same location at the end of the relevant event.

In ICVs, this implicit preposition establishes a relation between an entity (the DP) and the implicit entity, stating that they arrive in the same location. We can imagine that the implicit relational elements assumed to link root and implicit entity share the same relevant semantics, stating respectively that *hair* is in a *braid* and that *braid* and *hair* share the same location being made of the same material.

(227) His hair **in** a braid.

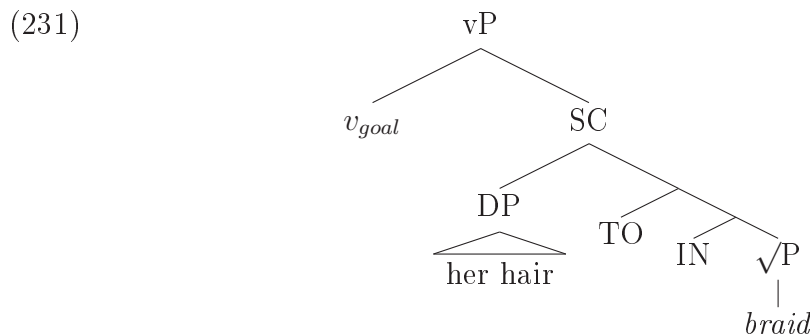
(228) John go **to** the store.

The semantics assumed by Levinson (2007) for the two relational implicit elements is the following:

(229) $IN = \lambda f_{\langle e,t \rangle} . \lambda y_e . \lambda s_s . \exists x_e . f(x) \ \& \ \text{being-in}(s)(x) \ \& \ \text{theme}(s, y)$

(230) $TO = \text{type-theoretically vacuous (agreement with cause introduced by } v)$

The derivation proposed for ICVs by Levinson (2007) is therefore the following.



IN and TO, in my derivation correspond to the *r* head which is responsible for the correct semantics. However, I argue that the causative meaning arise

from the configuration and it is not introduced by little *v*. Prefixes are lexical realizations of what Levinson called IN TO.

We have seen that the root nature of the implicit entity is derived from the fact that (a)telicity of ICVs is not influenced in relation to its (un)boundedness. For this reason, the presence of relational elements mediating the relationship between the root and the internal object is proposed.

The syntactic structure of implicit creation verbs, given in (231), involves two relational elements between direct object and implicit entity. They assure the same location of *hair* and *braid*, and the same material of these individuals.

4.2.4 Pseudo-resultative construction

Pseudo-resultative constructions contain an adjective which predicates over the verbal root denoting the implicit entity, such as in (232).

(232) John **braided** his hair **tight**.

According to Levinson (2007: 33 ff.), in (232), adjective *tight* is neither a pure resultative as in (233), nor an object depictive as in (234), nor a predicate of events as in (235).

(233) John hammered the metal flat.

(234) John hammered the metal hot.

(235) John hammered the metal hot \neq the event of hammering was hot.

In example (233), the secondary predicate *flat* introduces the final state reached by the object as result of the activity of *hammering*. In (234), the adjective, an object depictive¹ *hot* modifies the state of the object during the event of *hammering*: the metal is already hot during the event. In (235), the interpretation of *hot* as an adverbial modification is not allowed, an event of *hammering* cannot be *hot*.

In (232), *tight* does not introduce the final state of the object as result of the activity of braiding, since it is not *hair* which is tight, rather the *braid*. In other words, the adjective does not modify the state of the object during the

¹In object oriented depictive constructions, the adjective describes “*an eventuality (state) pertaining to one participants of the main predicate*” (Halliday 1967) at the time at which the main predicate occurs. “*The depictive predication constructions have been classified with two types, namely Subject-Oriented Depictives (SODs), and Object-Oriented Depictives (OODs). It is a SOD if the subject of a d-predicate is subject in a sentence; it is an OOD if the subject of a d-predicate is a direct object*” (Noh 2003: 22).

event of braiding, it is not an event modifier and it cannot be a resultative adverb which would require *-ly* morphology.

Pseudo-resultative predicates of the final state of the individual denoted by the base-root of implicit creation verbs.

Based on cross-linguistic evidence, Levinson (2007) assumes that pseudo-resultative predicates are adjectival in nature. She reports evidence from Catalan. Catalan shows morphological agreement between pseudo-resultative adjectives and the object. Levinson (2007) produces only a single example (reported here in 236²) in which the verb does not seem to be an ICV as no implicit entity is created by the action of *tying*³.

- (236) M' he lligat els cordons de les sabates (ben) estrets.
 Me-dat have-1st tied the laces of the shoes (very) tight-pl
 (Catalan)

I tied the laces of my shoes very tight.

A deeper study about Catalan and pseudo-resultatives should be conducted in order to investigate whether the above example can be considered a case of PR. This dissertation does not investigate Catalan, however it studies the construction in other two Romance languages, namely Italian and French.

Before analyzing PR construction in Italian, section 4.3 describes the subgroup of parasyntetic denominal verbs that will be studied in this chapter. Furthermore, I will show that they behave as implicit creation verbs. Section 4.4 presents data which show the grammaticality of PR construction in Italian. Section 4.4.6 proposes a syntactic analysis for these verbs and PR in Italian.

4.2.5 Strong resultatives in Italian

Adjectival secondary predication in Romance languages are usually not grammatical; Romance languages belong to the class of verb-frame languages (Talmy 1991, 2000) and do not allow an adjective to introduce a resultant state with an activity verb. For this reason, the availability of pseudo-resultative construction in Italian (as we will see further on) is interesting, since it is on an adjectival resultative construction.

In order to express motion direction⁴, Italian resorts to verbal morphology,

²Original example by Mateu (2000), reported as example (107) in Levinson (2007).

³The knot is not created by the action of *tying*, it only changes in nature.

⁴Even though new studies point out that this is not a dual typology, since there are mixed languages such as Greek (Soroli & Hickman 2011).

adjectives or prepositions are not allowed for this function (Talmy 1991, 2000).

Italian allows resultatives in association with verbs that already entail the achievement of a resultant state, achievement resultatives in Folli's (2001) terminology, or weak resultatives in Washio (1997)'s terminology; and does not construct resultatives on verbs of activity, activity resultatives in Folli's terminology, or strong resultatives in Washio's terminology.

- (237) Giovanni ha martellato il metallo per/*in 5 minuti.
*G. hammered the metal for/*in 5 minutes.*
- (238) *Giovanni ha martellato il metallo piatto.
G. hammered the metal flat.
- (239) *Giovanni ha martellato il metallo in briciole.
G. hammered the metal in crumbs.
- (240) Giovanni ha rotto il vaso *per/in 5 minuti.
*G. broke the vase *for/in 5 minutes.*
- (241) Giovanni ha rotto il vaso in mille pezzi.
G. broke the vase in one-thousand pieces.
- (242) *Giovanni ha rotto il vaso aperto.
G. broke the vase open.

Examples (238) and (242) show that an adjectival resultative predicates in Italian produce agrammatical sentences, both in association with activity verbs such as *martellare* ('to hammer') and achievement verbs such as *rompere* ('break').

On the other hand, examples (240) and (241) do not show a parallel behavior. Italian resultatives consist in a further specification of the result projection, which is already present in the verbal aspectual structure. In other words, in (240), *Giovanni* causes *il vaso* to attend a new state, the resultant state of being broke. In (241), the prepositional phrase *in mille pezzi* further specifies the state reached by *il vaso*, that it is not only broken, but it is "broken in pieces".

Since adjectival secondary predications on activity verbs are agrammatical in Italian, the fact that the pseudo-resultative construction is acceptable implies that the two constructions have different derivations. In fact, we agree with Levinson (2007) that the resultative part is not introduced by the adjective, but by relational elements. In Levinson's approach two preposition-like elements mediate the relation between implicit entity and the adjective. In my approach, a non-eventive relational head (r head) and it is lexicalized by the prefix.

4.3 Italian denominal parasynthetics

The aim of this section is to show that parasynthetic denominal verbs belong to the class of implicit creation verbs. For a detailed presentation of the class of parasynthetic verbs, please refer to chapter 3.

The group of denominal parasynthetic verbs analyzed in this chapter has causative semantics. They can be paraphrased as “(make) X become(s) an N”.

For the identification of BN verbs, I conducted a search in Devoto & Oli (2014) with a first refinement with automatic tools.

I identified 57 Italian verbs distributed among four different syntactic configurations: transitive, alternating transitive intransitive, pronominal intransitive, reflexive. The distribution of syntactic configurations is reported in table 4.1 (page 78) and an example for each case is proposed in sentences below.

The present chapter investigates pseudo-resultative construction in Italian. It is constructed on transitive verbs, therefore only the transitive subgroup of BNs is analysed in this section.

- (243) L'orafo ha infilzato le perle. (Transitive)
Goldsmith pierced (and threaded together) pearls.
- (244) a Medusa impietriva chiunque la guardasse. (Trans.-Intrans.)
Medusa petrified whoever looked at her.
 b Nella lotta alle difficoltà, l'animo impietriva.
In the fight against difficulties, the spirit hardened.
- (245) Il filo si è aggrovigliato. (Pron. Intrans.)
The line tangled.
- (246) I ragazzi si sono accoppiati per l'esercizio. (Reflexive)
Students paired for the exercise.

Structure	% on the total
Transitives	65,45
Transitives and intransitives	5,45
Pronominal intransitives	10,91
Reflexives	9,09

Figure 4.1: Distribution of BNs among syntactic patterns.

The following section reports evidence in favor of the analysis of BNs as implicit creation verbs.

4.3.1 Italian BNs correspond to implicit creation verbs

We have seen that pseudo-resultative construction involves implicit creation verbs, which denoted the creation (coming into existence) of a new entity represented by the nominal base of the verb.

Two criteria are used, namely those reported in section 4.2.1 for English verbs, to show that Italian BNs belong to the implicit creation verb class (ICV).

1. Italian BNs are goal verbs (Clark & Clark 1979) and they imply the creation of a shadow argument (Geuder 2000).

Accordingly to Clark & Clark (1979: 774), the subject “*does something to cause it to come about that the object is base N-ed*”.

(247) Giovanni s-briciol-a il pane.
 G. s-crumble-3.SG. the bread.
G. crumbles the bread.

(248) Daria ac-catast-a i libri.
 D. a-stack-3.SG. the books.
D. heaps books.

In (247), ‘crumble’, and (248), ‘heap’, constitute a shadow argument.

2. BNs require an affected direct object. Example (249) shows that direct object is mandatory and it expresses an affected argument, since it denotes the individual which is moved and reorganized in the space in order to create a *stack*.

(249) Daria am-mucchi-a *(i vestiti)
 D. a-stack-3.SG. *(the clothes)
D. stacks clothes.

Italian BNs are implicit creation verbs (henceforth ICV).

Now that the implicit creation nature of causative denominal parasynthetic verbs has been demonstrated, these verbs can be used to test whether they can occur in pseudo-resultative construction in Italian as they do in English (cf. section 4.4).

4.4 Pseudo-resultatives in Italian

We have seen in chapter 1 that the investigation of grammaticality is not always a simple matter. Pseudo-resultatives in Italian are challenging in this

respect. In fact, the adjective involved in this construction can receive two interpretations: internal object modifier (250) or pseudo-resultative (251).

- (250) Giovanni sbriciola i biscotti sottili.
 G. crumbles the biscuits thin.
John crumbles thin biscuits. (INT. Biscuits are thin before crumbling)
- (251) Se Giovanni mangia i biscotti, li sbriciola sottili.
 If G. eats the biscuits, cl.3.M.PL. crumbles thin.
If John eats biscuits, he crumbles them thin. (INT. Biscuits turn into thin crumbles)

An Italian speaker can always get a grammatical interpretation for the adjective, in this context, and this makes difficult to investigate if sentences as the one above are well-formed or not in the PR interpretation. The desired interpretation must be made explicit in some way. For this reason, a semantic interpretation task has been designed and performed as reported in section 4.4.1.

In the pre-test phase, I tested 4 Italian native speakers about the grammaticality of pseudo-resultatives. The judgments differed a lot and seemed to be related to Italian regional varieties. Consequently, in the experimental phase, two research questions were targeted, namely:

- a. Is pseudo-resultative construction grammatical in Italian?
- b. Do different varieties of Italian present significant differences in acceptability of pseudo-resultatives?

Results confirm the grammaticality of pseudo-resultative construction in Italian with causative denominal parasyntetic verbs (acceptability mean rate of 83,58 %), furthermore acceptability rate increases when the direct object is pronominal (acceptability mean rate of 99,5%) confirming the adjectival nature of the predication⁵.

No significant difference in acceptability is found between Italian varieties. This suggests that PR acceptability is not related to diatopic variation in Italian.

⁵This argues in favor of an AP analysis of the adjective, as assumed in Levinson (2007: 72)

4.4.1 Methodology

The present section describes design and methodology employed for the semantic interpretation task.

Experimental sentences can receive two interpretations: one in which the adjective is interpreted as modifier of the direct object (i sentences); one in which it is interpreted as pseudo-resultative (ii sentences).

(252) Giovanni ha sbriciolato i biscotti fini.

John crumbled biscuits thin.

(i) John made crumbles from thin biscuits.

(ii) John made thin crumbles.

(253) Giovanni ha impilato i libri alti.

John piled books high.

(i) John made a pile from high books.

(ii) John made a high pile.

Therefore, the task must be designed in such a way as to allow access to both interpretations⁶.

This experiment is divided into three parts: (i) a socio-linguistic questionnaire, (ii) a warm-up phase with instructions, (iii) the linguistic part.

Each participant is tested on 11 experimental sentences with an ICV and 11 fillers built on a non-parasynthetic denominal causative verb.

Each sentence has two conditions: explicit direct object; pronominal direct object. Sentences and fillers are presented to informants in random order. In no case, a participant is asked to judge both conditions of the same sentence.

Participants are asked to choose one or both of the proposed interpretations, which are: (i) adjective modifies direct object (252); (ii) adjective modifies the implicit entity (253).

Interpretations are made explicit by means of paraphrases presented always in the same order: adjective as object modifier in first position and adjective as pseudo-resultative in second position (figure 4.2⁷, page 82). This is true also for fillers, for which only one interpretation is possible, namely the one in which the adjective modifies the direct object.

⁶Participants are allowed to select both.

⁷Figure contents translation:

When children play, they pile building-blocks crooked.

From building blocks, they create crooked columns.

From crooked building blocks, they create piles.

Quando giocano, i bambini incolonnano i lego storti.
 A partire dai lego, i bambini creano delle colonne storte.
 A partire dai lego storti, i bambini creano delle colonne.
[→ Click here to continue](#)

Figure 4.2: Screen-shot of a task (Semantic decision task ITA).

Experiment was administered via IbexFarm. The system managed to present the same amount of conditions for each sentence.

4.4.2 Participants

106 Italian native speakers completed the experiment (73 female): 38 speakers of Northern regional Italian, 35 of Southern regional Italian, 33 of Central regional Italian, table 4.1 (page 82).

North regional Italian varieties are spoken North to the isogloss Rimini-La Spezia (Pellegrini 1977). It separates northern dialects from central. South regional varieties are spoken South to the isogloss Ancona-Roma (Pellegrini 1977). This isogloss separates central dialects from the southern one. Central regional-Italian varieties of Italian are included between the two mentioned isoglosses.

Informants are divided in three groups on the basis of two criteria: exposition to a dialect during childhood; and if none dialect exposition during childhood was declared in the sociolinguistic questionnaire, place of birth and linguistic background of parents.

	Male	Female	Total
North	13	25	38
South	9	26	35
Center	11	22	33
Total	33	73	106

Table 4.1: Participants gender and origin (Semantic decision task ITA).

Education rate of the sample divides as follows: 10,38% of participants have a high-school diploma, 52,83% have a university degree, 36,79% have a PhD. The three regional groups present comparable education, in particular, speakers without a degree are less than 15% in each group (table 4.2, page 83).

Age distribution among the three groups is less homogeneous than education, although the majority of speakers in each group is aged less than 40 (table 4.3, page 83).

	High-School	Degree	PhD
North	13,16	60,53	26,32
South	8,57	45,71	45,71
Center	9,09	51,52	39,39
GLOBAL	10,38	52,83	36,79

Table 4.2: Participants education (Semantic decision task ITA).

	18-25	26-32	33-40	41-60	60+
North	5,26	47,37	13,16	31,58	2,63
South	22,86	40,00	25,71	8,57	0
Center	9,09	57,58	21,21	6,06	3,03
GLOBAL	12,26	48,11	19,81	16,04	1,89

Table 4.3: Participants age groups (Semantic decision task ITA).

4.4.3 Results for condition 1

This subsection reports the results obtained in the first experimental condition, namely the one containing an explicit direct object.

(254) Se non erano esperte nella filatura, le donne aggomitolavano il cotone lasco.

If they were not fining experts, women winded loose cotton.

Results do not show any significant difference in answers for the three linguistic varieties, as graph 4.3 (page 84) shows, where OD stands for object modifying adjective interpretation, PR for pseudo-resultative interpretation and OD PR for both interpretations.

Answer rate is perfectly similar for the three groups, and no significant difference is found. As pseudo-resultative acceptability rate obtained by the sum of PR and OD PR is more than 85% for each group, I assume that pseudo-resultative construction is acceptable in Italian⁸.

⁸To my knowledge, there are no studies about the sufficient acceptability rate that makes a construction grammatical.

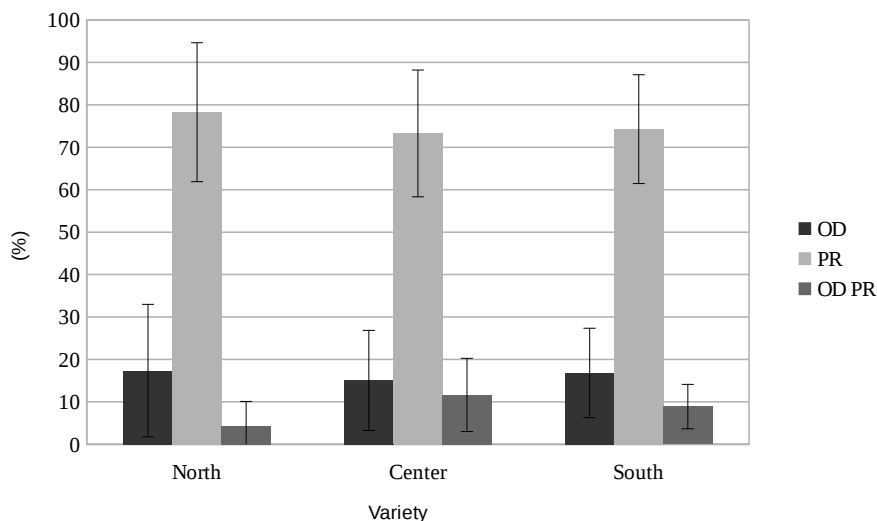


Figure 4.3: Condition 1. Means of answers for speaker group (Semantic decision task ITA).

Furthermore, no difference is found in single experimental item results, all items receive similar answers, as reported in graph 4.4 (page 85).

I argue that PR construction is acceptable in Italian with no observable differences between Italian regional varieties. However, the acceptability rate (namely 85 %) shows that the construction, even though mainly grammatical, is not fully accepted by Italian native speakers. In fact, there is a mean of 15 % of cases in which it is not chosen as possible interpretation.

We will see in the next section that in the second experimental condition, the one with pronominal object, the acceptability rate of pseudo-resultative construction increases up to 99%. This confirms the grammaticality of PR in Italian and shows its preference in one syntactic context. I will account for this behavior in section 4.4.6.

4.4.4 Results for condition 2

This section reports results obtained by the second experimental condition which contains a pronominal direct object, as in (255).

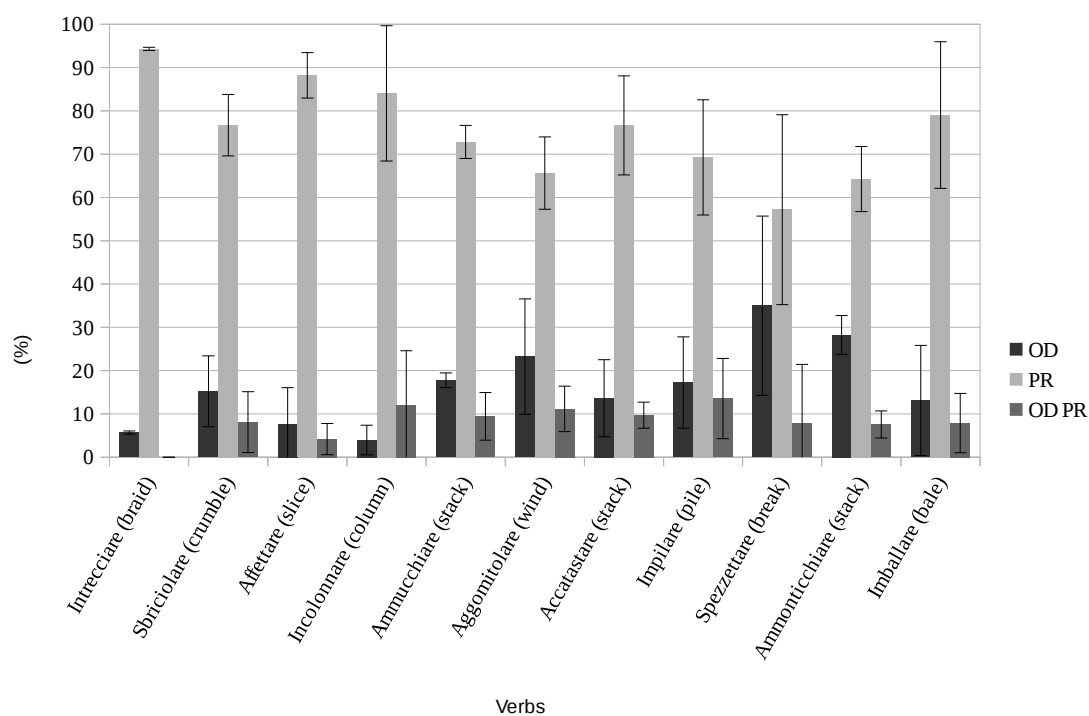


Figure 4.4: Condition 1. Means of answers for item (Semantic decision task ITA)

- (255) Quando prepara il salame di cioccolata con i
 When (she)-prepares the salami of chocolate with DET.M.PL
 biscotti, Maria li sbriciola fini.
 biscuits, Marie ACC.M.PL. crumbles thin-M.PL.
When Mary prepares the cake with biscuits, she crumbles them thin.

Since the analysis of the first condition has shown the absence of significant differences between different regional varieties, data are analyzed as a unique group.

Results show that pseudo-resultative interpretation of adjective is not only strongly preferred when the object is pronominal, but it appears to be the only possible one. The global rate of acceptability of PR interpretation is in fact of 99,68% rate composed of 98.53 of PR alone and of 1.15 of OD PR (graph 4.5, page 86).

When the direct object is cliticized, PR interpretation receives a statistically significant higher acceptability rate ($PR_{Cond1} < PR_{Cond2}$ confirmed by

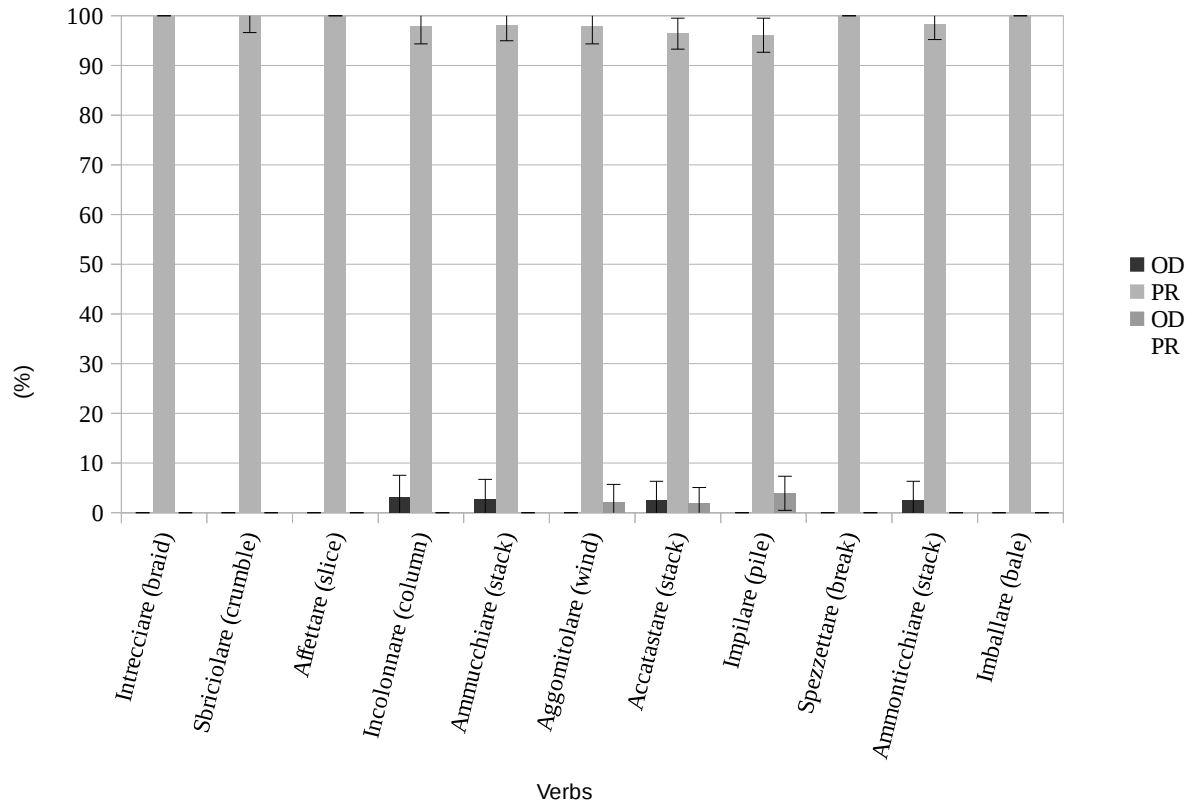


Figure 4.5: Condition 2. Means of answers for item (Semantic decision task ITA).

a $t(10)=4,2691$) than when the direct object is an explicit DP.

In section 4.4.6, I discuss the results obtained in both experimental conditions. In particular, I argue that they confirm Levinson's (2007) derivation hypothesis for pseudo-resultative construction and that the difference in acceptability between the two conditions is determined by the presence or the absence of lexical material in the direct object position.

4.4.5 Some improvements to the methodology

The methodology used for the semantic interpretation task was designed by myself and it was the first time it was employed. For this reason, a margin of improvement is possible and critical aspects must be pointed out for possible future applications of the same task.

Since it was used at the same time for French too (chapter 5), this section analyses critical points of both applications, for Italian and French.

It is worth noting that the sociolinguistic questionnaire, examples and instructions were clear, the task was understood, no big variability in participants' answers was registered.

However, some criticisms were pointed out about the plausibility of specific sentences. Particularly regarding the lexical plausibility of concepts involved, such as the pair *fieno rotondo* ('round hay'), which is difficult to understand. The validity of the task is not compromised, as pointed out by comparable results for each sentence. All experimental items need to be checked for sentence plausibility before the experiment in order to correct less plausible sentences, since they can generate some interferences in grammatical or semantic judgments. For both Italian and French, experimental sentences were tested for plausibility by four native speakers who did not further undergo the task.

As filler sentences were built with the same morphological elements of experimental items (exception made for the verb which was not an ICV), this implied the impossibility of creating sentences with a double reading as experimental sentences were. This generated an asymmetry in possible answers between experimental and filler sentences and consequently it could cause the identification by participants of experimental items, and the recognition of investigated structure. However, the use of filler sentences with two readings would have led to the use of completely different morphological elements. This solution would also have led to the identification of experimental items and of the structure under investigation.

To summarize, the experimental design employed for investigating the acceptability of pseudo-resultative construction in Italian and French is perfectible regarding sentence lexical plausibility. Furthermore, the construction of filler sentences was difficult: (i) if fillers were built similarly to target sentences, they involved one single reading; or (ii) if filler sentences were built on completely different structures but with two readings, they could generate an alternative reading as target sentences. In both cases there was a risk for participants to identify filler sentences and consequently experimental target sentences.

4.4.6 Discussion

In sections above, we have seen that Italian causal denominal parasynthetic verbs of the type 'make X become N' are implicit creation verbs, in terms of Levinson (2007). In other words, they involve an implicit entity which is structurally the base noun of the verb and which is created by the action

described by the verb itself.

We have seen that Italian accepts PR construction built on ICV verbs. PR constructions are much more preferred when the direct object is a pronoun rather than a referential DP. With a pronoun, speakers identify the sentence as PR in 99% of cases and with a nominal the choice drops to 85 %.

This section will produce an analysis for Italian PR which agrees with Levinson's (2007) analysis for English PR. I propose that the Levinson's TO implicit relational element corresponds to the r head.

4.4.6.1 Pseudo-resultative derivation

This section applies Levinson's (2007) pseudo-resultative approach to Italian pseudo-resultative construction.

We will see that the pseudo-resultative adjective modifies the implicit entity. However, the implicit entity, being a root, cannot check the adjective's unchecked ϕ -features. Consequently, the adjective must check its unchecked ϕ -features with a categorized upper element, namely, the first c-commanding DP, the direct object.

Chapter 2 reports two main hypotheses about word formation. According to the first approach, the process has a double nature and involves lexical and syntactic constraints. According to the second approach, the process of word formation is syntactic in nature (Marantz 2000), consequently, words are built obeying the same constraints as sentences. Lexicon provides bare roots to syntax and the syntax is responsible for their categorization, by means of specific functional categorizer heads.

In order to understand whether a word is a bare-root or a categorized element, different tests can be performed: further modifications or operations are disallowed on the root once it merges with a categorizer; derivational morphology is allowed only on categorized roots.

Italian causative denominal parasynthetic verbs allow modification by an adjunct which further specifies the implicit entity. Examples below show that the verbal base, which denotes entities such as *pila*, 'pile', or *ammasso*, 'heap', can be specified by adjuncts.

- (256) Daria intreccia i suoi capelli.
Daria braids her hair.
- (257) # Daria **intreccia** i suoi capelli **in una treccia**.
Daria braids her hair in a braid.
- (258) Daria **intreccia** i suoi capelli **in un'acconciatura**.
Daria in-braid-3.SG. DET. her hair-PL. in DET. hairdo.

- *Daria makes a ponytail out of her hair.*
- (259) Sandro **ha allineato** le tessere del domino **lungo una circonferenza**.
Sandro lined up domino pieces in a circumference.
- (260) Daria **ammassò** le immondizie **in un mucchio informe**.
Daria stacked rubbish in a shapeless heap.
- (261) Piero **ha impilato** i dischetti **in mucchi**.
Piero piled disks in heaps.
- (262) [...] si sono spinti giù per la rampa e **hanno ammassato in un mucchio** le coperte che fanno da letto ai nuovi “ospiti”.⁹
They run down the ramp and they stacked in a heap blankets used as beds by new “guests”.
- (263) Oggi appaiono separati uno dall’altro non solo per le successive erosioni operate sulla dorsale dal Torrente Cormor, ma anche per l’azione di due sistemi coniugati di faglie verticali che in tempi recenti **hanno spezzato in segmenti** la dorsale spostandone leggermente le singole porzioni.¹⁰
Today they appear separated not only for repeated erosions on the Cormor river’s edge, but also for the action of two conjugated vertical fault systems which, recently, broke the ridge in segments.

A possible objection to the fact that these verbs are root derived comes from the fact that some of them seem derived from nouns that show explicit derivational morphology, as in the example below.

- (264) Maria ha spezzettato la cioccolata.
Maria has small-piece-break-PERF. the chocolate-bar.
Maria cracked the chocolate bar.

This seems to be the case of *spezzettare* and *affaldellare*, which are derived from *pezzetto*, ‘a small piece’, and *faldella*, ‘a small layer’, which in turn are derived from *pezzo*, ‘piece’, and *falda*, ‘layer’.

Derivational morphology is specific for each syntactic category, this means that it can attach only to categorized element and not to bare-roots, in fact “any further derivation takes as its input not the root itself, but an element whose semantic and phonological properties have been cashed out” (Arad 2003: 2). However, ICVs built from “derived” nouns are few and the creation

⁹<http://ricerca.repubblica.it/repubblica/archivio/repubblica/2010/08/30/nei-box-sotterranei-hot>
18/10/2016.

¹⁰http://www.geoscienze.units.it/geositi/vedigeo1.php?ID_GEO=221,
18/10/2016.

of new parasynthetics from morphologically derived bases is impossible, as shown in examples below.

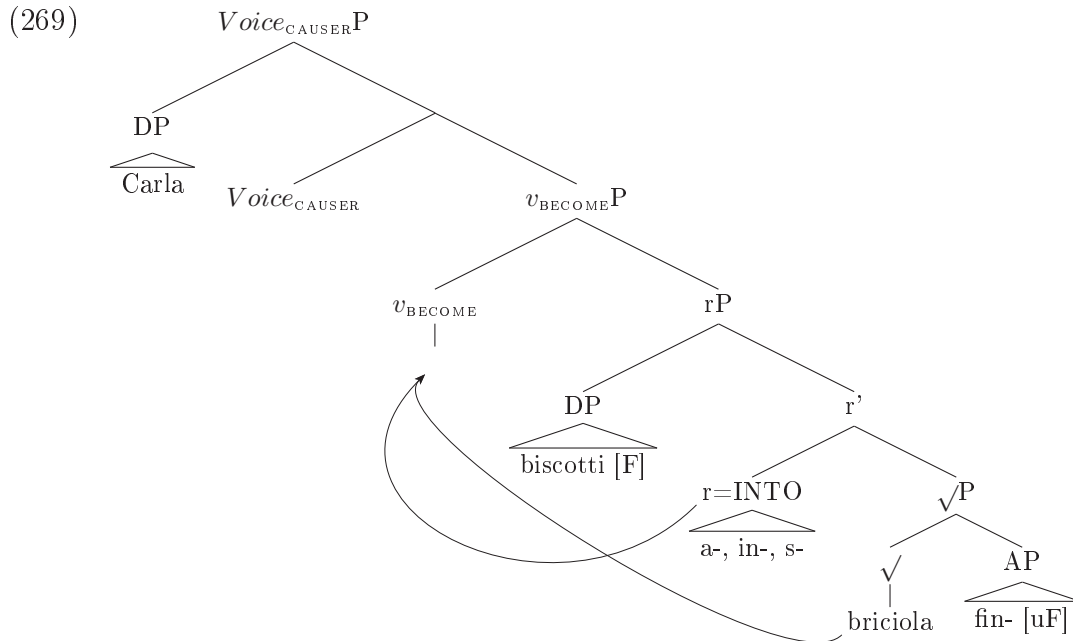
- (265) gomitolo - aggomitolare - gomitolino - *aggomitolare
ball of wool - wind - small ball of wool - make a small ball of wool
- (266) pila - impilare - piletta - *impilettare
pile - pile - small pile - make a small pile
- (267) fetta - affettare - fettina - *affettinare
slice - slice - small slice - make a small slice

To summarize, only few ICVs present what looks like a derived base-noun and it is not possible to create them by means of morphologically complex nominals. For this reason, I argue that pseudo-derived parasynthetic verbs are in fact registered in the lexicon, they are not syntactically derived but they enter the syntax already provided of the pseudo-derivational part, they are root in nature, and in fact they cannot participate in PR constructions.

We have seen that Romance languages are important in the pseudo-resultative debate because of their morphologically overt agreement on adjectives. They show that PR adjective does not agree with the base element but with the direct object.

Since the base element is directly modified by the PR adjective, it would be able to check for the unchecked ϕ -features of the adjective if it were a nominal, yielding an explicit morphological agreement. However, this is not the case as Italian examples have shown above. The adjective agrees with the direct object. Thus, the direct object is the first available nominal expression against which the adjective may check its ϕ -features, as shown in (269).

- (268) Carla sbriciola i biscotti fini.
Carla crumbles biscuits thin.



In (269), the adjective *fin-* ('thin') merges as a complement of the uncategorized root *briciola* ('crumble'), without having the possibility of checking its ϕ -features, so it finds a candidate in the first c-commanding full DP, which is the direct object *biscotti* ('biscuits').

The uncategorized root *briciola* merges in \sqrt{P} and moves upwards to *v_{BECOME}*. The relational head *r* assures the right semantic relationship between the direct object and the implicit entity. Its semantics is responsible for the introduction of a locative relation and cofinal relation. In other words, the structure is interpreted to contain the implicit entity resulting in the same location of the direct object and been made of the same material.

The implicit entity, by means of head-head movements moves upwards and builds its semantics. It is categorized in *vP* by means of the head *v_{BECOME}*. With respect to Levinson's (2007) original analysis, I argue that the verbalizing head is responsible for introducing an energetic force (Copley & Harley 2015). The causative meaning arises from the presence of a *rP* in the lower part of the derivation (Hoekstra 1988; Schäfer 2008). The Voice head introduces the Causer external argument and it assures it is interpreted as the individual responsible for the introduction of an energetic force in the situation.

4.4.6.2 Pronominal object simplifies PR interpretation

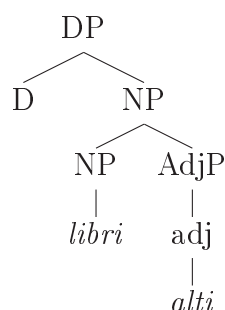
We have seen that the root nature of the base explains why Italian pseudo-resultative adjectives agree in number and gender with the direct object,

generating the ambiguous reading between a PR interpretation and a standard DP modification that does not involve a result. However, the results of the semantic interpretation task have shown that the pseudo-resultative reading of the adjective is definitely easier to obtain when the internal object is pronominalized. The pseudo-resultative reading in the previous case reaches 99% of choices, making it the only possible interpretation.

The fact that the adjective, when interpreted as modifier of the direct object, is within a determiner phrase determines its attributive nature and furthermore prevents the pronominalization of the noun.

(270) Giovanni impila i libri_i alti_i.
G. piles the high books.

(271)



Thus, if the direct object of sentences which involve a PR construction is pronominalized, the attributive interpretation of the adjective disappears and the only pseudo-resultative interpretation is possible.

4.4.7 To sum up

The results of a semantic interpretation task conducted on 106 Italian native speakers of three different regional varieties revealed that Italian speakers allows PR constructions. The acceptability rate is more than 85% in case of full direct object and it raises up to more than 99% in case of pronominal direct object (with no significant differences in the three diatopic varieties).

The rise of PR acceptability in presence of a clitic direct object is accounted for by the attributive nature of adjective whose subject cannot undergo pronominalization. Results in presence of a cliticized direct object confirm the acceptability of the PR construction in Italian.

The root nature of the base element has been demonstrated by means of semantic tests and by means of syntactic evidence from Romance adjectival agreement.

Levinson's (2007) analysis for pseudo-resultative construction has been extended to Italian with some differences, namely the *r* head takes place of the implicit relational elements IN and TO and it is lexicalized by prefixes.

Section 4.5 investigates a registered difference in acceptability between PR adjectives and corresponding adverbs. I will argue that the split between semantics and syntax in PR adjectives is responsible for their lower acceptability, as opposed to synonymous adverbs.

4.5 Adverbs are preferred

During the semantic interpretation task many speakers have informally noted that, even though they accept the pseudo-resultative construction (272) they prefer, when possible, the corresponding adverbs (273).

(272) Quando Giovanni fa la torta con i biscotti, li sbriciola **fini**.
When John makes the biscuit cake, he crumbles them thin.

(273) Quando Giovanni fa la torta con i biscotti, li sbriciola **finemente**.
When John makes the biscuit cake, he crumbles them thinly.

This intuition has been confirmed by means of a magnitude estimation task (Bard *et al.* 1996) conducted on 15 native speakers. This section reports its results which show that adverbs are preferred to pseudo-resultative adjectives. It provides an analysis that explains this preference, arguing that adverbs can naturally take two scopes with result verbs, one of which is a low scope modifying the resultative part (rP).

4.5.1 Methodology

The theoretic assumption of ME consists in the fact that grammaticality is not a binary concept, rather a gradient from non-grammatical to completely grammatical.

ME design is particularly useful for the analysis of PRs adjectives and adverbs because both can modify the predicate in Italian, therefore with a typical acceptability judgment questionnaire it would be difficult to discriminate over the degree of acceptability of pseudo-resultative and adverbial modification. ME is capable of investigating the difference in judgment between them, consequently it can predict which one is preferred by speakers (chapter 1).

Since the previous semantic decision task points out that the pronominal object blocks the attributive interpretation of the adjective and only allows the PR interpretation, experimental and filler sentences involve a pronominal direct object.

Participants are asked to evaluate sentences and to attribute them a numerical value. Numerical values provided by speakers must be proportional,

consequently they are distributed on a scale which is not defined by the experimenter. Each informant establishes her own scale by the evaluation of a reference sentence (called also modulus). Values given to experimental sentences are asked to be proportional to the one of the modulus sentence. This way, values distribute on a personal scale where the interval between values remains constant, contrary to normal acceptability questionnaires where the scale is fixed by the experimenter and the value given to intervals can vary from speaker to speaker.

The test is administered via Ibexfarm and composes of three parts: (i) socio-linguistic questionnaire; (ii) warm-up phase (judgment of lines length); (iii) linguistic test (judgment of sentences acceptability).

The first part is a standard socio-linguistic questionnaire asking for information about age, education, spoken languages and dialects.

The second part consists of a warm-up phase, where participants must judge a series of lines length. First, participants must evaluate the length of a reference line, giving it a personal appropriate value (figure 4.6¹¹, page 96). Second, they are asked to evaluate the length of other lines, proportionally to the length value they have assigned to the reference line (figure 4.7¹²), page 95).

Linea di riferimento:

Quanto è lunga?

→ [Click here to continue](#)

Figure 4.6: Warm-up phase. Reference line, screen-shot (Magnitude Estimation).

The third part of the task consists of the linguistic task. After instructions, participants are asked to give an appropriate value of acceptability to a

¹¹Screen-shot translation:

Line of reference:

What is its length?

¹²Screen-shot translation:

Line 1:

With respect to reference line, what is its length?

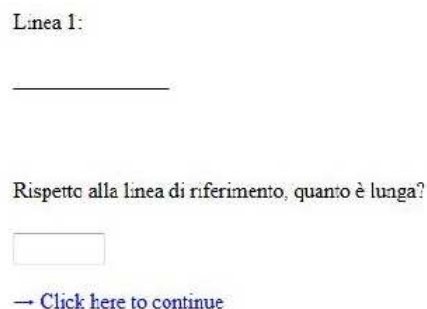


Figure 4.7: Warm-up phase. Example of a line length judgement, screen-shot (Magnitude Estimation).

reference sentence (figure 4.8¹³, page 96). Participants must judge the grammaticality of the reference sentence on the base of their personal opinion, and referring to a medium-controlled communicative situation.

In subsequent frames, participants must evaluate experimental sentences proportionally to the value attributed to the reference sentence. Experimental sentences contain a pseudo-resultative adjective (figure 4.9, page 96¹⁴) or an adverb (figure 4.10¹⁵, page 97).

Participants judge one condition per sentence and an equal number of sentences for both conditions. The task is composed of 11 experimental items, built on parasynthetic ICV verbs, and 11 fillers, randomly presented. Sentences below are example of experimental items conditions. Sentence (274) is a case of pseudo-resultative construction. Sentence (275) is a case of adverbial modifier.

- (274) Quando Mario ha molte banconote, le
 When M. have-3SG. many banknote-PL., ACC-PL.F.
 ammoniticchia verticali.
 mount-3.SG. vertical-PL.F.

¹³Screen-shot translation:

Reference sentence:

When John observes the color of apples, he them intensely sees red.

Give a value to this sentence.

¹⁴Screen-shot translation:

Before eating chocolate, Mario crumbles it thin.

With respect to the reference sentence, how do you judge this sentence?

¹⁵Screen-shot translation:

When Mario moves documents, he stack them chaotically.

With respect to the reference sentence, how do you judge this sentence?

Frase di riferimento:

Quando Giovanni osserva il colore delle mele, le intensamente rosse vede.

Le assegni un numero:

→ [Click here to continue](#)

Figure 4.8: Reference sentence, screen-shot (Magnitude Estimation).

Prima di mangiare la cioccolata, Mario la spezzetta sottile.

Rispetto alla frase di riferimento, come giudica questa frase?

→ [Click here to continue](#)

Figure 4.9: Example of experimental sentence judgement (PR), screen-shot (Magnitude Estimation).

- When Mario has many banknotes, (he) piles them vertical.*
- (275) Quando Mario ha molte banconote, le
 When M. have-3SG. many banknote-PL., ACC-PL.F.
 ammonticchia verticalmente.
 mount-3.SG. vertical-ADV
When Mario has many banknotes, (he) piles them vertically.

The construction of experimental items must pay attention to the choice of lexical material. In fact, not all adjectives which can be employed in the PR construction present a corresponding adverb.

- (276) Quando Daria riordina i libri, li ammassa **alti**.
 When Daria riarranges the books, ACC.3M.PL. stacks high.

Quando Mario sposta i documenti, li ammucchia caoticamente.

Rispetto alla frase di riferimento, come giudica questa frase?

→ [Click here to continue](#)

Figure 4.10: Example of experimental sentence judgement (ADV), screenshot (Magnitude Estimation).

When Daria riarranges the books, she stacks them high.

(277) # Quando Daria riordina i libri, li
 When Daria riarranges the books, ACC.3M.PL. stacks
 ammassa **altamente**.
 high-ADV.

When Daria riarranges the books, she amasses them highly.

In examples above, the adverb *altamente*, ‘highly’, morphologically derived from the adjective *alto*, ‘high’, generates a semantically odd sentence. This is due to the fact that it does not involve the meaning of *height*, rather the meaning of *thorough*. I assume that this asymmetry is due to idiosyncratic lexical gaps, in other words, some adverbs are built on secondary meanings of adjectives. To avoid semantic oddity, an accurate selection of adjectives and adverbs has been conducted in the preparatory phase.

4.5.2 Participants

15 native Italian speakers (9 female) participate in this experiment, different social aspects are reported in table 4.4 (page 98).

4.5.3 Results

Each participant evaluates sentences on the base of her personal scale, determined by the value she assigns to the modulus sentence. This implies that results obtained by different participants are not immediately comparable, since they are based on different scales. For this reason, answers of each

Age (%)		Education (%)	
master degree	93,33	18-25	13,33
PhD	6,67	26-32	53,33
		33-40	20,00
		41-60	13,33

Table 4.4: Informants' age and education (Magnitude Estimation).

informant are normalized on the base of the value she assigned to modulus sentence.

Results confirm the experimental hypothesis: when the modification is adverbial, the sentence is judged with higher values figure 4.11, page 98 ($t_1(24) = 0.2926, p > 0,05$ $t_2(20) = 0.0018, p > 0,05$) by each subject figure 4.12, page 99.

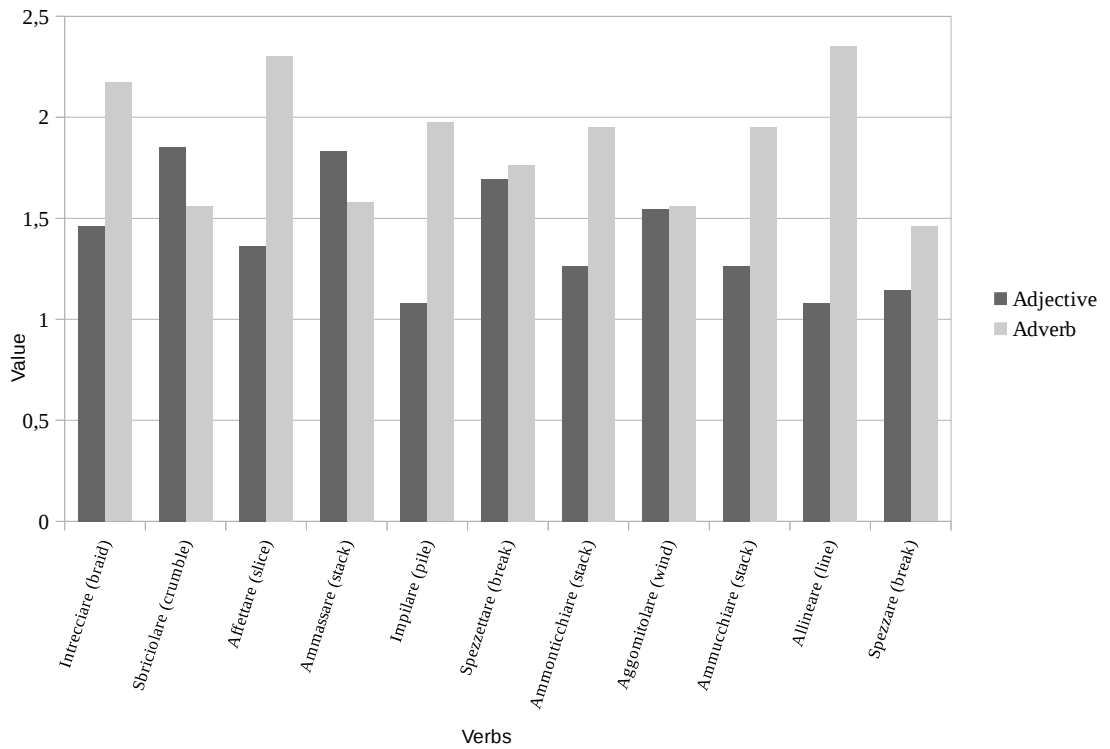


Figure 4.11: Graph of the acceptability rate for each experimental item (Magnitude Estimation).

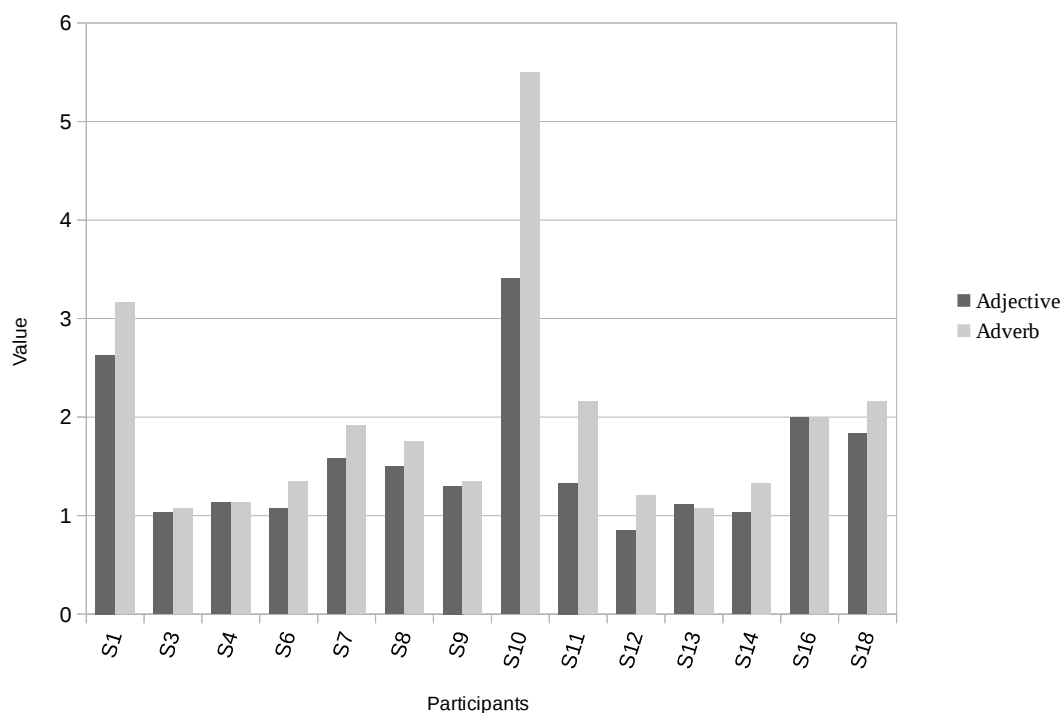


Figure 4.12: Graph of the acceptability rate for each subject (Magnitude Estimation).

Results of this test point out that in the syntactic context of modification of implicit creation verbs, adverbs are preferred to adjectives. In the next section, the role of adverbs is analyzed.

4.5.4 Discussion

The ME shows that in the same syntactic context, adverbs are preferred to adjectives in PRs.

Moreover, adverbials can entertain two readings when combined with ICVs such as *impilare*.

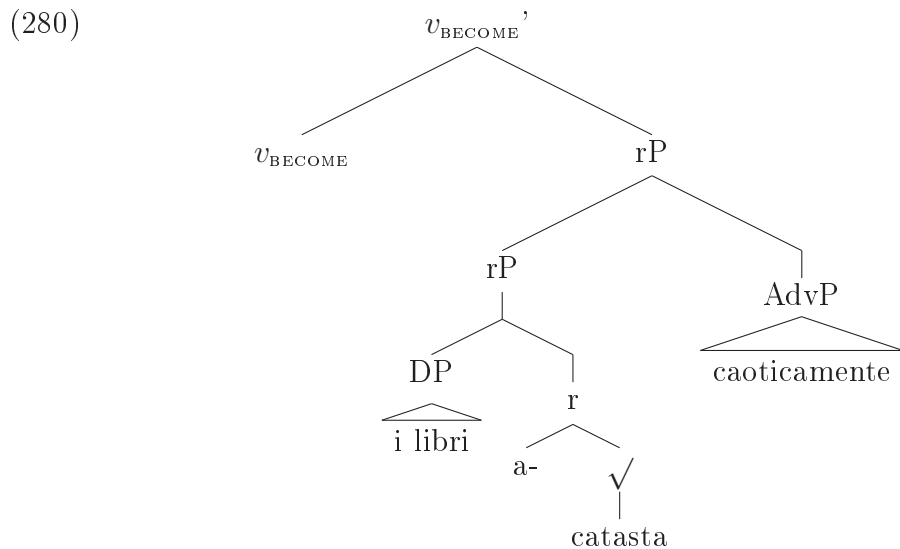
(278) *Maria accatasta i libri caoticamente.*
Mary stacks books chaotically

- a. Chaotic manners.
- b. Chaotic stack.

As usual with resultative verbs, the adverb can entertain two readings in relation to the part of the derivation it modifies. It can modify the resultative part (rP), *books in a pile*, obtaining narrow scope; or the *v* projection, *pile books*, obtaining wide scope.

In the case of (278), the adverb can be interpreted as modifying the rP, having narrow scope.

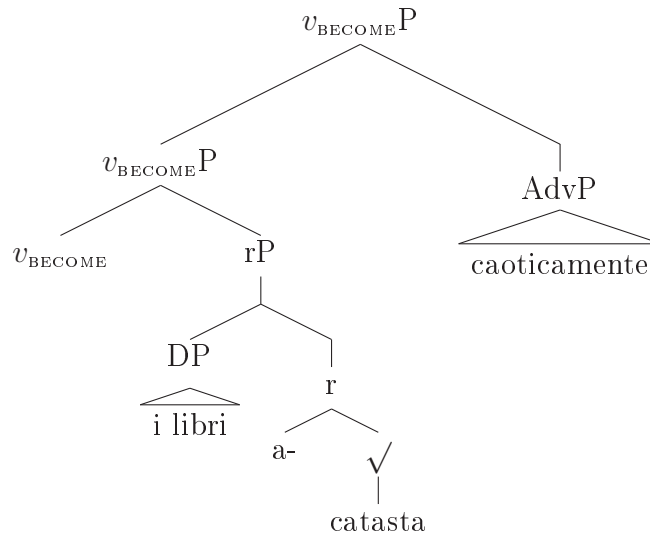
- (279) ... accatasta i libri caoticamente.
 ... *stacks books chaotically.* (INT. *the stack is chaotic*)



In the same context the adverb can receive a wide scope. In this case, the adverb predicates of event of *stacking* (282).

- (281) ... accatasta i libri caoticamente.
 ... *stacks books chaotically.* (INT. *the event of stacking is chaotic*)

(282)



To summarize, the two interpretations that the adverb can receive with pseudo-resultative construction are generated by a different scope. Resultative adverb interpretation arises because the adverb has narrow scope and it is interpreted as modifier of the r projection. Manner adverb interpretation arises because the adverb has wide scope and it is interpreted as modifier of the vP.

Now that the properties of adverbs are clarified, I will argue for the higher preference of speakers to use the adverb rather than the adjective in PR construction.

(283) Quando Daria compra le scarpe nuove, le ammassa caotiche.
When Daria buys new shoes, she stacks them chaotic.

(284) Quando Daria compra le scarpe nuove, le ammassa caoticamente.
When Daria buys new shoes, she stacks them chaotically.

We have seen that PR adjective modifies the implicit entity but it syntactically agrees with the direct object, producing a split between syntax and semantics.

On the other hand, the adverb does not produce in any case a split between syntax and semantics. As usual with resultative verbs, the adverb is read either as a modifier of the result projection or as a modifier of the vP. I argue that this higher transparency between syntax and semantics of adverbs determines their higher acceptability in relation to PR construction than the corresponding adjectives.

4.6 Conclusions

This chapter analyses the properties and the grammaticality of the pseudo-resultative construction (Levinson 2007) in Italian.

Several experiments demonstrate the grammaticality of PR. However, results open some questions about the higher rate of PR acceptability correlated with the presence of a pronominal direct object, and on the other hand, the higher preference of adverbs over their synonymous adjectives.

Difference in acceptability rate for Italian PR is due to two readings generated by the adjective: as pseudo-resultative or as the internal object modifier. The grammaticality rate of PR with sentences with pronominal direct object depends on the impossibility by an adjective to modify a pronominal DP, leaving only one reading for the adjective, that of a predicate of implicit entity.

I argue that adverbs are preferred to synonymous adjectives in PR constructions because the former do not generate a split between syntax and semantics. In particular, this is possible in relation to the nature of the verb which is resultative, and it allows an adverbial modification either with narrow scope, modifying the Pr, or with wide scope, modifying the *vP*.

Chapter 5

Pseudo-resultatives in French

5.1 Introduction

This chapter analyses French pseudo-resultative constructions. A semantic interpretation task reveals that, contrary to Italian, this construction is much less accepted in French.

5.2 French pseudo-resultatives

French is a Romance language where parasynthesis is a productive verb-formation process.

- (285) Jean a amoncelé ces affaires sur le bureau.
John has stacked his belongings on the table.
- (286) Jean a empilé les oreillers.
John has piled the pillows.
- (287) Jean a émietté le pain.
John has crumbled the bread.

Sentences above express causative events, as the Italian sentences discussed in chapter 4. In other words, taking (285) as example, the event can be paraphrased as “Jean did something to cause his stuff to be arranged in a stack on the table”. This interpretation is clearer in the following examples in which the causation is made explicit with verbs *disposer* ‘arrange’ and *faire* ‘reduce’.

- (288) Jean a disposé ces affaires dans un monceau sur le bureau.
John arranged his belongings in a stack on the desk.

(289) Jean a disposé les oreillers dans un pile.
John arranged the pillows in a pile.

(290) Jean a fait le pain en miettes.
John reduced the bread in crumbs.

In this regard, Italian and French ICVs seem to be perfectly alike. However, the question about the acceptability of French PR needs further exploration.

In chapter 4, I have shown that Italian pseudo-resultative reading of adjectives is the only available reading when the direct object is pronominal. We can assume that if French native speakers do not accept PR in this context (291), pseudo-resultatives are not grammatical in French.

(291) Quand Jean essaye de ranger ses affaires, il les
 When John tries to organize his belongings, he cl-OBJ.PL.
 ammoncelle hautes sur le bureau.
 a-stack-3.SG. high on the table.
When John tries to organize his belongings, he stacks them on the table.

The question is interesting because Italian appears to be particular in the treatment of secondary predicates (adjectival resultatives and depictives). The field of secondary predication is pretty large and includes strong resultatives (292) and weak resultatives (293), depictives (294), small clauses (295).

(292) Sandra kicked the door open. = Sandra kicked the door and as result of this action the door is open.

(293) Giulia ha rotto il tavolo in pezzi.
Giulia broke the table in pieces.

(294) a. Sandro ha guidato la macchina ubriaco.
Sandro drove the car drunk.

b. Sandro ha mangiato la carne cruda.
Sandro ate the meat raw.

(295) Maria considera Carla una buona amica.
Maria considers Carla a good friend.

It is well-known that Romance languages disallow strong resultatives (Talmy 1991, 2000; Washio 1997; Folli 2001). In this regard, Italian and French behave in the same way, exception made for strong resultatives in which the predicate is duplicated or modified by an adverb (Folli 2002) (297).

- (296) a. *Maria martellò il metallo piatto. (Italian)
 b. *Marie martela le metal plat. (French)
Mary hammered the metal flat.
- (297) Giovanni ha piallato il tavolo sottilissimo. (Italian)
John planed the table ultra-thin.
- (298) ??Jean a raboté la table bien fine. (French)
John planed the table ultra-thin.

Even though Italian and French belong to the same linguistic family, their behavior with respect to secondary predication are not always the same. For this reason, I conducted a study of semantic decision task for French speakers in order to investigate the acceptability of PR. In the following section, I will present design and process of experimental item construction.

5.2.1 Semantic decision task

This section reports methodology and results of a semantic decision task conducted on French native speakers with the aim to investigate the acceptability of PR.

The task was administered via pencil and paper. The experiment was composed of three parts: (i) presentation of the researcher and the sociolinguistic questionnaire; (ii) sample sentence; (iii) linguistic task.

The presentation of the researcher briefly describes her as a student enrolled in a PhD program in Linguistics at Université Paris 8 and does not mention the purpose of the research in order to avoid possible bias of research expectancy respect (chapter 1).

The socio-linguistic questionnaire asked for age, education level, origin, residence, spoken languages and mother tongue.

A sample sentence was included in order to test whether instructions were clear. Instructions were verbally given in French by the researcher and written in the instructions part of the test.

Presentation, socio-linguistic questionnaire, instructions and example were contained in the first page. Participants were kindly requested not to turn the page before having understood instructions and having filled the required information in.

The linguistic part was composed of 8 experimental sentences and 8 fillers, both categories being constructed on denominal causative verbs. Each sentence had two conditions, as the Italian version of the same experiment: (i) full direct object; (ii) pronominal direct object. Participants never judged

two conditions of the same sentence. Sentences below report examples of the two conditions.

- (299) Pour la préparation des sandwichs, Marie tranche le salami fin.
For the preparation of sandwiches, Mary slices salami thin.
- (300) Marie travaillait à la bibliothèque où elle empilait les livres hauts.
Mary worked at the Library where she piled books high.

There were two different versions of the questionnaire with two different random orders.

Participants were asked to identify which interpretation they assign to sentences by choosing between the two proposed under each sentence. Namely, (i) adjective modifies direct object, a classic DP modifier within the object DP; (ii) adjective modifies the implicit entity, the pseudo-resultative interpretation. Table 5.1 at page 106 reports an experimental item and the task to be performed on it¹.

Sentence	Pour la préparation des sandwichs, Marie tranche le salami fin. <i>To prepare sandwiches, Mary slices the salami thin.</i>
Reading 1	A partir du salami, Marie fait des tranches fines. <i>From the salami, Mary creates some thin slices.</i>
Reading 2	A partir du salami fin, Maria fait des tranches. <i>From the thin salami, Mary creates some slices.</i>

Table 5.1: Condition 1. Example of experimental sentence (Semantic interpretation task FR).

Two classes of undergraduate students of Linguistics and two classes of students of an Italian language private school, in which the researcher worked at the time as Italian teacher, decided to participate in the task. All tests were administrated in the Parisian region.

I have tested 44 French native speakers (37 female)², of different age groups, as reported in table 5.2 at page 107.

All speakers possess at least a high-school formation: 72.73% of informants have an undergraduate level, the 18.18% of informants are graduate and 2.27% possess a PhD, as shown by table 5.3 at page 107.

All informants are French native speakers and do not have other mother tongue, furthermore, they do not speak other languages at high proficiency levels.

¹Experimental items and instructions grammaticality have been checked by a native speaker.

²Experiments of non-native French speakers were eliminated from the analysis

Age group	%
18-25	65.91
26-32	6.82
33-40	6.82
41-60	13.64
60+	6.82

Table 5.2: Participants age (Semantic interpretation task FR).

Level of education	%
Bachelor	9.09
Bachelor +1	18.18
Bachelor +2	29.55
Bachelor +3	4.55
Bachelor +4	11.36
Bachelor +5	15.91
PhD	2.27

Table 5.3: Participants education level (Semantic interpretation task FR).

5.2.1.1 Results for condition 2 (pronominal direct object).

Adjectives within sentences with pronominal direct object are interpreted as pseudo-resultative modifiers with a rate of 92.29% ($s= 11.34$). An example of experimental items in the second condition is reported in table 5.4 at page 107.

Sentence	Pour la préparation des sandwiches, Marie achète le salami et elle le tranche fin. <i>To prepare sandwiches, Mary buys salami and she slices it thin.</i>
Reading 1	A partir du salami, Marie fait des tranches fines. <i>From the salami, Mary creates some thin slices.</i>
Reading 2	A partir du salami fin, Maria fait des tranches. <i>From the thin salami, Mary creates some slices.</i>

Table 5.4: Condition 2. Example of experimental sentence (Semantic interpretation task FR).

This result is perfectly aligned with the results obtained in Italian.

5.2.1.2 Results for condition 1 (explicit direct object).

Data are much more interesting regarding the interpretation of adjective when contained in sentences with an explicit direct object.

Results are not homogeneous, the adjective receives a pseudo-resultative interpretation only in sentences built on *empiler*, ‘to pile’, *tresser*, ‘to braid’, *trancher*, ‘to slice’, as reported in graph 5.1 at page 108.

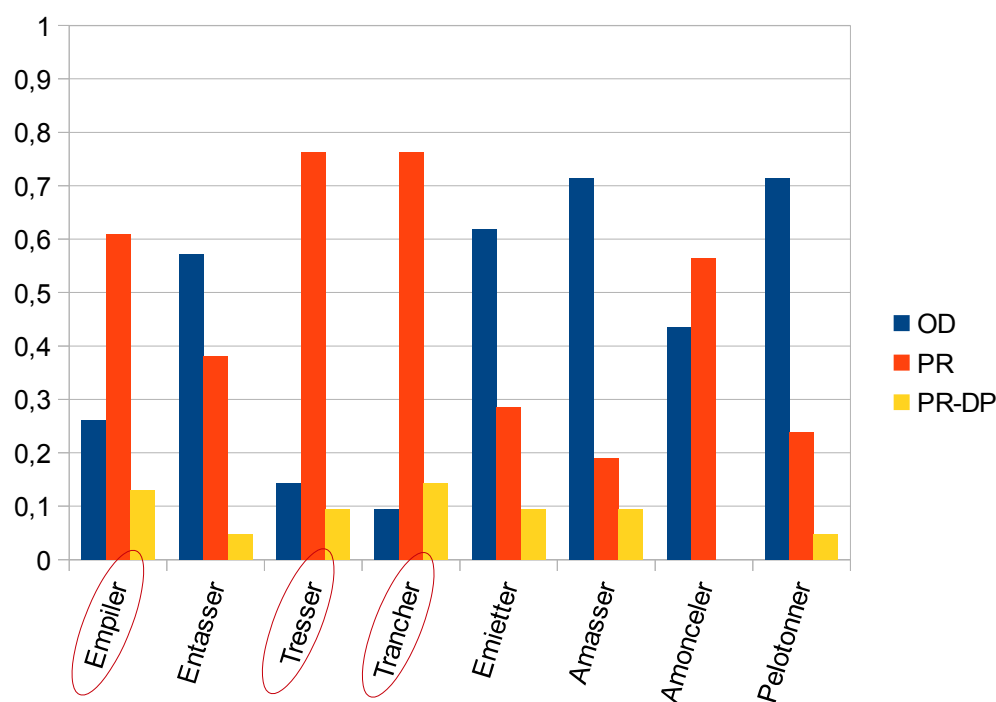


Figure 5.1: Condition 1. Percentage of interpretation (Semantic interpretation task FR).

Sentences built on these three verbs receive a significant higher rate of PR interpretation. Applying a Chi-square test among these two groups, we obtain a chi value of $9,85210^{-8}$, showing that the difference within these two groups is statistically significant.

I assume that it can be ascribed to a phonologic effect.

5.2.2 Discussion

Contrary to expectations, French pseudo-resultative construction is not acceptable for most of the part of the tested verbs. There is a statistically significant difference in PR acceptability rate of three verbs: *empiler* ‘to pile’, *tresser* ‘to braid’, *trancher* ‘to slice’.

I argue that the difference in PR acceptability for these verbs is due to more transparent phonological relationship between the verb and the base. In other words, the phonological form of the base in the verb is ascribable to the phonological form of the base when it functions as an independent noun.

(301) a. *empiler*, [ãpile]
to *pile*

b. *pile*, [pil]
pile

(302) a. *tresser*, [trese]
to *braid*

b. *tresse*, [tres]
braid

(303) a. *trancher*, [trãfe]
to *slice*

b. *tranche*, [trãf]
slice

Other verbs employed in the experiment do not entertain a direct phonological relationship with their bases as pointed out by the following examples.

(304) a. *entasser*, [ãtase]
to *stack*

b. *tas*, [ta]
stack

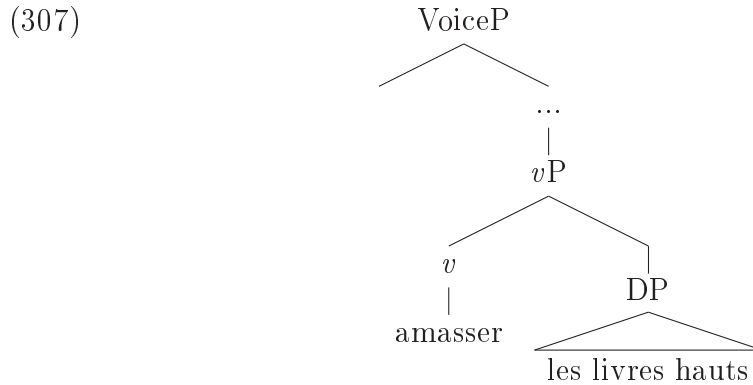
(305) a. *amasser*, [amase]
to *amass*

b. *amas*, [ama]
heap

I argue that the derivational nature of verbs is not always accessible to speakers when the base is phonologically distinct to the verb.

For this reason, in case of phonological inaccessibility of base noun, the verb (such as *amasser*) merges within *v*, since it is not perceived as undergoing a morpho-syntactic process of derivation from the base noun (*amas*), as shown in (307).

- (306) [...] amasser les livres hauts.
 ... to pile the books high.



This process prevents the grammatical formation of pseudo-resultative construction. Since the verb is not perceived as derived from a base, the pseudo-resultative adjective cannot modify it, and the only possible interpretation for the adjective is to function as the direct object modifier.

5.3 Conclusions

This chapter reports results of a semantic interpretation task conducted on 44 French native speakers concerning the accessibility of pseudo-resultative construction in sentences built on denominal verbs. Results show that pseudo-resultative reading is accessible only for 3 verbs out of 8.

I argue that this is due to the tighter phonological relationship between these verbs and their bases, which consequently guarantees syntactic derivation in which the base root is merged separately from *v* and can hence be modified by the PR adjective. Thus, I propose that the lower acceptability rate for PR in French is due to a lower phonological transparency of verbs. In Italian, where a higher degree of phonological transparency exists between the root and the derived verb, PR interpretation is more readily available.

Part II

Ambiguous verbs

Introduction

The second part of the present dissertation investigates the relationship between stativity and causation with special attention to a class of deadjectival Italian verbs which generates a double aspectual reading.

We will see that stativity and causation are not two opposite linguistic phenomena, but that they can occur in the same structure of causative stative verbs, such as assumed for object-experiencer verbs (Pylkkänen 2000). In order to propose a uniform theory about causation, a force-dynamic approach to causation (Copley & Harley 2015) is presented and applied, with due modifications. In particular, conceptual energetic forces that we find in the world are demonstrated to be linguistically significant. Stative verbs do not involve conceptual energetic causation, since no force is involved. For this reason, I argue that causative eventives stay at energetic forces as stative verbs stay at abduction. This account is possible thanks to the separation of concepts such as causation and change.

Concerning Italian deadjectival causative parasynthetic verbs, we will see that they can be divided into three different categories depending on their base. This chapter focuses on two of them. One class regroups verbs formed from adjectives of form, namely those adjectives which involve a physical (and consequently energetic) change, such as *grande*, ‘big’, and *pesante*, ‘heavy’. The other class contains verbs formed from adjectives of surface, which do not necessarily involve a physical change, but only a presumed change of the object which takes place according to the speaker. Verbs belonging to the latter class can have both an eventive and a stative structure which is reflected by the (in)animacy of the subject. Typology is built by means of specific stativity diagnostics.

The definition of precise diagnostics for stative verbs is problematic since (i) many of the tests presented in the literature are language-specific and cannot be transposed cross-linguistically; (ii) some of them select for epiphenomena that are often (but not always) linked to stativity. Chapter 6 analyses some of the most popular stativity tests for Italian and shows that syntactic tests (agrammaticality in progressive and imperative) are not reliable, since

stative verbs can be easily forced in particular structures. On the other hand, we will see that tests based on semantic interpretations (interpretation under modal verbs, interpretation under temporal adverbials and temporal narrative contribution) are more reliable both in Italian and English and are likely to be cross-linguistically valid as well.

Chapter 7 proposes a syntax for causative stative verbs in which flavor of *v* is responsible for establishing the causal link between Causer, Theme and properties of the Theme. Contrary to usual statives for which a relational *v* is responsible for the identity relation between Holder and Rheme (Harley 2005), we assume that stative causation is brought about by the presence of a rP in the lower part of the derivation. A “virtual force” called *abduction* introduced in the system by the speaker (this is the speaker’s opinion) can be thought as the stative correspondent of the energetic force (Copley & Harley 2015) of eventive causative verbs. The importance of speaker’s opinion is further pointed out by a pragmatic judge parameter (Laherson 2005; Stephenson 2007) which can refer to different parts of the structure in relation to the evenuality of the verb.

Chapter 8 reports results of a practical application of stativity diagnostics presented in chapter 6. It is the outcome of a wider project held by Bridget Copley (CNRS) and Phillip Wolff (Emory University), whose final aim consists in the automatic interpretation of temporal sentence orientation. As we will see, temporal constraints involved by stative and eventive verbs play a big role in the determination of temporal orientation of sentences. Reflections about strategies for the automatic identification of statives are reported, with particular attention to procedural stages employed for the creation of a stativity gradient of English verbs extrapolated from a corpus.

Chapter 6

Stativity diagnostics in Italian

6.1 Introduction

Stativity seems to be a sort of lexical feature associated to particular structures and prohibited in others.

There are usual stative verbs, which are more difficult to be forced in eventive structures, such as *love*, *own*, *be*. Other verbs seem more plausible in ambiguous readings, such as deadjectival parasynthetics (cf. chapter 7). We can imagine that this propensity for ambiguity resides in extra-linguistic factors, probably in a high cognitive facility for stative verbs of being read as eventive if forced into a proper structure.

The fact that stative verbs can (almost) always be coerced into eventive structures makes it important to have reliable stativity tests which are not influenced by external factors.

One issue consists in the lack of a precise and effective definition of stativity. Consequently, the design of diagnostics is empiric. In other words, the fact that stative verbs do not benefit from a positive definition, and are defined negatively with respect to eventive verbs (i.e. statives are not dynamic, not telic, not of change, do not introduce an agentive subject, ...), makes the job of find diagnostics hard. Diagnostics are not planned to pick up specific properties, but to not pick up properties of other *aktionsarten*. The risk of picking up epiphenomena is high, because the exact nature of the phenomenon investigated, namely stativity, is vague.

We will see that tests which seem to yield better results concern semantic interpretation, rather than structural ill-formedness. At least in Italian, progressive periphrasis and imperative do not differentiate between eventives and statives, since these tests appear not to produce agrammatical sentences with statives. However, statives and eventives receive different interpreta-

tions under modal verbs; and they produce different temporal constraints and interact differently with temporal adverbs like *già*, ‘already’.

It appears that statives and eventives differ with respect to implications in temporal domain, the former being anchored to the present and the latter to the future.

Tests which select epiphenomena should be avoided. In fact, even though epiphenomena are tightly connected to the target to be investigated, there could be cases in which epiphenomena appear in isolation.

This issue is illustrated by the application of adverb *voluntarily* to detect eventivity (Lakoff 1966; Dowty 1979). In fact, the adverbial modification of the predicate does not detect eventivity (the phenomenon), but agentivity (the epiphenomenon).

(308) John closed the window voluntarily.

(309) *The wind closed the window voluntarily.

This leads to the incorrect categorization of sentences like (309) as containing a non-eventive verb, contrary to the fact.

Another example of the difficulty to define reliable diagnostics for eventualities consists in *for-X-time* test, which was performed to detect atelicity. It actually seems to identify “*operation involving a series of small changes*” (Erteshik-Shir & Rapoport 2004: 76).

(310) Giovanni ha chiuso la finestra per 10 minuti.

John closed the window for 10 minutes.

(311) Giovanni ha rotto il bicchiere per 3 minuti.

John broke the glass for 3 minutes.

Normally, adverbial *for-X-time* is expected to be agrammatical with prototypical causative telic verbs, therefore we expect it to be unacceptable in examples above, but it is not the case. If the test does not identify atelicity, it doesn’t identify the duration of the final/resultant state, but it identifies the duration of the process. Since the process of *breaking glasses* is a process of breaking glasses only if it attains the final/resultant state of having glasses broken, it implies that the adverbial generates a reading where different small events of breaking a unique single glass take place.

The present chapter will analyze some attested stativity diagnostics in order to see if they are valid, in particular for Italian.

Section 6.2.1 presents imperative and progressive periphrasis as diagnostics for stativity in Italian, section 6.3 discusses diagnostics where no agrammaticality is expected but where different readings are systematically associated to constructions involving stative or eventive predicates. The last

two sections report experimental tests on behavioural responses to stative and eventive predicates, suggesting that experiments can be useful for the determination of stativity.

6.2 Agrammaticalities

This section discusses stativity diagnostics which are based on syntactic features, in other words on agrammaticalities. Namely, these tests are aimed to identify different eventualities on the basis of the (a)grammaticality of a predicate in a particular structure.

We will see that these diagnostics are not cross-linguistically valid and are not always reliable.

6.2.1 Imperative and progressive periphrasis

Specific Italian tests to detect stativity are identified by Bertinetto (1991: 30). They consist in the impossibility to appear in the imperative form and in the impossibility to appear in the progressive form.

In this chapter we will analyze one Italian progressive periphrasis formed by *stare*, ‘to be’, and the gerund of the lexical verb.

- (312) Maria sta ballando.
 M. stay-3.SG. dance-GER.
Mary is dancing.

A huge difference in reading between Italian and English progressive periphrasis is determined by the fact that the Italian simple present can receive a progressive reading, while its English counterpart cannot.

- (313) Maria balla.
 (314) Mary dances.

The Italian example (313) can receive both a habitual reading and a progressive reading (Bertinetto 2000: 565), while the English counterpart (314) generates only a habitual reading. This, among other factors, can influence the range of meanings generated by Italian progressive.

Progressive as diagnostics for stativity does not always work as expected. On the one hand, verb *possedere*, ‘possess’, which is unanimously judged as stative, is agrammatical in the progressive form, as expected.

- (315) *Sta possedendo cinque case.
He's possessing five houses.

It is worth noting that some “highly” stative verbs do not licitly participate in progressive periphrasis, such as *have* or *be*.

(316) **Maria sta avendo sei case.*
Maria is having six houses.

(317) **Maria sta essendo grassa.*
Maria is being fat.

Although, Grossmann (2004: 347) points out that this is not true for all presumed stative verbs such as *soffrire*, ‘suffer’.

(318) *Sta soffrendo.*
He’s suffering.

Beretta (1993: 220)¹ observes that “[t]he use of the progressive periphrasis is in expansion, particularly regarding the type of verbal action of verbs to which it applies”. This statement is supported by a corpora analysis conducted by Beretta (1993), who reports one excerpt:

(319) [...] *sai* *che non mi* **sto ricordando**
 [...] (you)-know that not REFL.1SG. am
se *io al lavoro ho* *lasciato i* *miei zoccoli.*
 remember-GER. if I at work have left the my clogs
You know, I don’t remember if I left my clogs at work.

Consequently, the reliability of the progressive periphrasis in order to detect stativity in Italian is dubious.

Many other verbs behave contrary to expectations, and can appear under progressive periphrasis, as the following examples show.

(320) *Maria sta amando questo caffè.*
Maria is lov-GER. this coffee.
Mary is loving this coffee.

(321) *Il caffè sta piacendo a Maria.*
The coffee is like-GER. to Maria
Maria is liking the coffee.

(322) *Giovanni sta avendo un attacco di cuore.*
Giovanni is have-GER. a attack of heart
John is having a heart attack.

¹Translation of the following paragraph is mine.

- (323) Sto avendo sete.
 be-PRES.1.SG. have-GER. thirstiness
 I'm thirsty.

It is worth noting that all sentences describe a non-habitual eventuality which is limited in time. For example, *questo caffè*, 'this coffee', is particular and it is limited in time. The same way for *il caffè*, 'coffee' in (324), which is not particular *per se*, but receives a particular reading when it functions as the subject of a progressive periphrasis.

- (324) Il caffè piace a Maria (habitually).
 The coffee pleases to Mary (habitually).

Italian progressive periphrasis forces a particular and time limited reading, whenever this is available, in fact "[...] *the Italian diachronic data show that at the beginning the progressive refers to purely durative situations and only later it has specialized as an aspectual form, not expressing purely durativity, but imperfectivity*" (Squartini 1998: 102). Time limited reading implies that the state holds for a limited time period: activities that include the entire whole life of the subject cannot be expressed by Italian progressive.

Italian progressive periphrasis "*may be employed only in cases of strict focalization [...] where the speaker is only concerned with what is going on at a particular point in time*" (Bertinetto 2000: 564).

- (325) Maria sta lavorando a scuola.
 Mary is working at school.

Sentence (325) cannot be intended, for the same context, as the Spanish progressive (Squartini 1998: 110) where Mary would be interpreted as working habitually in a school. In Italian, Mary is working in a school only for a certain period and not habitually.

This can be extended to statives since, as claimed by Squartini (1998), while the author assumes that statives "*are not admitted*" (*ibid*: 104) in the progressive in general, he contends that only permanent statives (ILPs in international terminology) are categorically excluded, but non-permanent statives (SLPs) are more acceptable in the progressive.

On the other hand, Bertinetto (2000: 583 ff.) recognizes that statives are not systematically agrammatical under progressive periphrasis, irrespective of the type of state involved. This is ascribed to a possible double reading of the lexical entry, which can be either stative, when used in present tense, or eventive, when used with progressive periphrasis.

We already saw that this last assumption is contradicted by examples (320) and (321). It is hard to affirm their eventive interpretation, because

the subject is rather in a state of loving the coffee, than in a process of loving. I agree with both Bertinetto (2000) and Squartini (1998) that not all statives are felicitous under progressive periphrasis, but I do not agree with them on categorization of verbs that allow the progressive. Squartini argues that the agrammaticality of statives under progressive is due to the permanent vs. temporal nature of the state involved, while Bertinetto argues that only eventive verbs can appear under progressive, determining a change in lexical category in the case of statives.

We saw that verbs such as *avere*, ‘to have’, and *essere*, ‘to be’, cannot occur in the progressive, while verbs such as *amare*, ‘to love’, *piacere*, ‘to like’, and *avere sete*, ‘be thirsty’, can. I argue that this asymmetry is determined by two facts: subjects of *amare*, ‘to love’, *piacere*, ‘to like’, and *avere sete*, ‘to be thirsty’ are in a direct relation with the state, in the sense that the subject is the Experiencer and the state is neither durative nor habitual (contrary to *avere*, ‘to have’, and *essere*, ‘to be’).

From these examples, I can assume that Italian progressive periphrasis *stare* + gerund is not an efficient diagnostics for stativity, because it does not systematically exclude all stative verbs.

Another diagnostics of stativity that is often put forth along with progressive periphrasis is the use of imperative. However, doubts are raised about its reliability in picking out only eventive verbs (Grossmann 2004).

In the Romance panorama, imperative is a proper verbal mode, even though morphological syncretism with Indicative and/or Subjunctive is present in different languages, such as in French and Italian. However, Italian imperative presents specific morphological marks in one of three conjugations (namely *-are*).

According to Squartini (1990) and Levin (2007), the ungrammaticality of stative verbs under imperative is probably due to their lack of agentivity. Evidence comes from verbs, such as in (326) and (327), that are acceptable in the imperative only if the subject is an Agent, and are ungrammatical when the subject is a Patient.

- (326) *Vola!*
Fly!
- (327) *Giovanni è corso a lavoro.*
John is run at work
- (328) *Corri a lavoro!*
Run at work
- (329) **Arriva!*
Arrive.

A good evidence for the use of imperative in conjunction with statives is represented by the Italian translation of Ten Commandments:

- (330) Ricordati di santificare le feste.
Remember the sabbath day, to keep it holy.
- (331) Onora il Padre e la Madre.
Honour thy father and thy mother.
- (332) Non desiderare la donna d'altri.
Thou shalt not covet neighbor's wife.
- (333) Non desiderare la roba d'altri.
Thou shalt not covet neighbor's belongings.

Clearly, in none of these cases the subject is an Agent, rather it is an Experiencer. This way, according to Squartini and to Levin, previous sentences should be agrammatical, and this is not the case.

Grossmann (2004) also observes that statives are sometimes acceptable in the imperative mood independently of agentivity:

- (334) Sperate di essere promossi!
Hope-2.PL. of be passed
Hope to pass the year!
- (335) Dimenticami!
Forget me!

In both sentences above, the person to whom they are addressed is directly involved in the accomplishment of the requirements. In other words, pupils (whom the first sentence is addressed to) have the power to improve their notes; likewise the person to whom the second sentence is addressed has the power/possibility to forget someone. This way, the subject seems to be a sort of Agent, because it has the possibility of enabling the eventuality described by the imperative. And the main characteristic of agentivity consists in the fact that an individual has the possibility to act in an eventuality.

It appears clear that the grammaticality of imperative does not reside on the *aktionsart* of the verb, but in the possibility of the addressee to influence the coming into being of the eventuality itself. Consequently, Italian imperative is not a good diagnostics for stativity because it seems to be conditioned by other factors.

To summarize, neither progressive nor imperative are good candidates for stativity diagnostics in Italian.

We will see in chapter 8 that progressive in English is actually a perfect candidate to identify stativity when applied to Natural Language Processing. We should ask then why English progressive is sensitive for stativity while Italian progressive is not and how the two differ in the interaction with eventualities.

6.3 Semantic interpretation tests

In previous sections we saw that syntactic tests useful to identify English statives cannot be applied to Italian. It is the case of progressive periphrasis and imperative.

This language-specific behavior could be ascribed to numerous causes, such as different temporal implications of specific structures (such as progressives), different aspectual prohibitions due to the wrong combination of lexical verbs and grammatical structures.

However, there are some tests of stativity which do not involve grammaticality, but which involve semantic interpretation, reliable both in English and in Italian: interpretation under modal verb (epistemic/deontic); temporal constraints (present/future); possible contribution in narrative chain. These tests are interesting because they seem to rely on a general and fundamental feature of stativity.

We will use these tests in chapter 7, in order to show that a group of Italian deadjectival verbs can receive two readings tightly connected to the base adjective and showed by the (in)animacy of the subject.

6.3.1 Interpretation under modal

In this subsection, I will analyze different interpretations that a stative verb can generate under modal verb. I will report results of an experiment conducted on Italian native speakers which confirms this difference in interpretation.

Giorgi & Pianesi (1997) describe different modalities assumed by modal verbs in different languages: they identify different interpretations of predicates under complement of *dovere*, ‘must’.

When a verb is embedded under ‘must’, the structure can generate two readings: deontic and epistemic. The deontic/obligational reading expresses a command about an action that must be realized. The epistemic reading concerns a speculation about a present state of affairs. These two readings entertain also a temporal constraint: deontic/obligational reading generates

	+ stative	- epistemic and deontic reading
<i>dovere</i>		- present constraint
	+eventive	- deontic reading
		- future constraint

Table 6.1: Different readings and constraints of modal *dovere*.

a future constraint, while the epistemic a present constraint. A summary is present in table 6.1 at page 123.

The two interpretations arise in relation with the eventuality of the predicate. Eventive predicates can receive only a deontic reading, while stative predicates both an epistemic and a deontic reading, even though tests show that the preferred one is the epistemic (refer to section 6.3.1.1).

In sentences below we use two predicates under *dovere*, ‘must’: *amare Matteo*, ‘love Matteo’ (stative), and *correre questa maratona*, ‘run this marathon’ (eventive). Completions show that they entertain two different readings.

- (336) Maria deve amare Matteo...
Mary must love Matteo.
- a. per fare una scelta così sciocca. (epistemic)
in order to make such a stupid choice.
- b. per essere una buona moglie. (deontic)
in order to be a good wife.
- (337) Sandro deve correre questa Maratona...
Sandro must run this Marathon,
- a. # per consumare le scarpe in questo modo. (epistemic)
 # *in order to use shoes that way.*
- b. per dimagrire. (deontic)
in order to lose weight.

The same is applicable to English, showing the possible cross-linguistic validity of the diagnostics.

- (338) Mary must love Marco.
- a. in order to make such a stupid choice. (epistemic)
- b. in order to be a good wife. (deontic)
- (339) Sandro must run this Marathon.
- a. *in order to use shoes that way. (epistemic)

- b. in order to lose weight. (deontic)

We saw that sentences involving the stative verb *amare* can produce both an epistemic and a deontic reading of the modal.

To summarize, I reported stativity diagnostics linked to the different interpretation of modal verbs. Namely, stative verbs can generate both epistemic and deontic interpretation, while eventives have only a deontic reading.

The following section reports results of an experiment conducted on 188 Italian native speakers. They judged the interpretation (deontic/epistemic) of sentences containing stative or eventive verbs. Results show that this difference in interpretation cuts across statives and eventives and it is perfectly perceivable in everyday language.

A similar test has been conducted on 25 English native speakers in the NLP project and its results are reported in Chapter 8.

6.3.1.1 Semantic interpretation task under modal

This section reports all steps of a semantic decision task conducted on 188 Italian native speakers about the interpretation of eventive and stative verbs under modal *dovere*, ‘must’.

We will see that results confirm the hypothesis about the deontic interpretation of eventives and the possible double deontic/epistemic interpretation for statives.

The experiment is divided in two parts: (i) the sociolinguistic questionnaire; (ii) the linguistic part.

The formulation of instruction has been a delicate task. Terms *deontic* and *epistemic* are scientific terms, to make this experiment trustworthy they must be translated in everyday language. In chapter 1, we saw that an important role in the experimental success is held by the clarity of instructions. For this reason, *deontic* is translated with *comando*, ‘command’, and *epistemic* is translated with *osservazione/opinione*, ‘assumption/opinion’.

The sociolinguistic questionnaire investigates for age, sex, education and origin of participants with an usual format.

The linguistic part is composed of 56 sentences: 28 sentences built on eventives; 14 sentences built on causal statives; 14 built on non-causal statives. Subjects of both groups of eventive and stative verbs were equally divided into animate and inanimate DPs (ref. table 6.2, page 125).

Sentences contain the modal *dovere*, ‘must’, at the present tense. All sentences were built with subject + verbal complex + direct object and complements. Since generic objects influence eventuality, complements are quantized objects, as shown by following examples reporting one sentence per

Stative				Eventive	
Causative		Non-causative			
Animate	Inanimate	Animate	Inanimate	Animate	Inanimate
7	7	7	7	14	14
14		14		28	

Table 6.2: Condition distribution (Interpretation under modal ITA).

condition: (340) stative with animate subject; (341) stative with inanimate subject; (342) eventive with animate subject.

- (340) Carla deve conoscere il contenuto del testamento di Maria.
Carla must know the content of Mary's will.
- (341) Il libro sulla storia d'Italia deve interessare Maria.
The Italian history book must interest Mary.
- (342) Sandro deve sciogliere del burro.
Sandro must melt some butter.

Three native speakers who did not participate in the experiment tested all sentences for plausibility before the experiment administered. Other three native speakers tested the experiment in its beta version before its on-line version was launched via social networks and e-mails.

Participants were asked to judge all 48 sentences, which were presented in random order (determined by IbexFarm internal algorithm).

188 Italian native speakers (133 female) participated in the experiment, aged of 32,18 years (minimum 20 and maximum 62) with a high education degree (91 PhD, 86 Degree, 11 High-School)² distributed in the three main Italian varieties (North, Center, South) with a predominance of the North variety. These data are reported in table 6.3 at page 125.

Education		Origin		Gender	
Phd	91	North	122	Female	133
Degree	86	Center	22	Male	55
High-School	11	South	53		

Table 6.3: Sociolinguistics of participants (Interpretation under modal ITA).

²It is worth noting that this education rate is not representative of the national mean.

Although participants were asked to choose one or both interpretations, they chose only one interpretation as expected. This is a well-known problem of naive speakers, who are not used to jump from one reading to another for one single sentence (like linguists do). For this reason, results do not show the expected predominance of “both” answer for stative verbs. However, eventives and statives were clearly interpreted differently (as reported in table 6.4 at page 128³).

³For translations of sentences, please refer to appendix.

Sentence	Assumption	Command	Both
Sn01 - Carla deve adorare il suo nuovo collega	171	4	13
Sn02 - Giulio deve amare il gelato al cioccolato	178	6	4
Sn03 - Maria deve ammirare la nuova trasmissione televisiva	156	14	18
Sn04 - Questo bell'anello deve appartenere a Maria	157	5	26
Sn05 - Giulio deve apprezzare le canzoni di Battisti	164	11	13
Sn06 - Carla deve conoscere il contenuto del testamento di Maria	56	53	79
Sn07 - Maria deve credere alle bugie di suo marito	145	10	33
Sn08 - Giulio deve desiderare quelle scarpe in vetrina	166	10	12
Sn09 - Maria deve detestare quel divano marrone	167	7	14
Sn10 - Carla deve invidiare Maria	168	5	15
Sn11 - La presenza del sole deve mancare a Giulio	181	3	4
Sn12 - Sandro deve odiare il caffè macchiato	181	3	4
Sn13 - Sandro deve possedere quella macchina sportiva rossa	102	51	35
Sn14 - Sandro deve temere il cane del suo vicino di casa	124	23	41
Sc01 - I brutti sogni devono angosciare il bambino di Maria	180	2	6
Sc02 - Questa tisana deve agitare Carla	172	6	10
Sc03 - Il concerto deve annoiare Sandro	182	2	4
Sc04 - Lo spettacolo del mago deve divertire Giulio	142	13	33
Sc05 - La giostra del parco deve impaurire Maria	175	4	9
Sc06 - Maria deve infastidire Carla	124	22	42
Sc07 - Le bollicine sulla pelle di Carla devono inquietare Giulio	158	11	19
Sc08 - Il libro sulla storia d'Italia deve interessare Maria	164	7	17
Sc09 - La puntura del calabrone deve intimorire Giulio	145	14	29
Sc10 - L'assenza del presidente deve stupire gli impiegati	149	15	24
Sc11 - Maria deve preoccupare sua mamma	170	6	12
Sc12 - La musica cubana deve rallegrare la festa	85	41	62
Sc13 - L'aumento del prezzo dei bus deve scocciare molti utenti	176	4	8
Sc14 - Il colore di capelli di Sandro deve stupire Carla	133	16	39

(Continue on the next page)

Sentence	Assumption	Command	Both
E01 - Giulio deve agitare bene lo sciroppo	9	170	9
E02 - Maria deve porre delle condizioni precise	14	135	39
E03 - Il flessibile deve spezzare la catena della bicicletta	70	94	24
E04 - L'aumento delle tasse del 2017 deve azzerare le differenze sociali	56	79	53
E05 - Sandro deve sciogliere del burro	12	154	22
E06 - Maria deve diventare una dottoressa	44	79	65
E07 - Giulio deve guadagnare il suo primo stipendio	26	113	49
E08 - Carla deve vendicare la morte di suo fratello	36	107	45
E09 - La cerimonia di apertura deve intrattenere gli spettatori coreani	32	107	49
E10 - Giulio deve lavorare alla sua tesi	12	121	55
E11 - Carla deve affittare la sua casa in campagna per un mese	36	101	51
E12 - Maria deve pesare il prosciutto	3	160	25
E13 - L'azienda deve importare 8 container di pezzi di ricambio	11	158	19
E14 - Sandro deve sostituire la sua vecchia automobile	36	86	66
E15 - Maria deve votare il nuovo delegato sindacale	11	157	20
E16 - Carla deve riferire la notizia a Giulio	4	152	32
E17 - Giulio deve rubare mille euro dalla cassaforte di suo papà	28	129	31
E18 - La procedura disciplinare deve declassare Sandro	24	124	40
E19 - La medicina deve guarire Sandro	73	73	42
E20 - La manovra finanziaria deve azzerare il debito pubblico	47	92	49
E21 - La disinfestazione deve eliminare metà delle zanzare	42	98	48
E22 - La legge deve abolire la schiavitù	10	139	39
E23 - Il riscaldamento autonomo deve rimpiazzare quello centralizzato	18	138	32
E24 - La ristrutturazione deve allontanare i due muri portanti	17	152	19
E25 - Il dibattito televisivo di stasera deve contrapporre gli avversari	50	87	51
E26 - La nuova giunta comunale deve distruggere il vecchio centro commerciale	23	125	40
E27 - Sandro deve avvelenare tutti i topi che abitano nel suo granaio	21	128	39
E28 - La fiala di antidoto per il veleno deve risvegliare Giulio	91	57	40

Table 6.4: Experimental items (Interpretation under modal ITA).

References Sn01 to Sn14 point to stative non-causative verbs, Sc01 to Sc14 point to stative causatives, E01 to E28 point to eventive verbs.

Sentences from Sn01 to Sc14 receive a predominant “assumption” interpretation, confirming an epistemic reading and consequently the stative nature of predicates involved. No differences are registered among different conditions (subjects’ (in)animacy and causality). I conclude that they do not play a role in the distinction between epistemic vs. deontic interpretation.

Sentences from E01 to E28 show the prevalent “command” answer, confirming their deontic interpretation and thus the eventiveness of predicates involved. It is worth noting that some of the (presumed) eventive sentences receive less sharp results (such as E03). I argue that these sentences were easily interpreted as habituals, making them statives. This properly allows a higher rate of “assumption” answers.

Results of this task show that the interpretation received by verbs under modal *dovere*, ‘must’, is a good diagnostics for stativity, independently of the animacy of the subject and causal semantics of the verb.

6.3.2 Future/Present constraint

Different interpretations of modal are linked to issues of temporal nature (Katz 2003: 6) which are in turn conditioned by the eventuality of the predicate.

Imagine two sentences headed by *you must*, whose complements are respectively a stative and an eventive predicate; the eventive one requires the eventuality to be realized in the future in order to make the sentence true; the stative one requires the statement to be realized in the present in order to make the sentence true.

Note that the temporal interpretation of the complement in [a stative sentence] is present-like, while in [an eventive sentence] is future-like. [The stative one] means that given what we know now it follows that you love Lin now, while [the eventive one] means that to be in line with requirements you need to kiss Lin sometime in the future (Katz 2003: 6).

The type of eventuality expressed by the lexical verb determines the temporal orientation of the sentence (Condoravdi 2002: 69).

Different orientations of modals depend on the “*temporal relation for locating eventualities to the reference time*” (Condoravdi 2002: 70)⁴.

⁴Whether modals and conditionals follow the same temporal constraints is matter of debate, refer to Copley (2008, 2014).

Condoravdi assumes that the AT relation (translation of temporal operators) varies in its interpretation depending on the eventuality involved. This can be represented by the following equation (Condoravdi 2002: 19).

$$(6.1) \quad AT(t, w, P) = \begin{cases} \exists e[P(w)(e) \ \& \ \tau(e, w) \subseteq t] & \text{if } P \text{ is eventive} \\ \exists e[P(w)(e) \ \& \ \tau(e, w) \circ t] & \text{if } P \text{ is stative} \\ P(w)(t) & \text{if } P \text{ is temporal} \end{cases}$$

The property P is instantiated in world (w) at time (t) in a way that depends on the type of eventuality. If the eventuality is a state, P is a property of states and there is temporal overlap; if the eventuality is eventive, P is a property of events, and there is time inclusion; if P is a property of times, the property P holds at t in w .

Accordingly, there is temporal overlap when some part of an eventuality overlaps with the time of utterance, and temporal inclusion when the starting point is included in the segment of time identified by the time of utterance. In other words, temporal overlap is obtained when the state started at some point in the past, before the time of utterance. Temporal inclusion is obtained when the event starts at some point included in the time of utterance and finishes some time after (Condoravdi 2002: 73).

Modals expand the local time of evaluation, in the absence of contextual evidence: modals for the present with statives determine that the temporal trace of state includes time of utterance (*ibidem*), since they involve temporal overlap, as exemplified in (343) and (344), where temporal adverbials specify the temporal interpretation of sentences⁵.

(343) He might be here (now).

(344) He might run (now).

This same temporal constraint applies in other contexts, such as the present (simple) tense, both in Italian and in English.

The following examples show that present tense sentences (without a habitual interpretation) generate a different temporal constraint depending on the eventuality of the verb.

(345) Daria odia questo caffè adesso/*domani.

*Daria hates this coffee now/*tomorrow.*

⁵It is worth noting that this can be due to controllability of the eventuality by the subject (Copley, p.c.). Thus, if an event is uncontrollable, it results in agrammaticality for statives too, as in *Daria gets sick *tomorrow*.

- (346) Daria va a casa adesso/domani.
Daria goes home now/tomorrow.
- (347) Mary likes this cup of coffee in this very moment/*tomorrow.
- (348) Mary plays the third game *in this very moment/tomorrow.

Notice that Italian and English eventive examples differ because Italian allows a progressive reading with the present tense, while English does not, making hence impossible to use the temporal adverbial *in this very moment*, but this is a language-specific property of Italian tense.

Stative and eventive verbs present different temporal constraints under modals and with present tense. This difference can be employed for the determination of the eventuality of ambiguous verbs.

6.3.3 Contribution in narrative discourse

In this section we study the impossibility of moving forward the narration time in a narrative discourse that involves stative verbs.

Stative verbs cannot influence the narrative chain, i.e. they do not contribute to its temporal progress (Dry 1983; Katz 2003), contrary to eventive verbs which trigger a narrative advancement.

If we look at examples below, we see that, in (349) each verb describes an action which takes place after the previous one. On the other hand, in (350), eventualities take place at the same time.

- (349) Mary arrived. Her daughter sat down on the couch and her dog felt asleep.
- (350) Mary arrived. Her daughter was sitting down and her dog was sleeping.

In (349), there is a narrative chain starting with Mary arriving home, her daughter sitting on the couch and then the dog felt asleep.

When the order of verbs in (349) and (350) is scrambled, the contribution of eventive verbs versus stative verbs appears more clearly. In the previous case the order of episodes in narration changes (351), in the latter no changes are involved (352).

- (351) Mary arrived. Her dog felt asleep and her daughter sat down on the couch.
- (352) Mary arrived. Her dog was sleeping and her daughter was sitting on the couch.

We will use this test in chapter 7, on Italian deadjectival verbs, and we will see that it is particularly useful to identify stativity for verbs which present ambiguous readings.

The non-temporal contribution to a narration chain seems to be linked to general temporal properties of stative verbs. The same fashion as general present orientation with present tense and the epistemic interpretation under modal verbs.

I conclude that these three tests are reliable and (probably) cross-linguistically valid because they are based on general and fundamental properties of stative verbs.

6.4 Experiments involving involuntarily responses

This section reports results of a self-paced reading test conducted on English native speakers by Gennari & Poeppel (2003), hence GP (2003).

It shows that stative verbs are processed differently from eventive verbs and consequently the test could be used as stativity diagnostics. However, we show its shortcomings in case of ambiguous verbs, where the process of disambiguation could influence experimental results. Usually a verb with more than one meaning is processed slower since the cognitive cost of interpretation is higher.

Processing verb meaning is influenced by lexical semantics of verbs, as showed by different studies (Brennan & Pytkkanen 2010; *inter alia*). Thematic and argument structures have processing correlates which are linked to the type of event the verb is expressing. Furthermore, eventuality of predicates is connected to lexical semantic complexity. Several studies have provided processing evidence, which show that lexical semantic properties, such as thematic roles and argument structure, are quickly accessed by the processor when the verb is recognized (GP 2003: B27).

GP (2003) conduct an experiment which aims at investigating whether causal structure of a verb has processing correlates. They base their study on Dowty (1979)'s and Jackendoff's (1990, 1991) lexical semantics: a state is a single event, while events involve two different sub-events:

(353) love \rightarrow x love y

(354) break \rightarrow x CAUSE(BECOME y be broken)

(355) carry \rightarrow x's ACT(CAUSE(BECOME y be displaced))

They use an event-decomposition approach in order to show that the causal part of eventive verbs determines a slower reading for eventive predicates than of stative predicates which do not possess it.

[...] the agent in a breaking event is the initiator of a causal chain affecting the patient. This sort of information is required to semantically distinguish verbs such as *love* and *discover*, which are both associated with the <experiencer, theme> thematic structure. The critical property distinguishing these verbs is whether they denote a change of states (GP 2003: B28).

GP (2003) conduct two experiments: a self-paced reading task and a visual decision task in order to avoid the possibility that significant results are due to the processing of previous information on the verb.

Stimuli of the first task were composed of eventive (of all three Vendlerian classes concerned) and stative verbs. Verbs were checked for frequency, length, argument structure, frequency syntactic frames and plausibility. Pairs of sentences were alike in the critical segment, except for the verb.

- (356) The retired musician **built** his second house from scratch. (event, GP: B30, ex.1)
- (357) The retired musician **loved** his second child very much. (state, GP: B30, ex.1)

Results are statistically significant, as reported in figure 6.1 (page 134).

This test is interesting in itself, however the conclusions are much more so. The authors take a depart from the psycholinguistic tradition that considers correlates between verb type and reaction times due to questions of thematic roles and participant slots. They conclude that “*processing of event structure properties are activated during processing, and that these properties subsume those of thematic roles and argument structure*” (*Ibid.*: 34). In fact, correlates are different between eventives and statives that have the same number of participants and the same argument realization.

Does the semantic complexity assumed by lexical semantics have some empirical correlates? They resort to one first experiment of self paced reading task. The pool of experimental items was composed of sentences-pairs of stative-eventive, differing for the verb and when necessary for the internal complements, checked both for word-frequency and for plausibility.

They discover that stative verbs are read 27 ms faster than eventive verbs, as reported by GP (2003: 31): “[*r*]epeated measure ANOVAs comparing reading times at the verb position revealed a significant word type effect ($F(1,29)$)

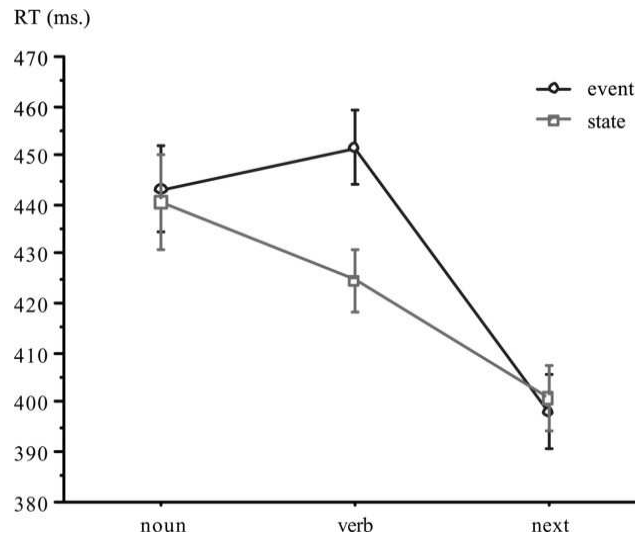


Figure 6.1: Gennari and Poeppel (2003: fig. 1): verb reading times.

$= 10:66$, $P = 0.003$; $F2(1.43) = 8,9$, $P = 0.004$). *Eventive verbs took 27 ms longer to process than stative verbs*".

An open question concerns the universal validity of these processing correlates, since statives are not monolithic in nature. In particular, we should ask whether causative statives are processed in a significant different way than non-causative statives employed by GP's (2003) experiment. Results of Brennan & Pylkkänen's (2010) experiment, which analyses (among inchoative coercion contribution to processing correlates) the processing of psychological verbs, show that statives involve different processing costs depending on their category. By means of a self-paced reading task they analyse whether object-experiencer verbs are processed differently from subject-experiencer verbs. These two categories are argued to have different l-semantic complexities. Namely, object-experiencer verbs involve a causative component (Pylkkänen 2000). Results show that object-experiencer verbs require a higher processing cost and are treated slower than subject-experiencer verbs, confirming results of previous studies (Cupples 2010; Gennari & MacDonald 2009).

We now know that non-causative stative verbs (of the type taken into account by GP (2003)) present a difference in processing with respect to eventive verbs and that they present a difference in processing with respect to causative stative verb. A joining link is lacking, namely the one which links eventuality and causation. Is it possible to isolate a gradient in l-semantic complexity (i.e. non-causative stative < causative stative < eventive < causal

eventive)? Some l-semantic components derive a higher processing cost than others (i.e. eventivity more than causativity)?

These questions will not find an answer in this dissertation, but hopefully they will be addressed in future research.

6.5 Conclusions

In this chapter we explored different stativity diagnostics reported in the literature for both English and Italian. In particular, we saw that some of them discriminate for epiphenomena which often (but not always) arise in conjunction with stativity.

In particular, diagnostics of stative verbs which involve ill-formedness in imperative and progressive configurations appear to be unreliable, or at least not cross-linguistically exportable.

Diagnostics which seem to work better involve different semantic interpretations conditioned by the eventuality of the predicate in certain contexts. These contexts are, for example, the interpretation under modals and the future or present constraints. Higher trust-worthiness of semantic diagnostics is due to the use of core features of stativity, rather than the properties of a specific syntactic structure, which is not always cross-linguistically valid.

We saw that behavioral tests show some convincing evidence in favor of the different treatment of statives and eventives.

Chapter 7

Deadjectival parasynthetic verbs

7.1 Introduction

Any attempt to define the structural element responsible for stative-eventive readings of predicates is a challenging task. In this respect, verbs which give rise to two readings are particularly interesting for underlining the structural specificity that is fundamental in triggering this ambiguity.

In this chapter, I will analyze a class of deadjectival prefixed verbs with causative semantics which entail two readings; they are made explicit by the semantic content of the subject¹.

(358) Giovanni abbellisce la stanza.
John makes-beautiful the room.

(359) Le fotografie abbelliscono la stanza.
Pictures make-beautiful the room.

These verbs are interesting for two particular issues. First, they alternate between a stative reading and an eventive reading, this alternation seems to correlate with the subject role: when the subject is animate (Causer), the verb is eventive², when the subject is inanimate (Source), the verb can be either eventive or stative. Second, both stative and eventive readings appear to be causative (section 7.7). Although eventive causation is not problematic, since it has been treated at length in the literature, stative causation has not received much attention, and it raises some theoretical problems.

To understand these verbs, we will have to prove that they involve two readings, one stative and one eventive, which are both causal. Additionally,

¹Not by (in)animacy alone, as we will see in sections 7.5 and 7.6 .

²If the subject is not read as an inanimate, i.e. *John is making the room beautiful with his smile*, equal *The smile of John is making the room beautiful*.

we will have to account for the causal nature of stative verbs.

In section 7.6, I will show by means of semantic and syntactic tests that verbs under study receive two distinct interpretations – stative and eventive –. As we will see, deadjectival parasyntetic verbs behave differently with respect to a number of phenomena, including epistemic interpretation under *dovere*, ‘must’ (Giorgi & Pianesi 1997), interpretation under *già*, ‘already’ (Mittwoch 2014), contribution in a narrative chain (Dry 1983; Katz 2003) and treatment of adjuncts.

In section 7.7, I demonstrate that the stative reading, as well as the eventive reading, is causal (Fabregas & Marìn 2014; Martin & Tovenà 2012).

I will argue that the (in)animacy of the subject alone is not sufficient to discriminate between the two eventualities, and that the relationship of the subject with the property lexicalized by the verbal base plays an important role.

Section 7.3 is dedicated to the description of morphological components of the class of verbs in question.

Section 7.8.1 describes force-dynamic approach to causation (Talmy 1985a, 1985b, 1988; Croft 1998, 2012; Copley & Harley 2015; Copley & Wolff 2014b; *inter al.*) and develops it in order to account for stative causative deadjectival parasyntetic verbs (hence DPVs). Section 7.9 proposes l-syntax of causative-eventive DPVs, causative-stative DPVs and regular statives.

Section 7.11 focuses on a pragmatic parameter related to specific types of adjectives (or in our case of roots). This parameter is called personal judge parameter (Laherson 2005; Stephenson 2007) and shows that it can be applied differently in relation to type of causation involved by the verb.

7.2 Stativity-Eventivity puzzle

When we talk about the stative-eventive alternation, we refer to different types of meaning shift.

In fact, some lexical statives can be forced to have an eventive reading in certain syntactic environments. This happens, for example, when lexical statives occur in the progressive in English.

(360) Daria is having one of her backaches.

(361) I’m loving it.

On the other hand, verbs which are usually categorized as eventive can be interpreted as stative predicates when they select non-quantized objects, involving a meaning shift.

(362) Daria runs marathons. (Derived states)

(363) Daria breaks windows.

A third case consists in a lexical ambiguity of some verbs which is not triggered by syntactic environments. It is the case of verbs such as *surround* and *embellish* that, all syntactic elements being constant, generate two eventualities.

(364) a. Daria surrounds this castle, with her army.

b. Trees surround this castle.

(365) a. Daria embellishes this table by means of those flowers.

b. Flowers embellish this table with their colors.

In this chapter, we are interested in the last type of alternation because, contrary to the other two, is not determined by external syntactic means (such as tense). Rather, it is determined by elements which are internal to the lexical structure of the verb itself (l-syntax or l-semantics or conceptual module).

Contrary to what has been stated or left implicit (Rappaport Hovav & Levin 1998; Harley 1995; Ramchand 1998) stative verbs are neither a homogeneous group nor aspectually simplex (Pylkkänen 2000; Rothmayr 2006). Consequently different structures could be associated to the more general label of stativity.

In the next section, I will describe a group of Italian verbs which systematically participate in the eventive-stative alternation.

7.3 Deadjectival Parasynthetics

I identified a homogeneous group of Italian verbs which share morphological composition and syntactic-semantic behavior. These are Italian parasynthetic verbs formed from adjectives³ (Iacobini 2004).

I am not interested in the whole class of deadjectival parasynthetic verbs. I only examine those verbs whose paraphrases correspond to “make the object A, make the object more A”, where A corresponds to the base adjective.

Following these morphological and semantic parameters, I identified 221 verbs (hence DPV), among them: *accecare* (‘to blind’), *addolcire* (‘to sweeten’),

³I do not commit myself at the moment on the adjectival or root nature of the base. It’s for exposition convenience that, until differently specified, I will call the base element “adjective”.

‘to alleviate’), *irrigidire* (‘to stiffen’), *sgrezzare* (‘to make rough’). The full list is reported in appendix.

The base adjective remains accessible in the verb semantics, as explicitly reported in 7.1 (page 140).

bello ‘beautiful’	>	a-bell-ire ‘make (more) beautiful’
brutto ‘ugly’	>	im-brutt-ire ‘make (more) ugly’
giallo ‘yellow’	>	in-giall-ire ‘make (more) yellow’
bianco ‘white’	>	im-bianc-are ‘make (more) white with an addition of white color’
	>	s-bianc-are ‘make (more) white with a loss of another color’
nero ‘black’	>	a-nner-ire ‘make (more) black’
grande ‘big’	>	in-grand-ire ‘make (more) big’
stupido ‘stupid’	>	in-stupid-ire ‘make (more) stupid’

Table 7.1: Morphological constituents of DPVs.

The next section discusses the three morphological components of DPVs.

7.3.1 Morphological components of DPVs

In this section, I will focus on two recognizable morphological components of DPVs: the base adjective and the prefix. I will provide only the formal description and statistics about their distributions, leaving aside for the moment the discussion about the syntactic and semantic contribution of each part to the whole predicate.

For controversies about the nature of parasynthesis, refer to Chapter 3.

7.3.1.1 Base adjective or base root?

This subsection shows that the base element is a root and not an adjective. We will see that the degree of the resultant state, achieved by the affected object, is left unspecified.

If the base were a categorized adjective, we should expect it to contribute its scale, open or close, in the derivation. Since the scale gradient of the resultant stat is not determined, I argue that the base is not a categorized adjective.

Several syntactic-semantic tools exist in order to test whether the base is a root or an adjective, namely: modification, agreement and scale.

When the base element is an adjective, for the fact of having been narrowed down, it is characterized by a precise scale; where scale is defined as

“a pair $\langle S, \preceq \delta \rangle$ consisting of a set of objects and an asymmetric ordering relation along some dimension δ ” (Kennedy and McNally 2002: 8).

Gradable⁴ adjectives are divided in two groups depending on the presence or absence of a limit point of their scalar structure (Kennedy and McNally 2002: 9): open scale and closed scale⁵.

As Kennedy and McNally (2002) point out, adjectives show different behavior when they are modified by degree adverbs, such as *completely* or *partially*. Open scale adjectives do not occur with such modifiers (366), while closed scale adjectives do (366), since they present a terminal end-point to which the adverb refers.

(366) a. ?completely tall/short/...

b. ?partially tall/short/...

(367) a. completely full/ awake/...

b. partially full/awake/...

These adverbs, called *proportional modifiers* (Kennedy & McNally 2002: 10), require adjectives that map to scales with defined end-points or starting-points. Intuitively, an adjective scale that does not possess a maximal or minimal end-point cannot be modified by an adverb that works as identifier of this maximal or minimal end-point.

Applying this test to base adjectives of deadjectival parasynthetics, we see that they fall in both classes open scale and closed scale adjectives, as graph 7.1 (page 142) shows.

(368) ?? completamente freddo/muto/pesante/bianco
completely cold/dumb/heavy/white

(369) ?? parzialmente ricco/ruvido/vicino/nero
partially rich/coarse/near/black

(370) completamente fradicio/sordo/mollo
completely soaked/deaf/weak

The scale type does not correlate to the prefix, since prefixes distribute similarly among the two scale types (table 7.2, page 142).

Adjectives *bianco*, ‘white’, and *nero*, ‘black’, can be modified by degree adverbs only if they are implicitly referring to an extension of surface. In this case, *completamente* is better translated as the English adverb *entirely*, rather than *completely*, making evident the idea of a surface being modified.

⁴A gradable adjective is a predicate that “takes an object and returns a measure of degree to which the object possesses some gradable property” (Hay *et al.* 2002).

⁵I keep aside the distinction among upper bounded and lower bounded scales.

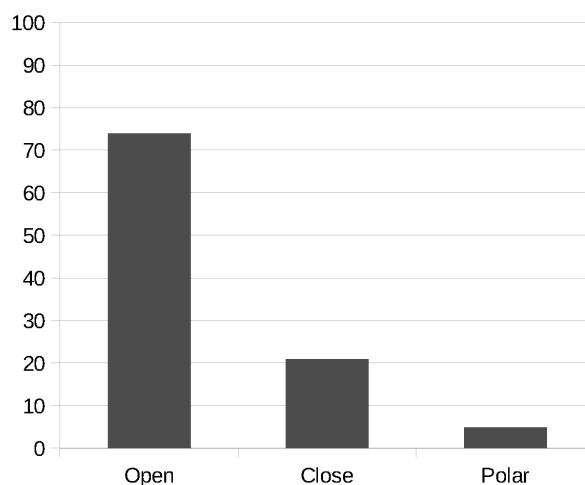


Figure 7.1: Distribution of adjectives scale (deadjectival parasynthetics).

Prefix	open-scale (%)	closed-scale (%)
<i>a-</i>	71,19	18,64
<i>in-</i>	75,70	22,43
<i>s-</i>	85,71	14,29

Table 7.2: Distribution of prefixes among adjective-base classes (DPVs).

(371) La casa era completamente nera.

The house was entirely black.

(372) *Il pacco era completamente pesante.

The package was completely heavy.

On the other hand, if we apply the same test to deadjectival parasynthetics, we can see that results are not sharp. Compare the DPVs in examples from (373) to (376) to the corresponding adjectives from (368) to (370).

(373) Il ghiaccio ha completamente infreddolito i bambini.

The ice has completely got the children cold.

(374) La pioggia ha infradiciato pazialmente i panni stesi.

The rain has drenched partially the laundry.

(375) Il sole ha completamente arrostito Giovanni.

The sun has completely roasted John.

- (376) La vincita al Lotto ha parzialmente arricchito Maria.
The lottery win has partially enriched Mary.

In examples above, we see that no significant difference is present between verbs constructed on open or closed scale “adjectives”. For example, in (373), the verb *infreddolire* is supposed to be built on the adjective *freddo*, ‘cold’ (368) which is an open scale adjective; in (374), the verb *infradiciare* is supposed to be built on the adjective *fradicio*, ‘soaked’ (370) which is a closed scale adjective.

If DPVs were derived from categorized adjectives, we would expect some differences between those derived from open or closed scale adjectives.

There are two logical possibilities to account for it: (i) adjectival scale is not available to adverbial modification; (ii) the base is a root, consequently lacking scale.

In order to affirm that the base is a root, two diagnostics can be employed: agreement and modification. The first one is not fully available in case of Italian deadjectival verbs since the final agreement morpheme in adjectives is systematically severed in verbs.

- (377) rosso - rossa - rossi - rosse - arross-ire
 red-M.SG. - red-F.SG. - red-M.PL. - red-F.PL.
- (378) bello - bella - belli -
 beautiful-M.SG. - beautiful-F.SG. - beautiful-M.PL. -
 belle - abbell-ire
 beautiful-F.PL.

Regarding the second test, we know that roots, even though they can project their own phrase (Harley 2005; Levinson 2010), cannot be modified by morphemes reserved to specific grammatical category.

Deadjectival parasynthetics are all built on non-derived bases (Iacobini 2004), this means that we cannot find verbs containing superlative adjectives.

- (379) bello - bellissimo - *abbellissimare
beautiful - very beautiful - making very beautiful
- (380) grande - grandissimo - *ingrandissimire
big - very big - making very big

In addition to syntactic clues, roots are cognitive objects which become linguistic objects when narrowed down in the syntax.

If we analyze languages that have a much more clear definition of root (such as Semitic languages), different meanings can be attributed to the same

consonant combination in different morphological paradigms. For example, in Hebrew, the same root can create a set of words which share only a sort of core meaning (Arad 2003). This indicates that the root, as cognitive object, possesses a non-narrowed core meaning which is further specified when it becomes a linguistic object, i.e., a word.

(381) root: $\sqrt{\text{btx}}$

- a. CaCaC *batax* ‘trust’ (Arad 2003: 742 ex.5)
- b. CiCCeC *biteax* ‘insure’
- c. hiCCiC *hivtiax* ‘promise’

We will see in further sections that the division of DPVs in two different classes (verbs of surface and verbs of form) is supported by the assumption that the base is a root. In fact, since roots are not syntactic objects, but are purely conceptual elements, the distinction made further relies on conceptual rather than linguistic facts.

To summarize, the resultant state of the affected object is not defined, it could be “completely A” or “more A” because the predicate is not narrowed by a categorizer; for this reason I argue that deadjectival parasynthetics are root-derived, $\sqrt{\text{ }}$ instead of Adj.

I assume that roots that feed deadjectival parasynthetics generally form adjectives, this is why they can often be confused.

7.3.1.2 The prefix

The other morphological building block of deadjectival parasynthetics is the prefix. In this sub-section, I will report statistical analyses about the distribution of the three possible prefixes (*a*, *in/rin-*, *s*).

Within the analyzed 221 DPVs, prefixes distribute with percentage reported in table 7.3 (page 144), and confirm statistics reported in Iacobini (1999).

Prefix	%
<i>a</i>	28,37
<i>in</i>	61,54
<i>s</i>	10,10

Table 7.3: Percentages of prefix distribution (DPVs).

There are some pairs of verbs which are formed from the same root by means of two different prefixes. The change of prefix does not cause any difference in reading, as for *abbellire/imbellire* ('make beautiful') and the other examples below. Very rarely it affects the meaning, such as for *imbiancare-sbiancare*, where prefix *s-* triggers a process of making white by means of losing color (as in *bleach*), while prefix *im* a process of making white by means of putting color. As mentioned in chapter 3, this can be due to the fact that prefix *s-* is interpreted as a privative *s-*.

- (382)
- a. *abbellire* - *imbellire*
make beautiful
 - b. *addolcire* - *indolcire*
sweeten
 - c. *aggentilire* - *ingentilire*
make gentle
 - d. *ammiserire* - *immiserire*
make miserable/poor
 - e. *arruvidire* - *irruvidire*
make rough
 - f. *asserenare* - *rasserenare*
calm
 - g. *infreddare* - *raffreddare*
cool
 - h. *sbassare* - *abbassare*
shorten/lower
 - i. *sbiancare* - *imbiancare*
whiten

The fact that prefixes do not trigger semantic differences tends to support the idea that they are vestiges of former Latin prepositions/prefixes, which have gradually lost their semantic specific traits. However, the lack of distributional differences does not lead to the lack of contribution to verbal semantics. They contribute in making the verb causative, since they are head of the relation projection *r*.

It remains unexplained why parasynthesis is being replaced by suffixes like *-izzare/-ificare* suffixes which are replacing parasynthesis as productive derivational mechanism in modern Italian (Iacobini 2004). Probably suffixes *izzare/ificare* have been preferred under the impulse of French in XVIII and

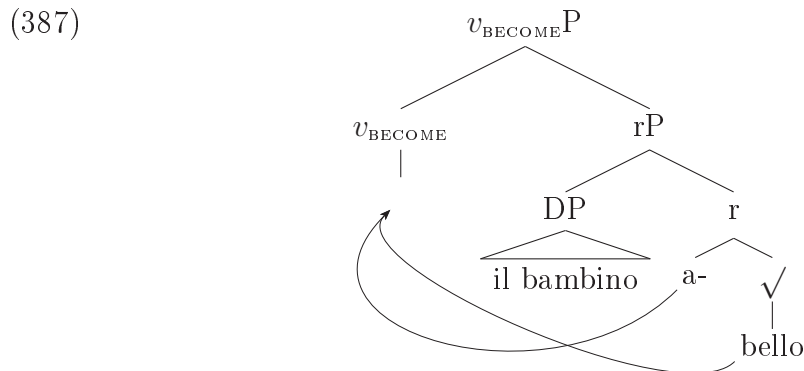
XIX Centuries and they are more adaptable since they can be attached to derived adjectives.

Productivity of parasynthesis is decreasing in contemporary Italian (Iacobini 2004) in favor of a derivative process involving the suffix *-izzare*. The following examples are from *treccani.it* that records neologisms used in web versions of Italian newspapers.

- (383) lombardo - lombardizzare
Lombard - to make Lombard
- (384) virtuale - virtualizzare
virtual - to virtualize
- (385) illombardire (expected)
to make Lombard
- (386) invirtualire (expected)
to virtualize

The derivational suffix *-izzare* is clearly causative, this means that it is responsible for: (i) the change in category of the base; (ii) the introduction of a rP which determines the causative meaning. Examples (385) and (386), which are not attested but plausible and expected forms, represent the parasynthetic counterparts of examples (383) and (384). In the case of parasynthetic verbs, there are two derivational elements: a prefix and a suffix. We can imagine that the verbal suffix is responsible for the change in category of the base. On the other hand, I assume that the prefix is responsible for projecting a relational projection (rP), which is responsible for the causative meaning.

The lower part of l-syntax for *abbellire*, ‘to make (more) beautiful’ is given in (387).



I am aware that some issues about the mirror principle arise (Acedo-Matellan 2006: 12). This seems to be an issue for all theories of parasynthesis.

7.3.2 Different types of external arguments roles

In section 2.7, we saw that the eventuality of the lexical verb and the eventuality of the functional head introducing the external argument must accord in order to get a well-formed EI: dynamic eventualities are connected with Agents and Causers and stative eventualities with Holders (Kratzer 1996: 123). We will see another external role for stative verbs when they involve causative semantics.

In this sub-section, I will report a syntactic approach to the distinction between Agents and Causers in eventive predicates. This will be further developed to explain DPV behavior in case of stative reading. For this reason I will leave aside theories of underspecification of external argument roles (Ramchand 2008)⁶.

Theories that place the external roles distinction within syntax consider that Agent/Causer distinction is not only a conceptual distinction, but it is represented in linguistic structure as different semantic characterizations of *Voice*. In the last years new evidence in favor of a distinction between the verbalizing *little v* and the introducer of external argument *Voice* has been provided (Pylkkänen 2002; Alexiadou, Anagnostopoulou and Schäfer 2006; Harley 2014).

External arguments of dynamic predicates can hold two different semantic roles: Agent and Causer⁷. Two kinds of *v* heads (v_{DO} and v_{CAUSE}) are assumed by Folli & Harley (2005), who do not separate *v* from *Voice*. v_{DO} is responsible for the licensing of Agents, while v_{CAUSE} for (inanimate) Causers. These two flavors are related to the presence of resultative semantics (Schäfer 2008).

- (388) Giovanni spazza il pavimento.
John sweeps the floor.
- (389) *Il fiume spazza l'argine.
 **The river sweeps the dam.*
- (390) Il fiume spazza via l'argine.
The river sweeps the dam away.

While v_{CAUSE} is associated with resultative semantics, pointed out in examples above by the particle *via* ('away'), v_{DO} occurs when causative semantics

⁶In order to establish the right event decomposition, Ramchand defines primitives responsible for the identification of participants in events/sub-events. One of those consists in causation. Causation is reflected in the argument domain with *initiator* role, which denotes an individual *whose properties/behavior are responsible for the eventuality to coming into existence* (Ramchand 2008: 24).

⁷Refer to Alexiadou & Schäfer (2007) for the assimilation of Instruments to one or the other role.

is absent.

From a semantic perspective, Causers and Agents are distinguished by their teleological capability (Higginbotham 1997), which is the “*possibility [of the subject] of generating an event on [its] own, from start to finish*” (Folli & Harley 2005: 200).

In this work, I will put forth some pieces of evidence which will diversify semantic roles of external arguments of stative predicates. As for eventive verbs, I will assume that also for stative verbs, two types of external arguments are necessary and each type (Holder/Source) is determined by the presence or absence of a resultative part.

7.4 Are inanimate subjects accessible in DPVs?

We presented DPVs as verbs that can accept both animate and inanimate subjects. It is worth verifying whether Italian speakers allow both types of subjects with these verbs.

This section reports design and results of a lexical filling test conducted on 55 Italian native speakers and confirms the hypothesis that animate and inanimate subjects are equally accessible for DPVs.

The experiment contains three parts: (i) socio-linguistic questionnaire; (ii) instructions and example; (ii) linguistic task.

The experiment was administered via IbexFarm. Part (i) and (ii) are each presented in a single screen-shot; the linguistic part is composed of one screen-shot per sentence. Socio-linguistic questionnaire asks for gender, age, education and origin of participants. Instructions and example part explain the exact task and make the linguistic register of reference explicit: middle controlled. In the linguistic part, participants are asked to choose between an animate or inanimate subject for 40 sentences.

Experimental items consist of 20 sentences built on DPVs; fillers are 20 morphologically derived verbs. In order to avoid automatic responses, fillers are equally divided between pronominal verbs and transitive verbs. 7 out of 10 pronominals require an inanimate subject. Experimental items and fillers are presented in random order, produced by IbexFarm’s internal algorithm.

An example of the task is reported in the following example.

- (391) _____ hanno abbellito la stanza.
have made the room beautiful.
 Marco e Giulia
Marc and Julie
 I quadri
Paintings

Participants are explicitly told to choose one or both subjects, depending on their own opinion. Consequently, possible answers are: (i) animate and inanimate (henceforth, ANIN); (ii) animate (henceforth, AN); (iii) inanimate (henceforth, IN).

55 Italian native speakers of different regional varieties are tested.

Table 7.4 (page 149) reports the distribution of subjects along sociological features of sex, age, education and origin. Speakers are equally distributed for age, sex and education, they are not equally distributed along regional variety, a prevalence of Northern variety is registered.

Sex		Age		Education		Origin	
M	22	18-26	9	College	10	North	46
F	33	26-32	35	Graduate	39	Center	3
		33-40	6	PhD	6	South	6
		41-60	3				
		60+	2				

Table 7.4: Participant sociological features (Lexical filling).

Results show that both animate and inanimate subjects are accessible, even though different rates are observed, depending on specific sentence.

The minimum rate of ANIN answer is 18% (sentences 7 and 18, *irruvidire*, ‘coarsen’, and *rimbecillire*, ‘become stupid’), and maximal is 61% (sentence 6, *rallegrare*, ‘cheer up’), with a global mean of 40,44%, as reported in figure 7.2 (page 150).

It is worth noting that IN option, after INAN option, is the most chosen. This fact is counter-intuitive, but it can be explained for pragmatic reasons: inanimate subjects are highly lexically plausible with each verb. This fact must have facilitated the choice of the reading with inanimate subjects. Furthermore, some speakers have the tendency to choose only one possibility. This can be ascribed to three different causes:

- A. Informant considers only one answer correct (wished possibility).
- B. Informant is not able to pass quickly from one reading to another, then he/she marks only the most preponderant.
- C. Informant does not understand the methodology and marks only the first answer he/she reads.

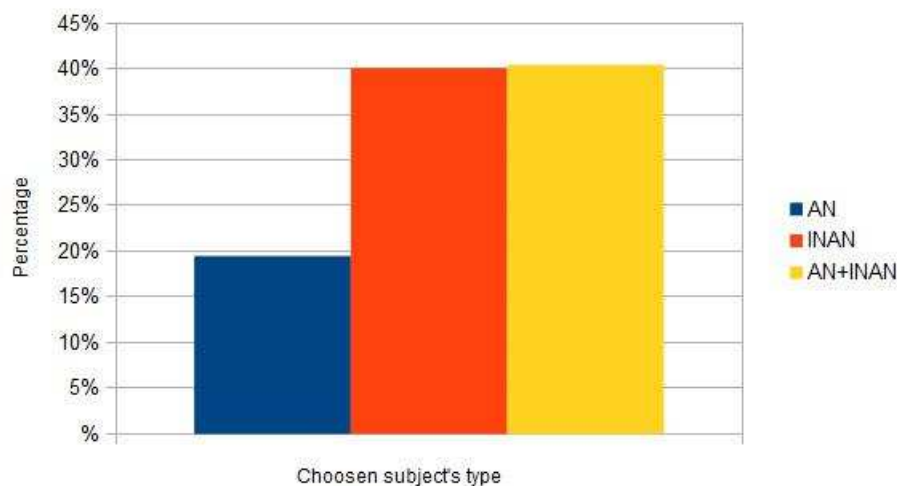


Figure 7.2: Answer means (Lexical filling).

Possibility C should be discarded because of results obtained in sentences: 3, 7, 11, 13, 17, 19, where inanimate subject has been chosen foremost even if presented later; and sentences 12, 18, where animate subject has been chosen foremost even if presented as second choice.

This test eliminates a plausible prediction about a peripheral use of inanimate subjects for DPVs. The fact that inanimate subjects are sometimes preferred to animate subject depends on the prototypicality of lexical subjects (for effect of frequency and prototypicality: Gordon, Hendrick and Johnson (2004), Doyle and Levy (2008), *among others*).

To summarize, DPVs are equally productive with animate and inanimate subjects.

7.5 Classification of DPVs

This section analyses a classification of DPVs based on the semantics of the base root which determines whether the same lexical entry can be associated with two eventuality structures, stative or eventive. We will see that the property described by the base root is fundamental, along with the (in)animacy of the subject, in order to identify the eventuality of the predicate. DPVs divide into three groups, depending on the semantics of the base: form; surface; psychological.

The first group consists of DPVs based on root of form⁸, such as *a-llarg-are*, ‘broaden, widen’, *a-ppiatt-ire*, ‘flatten’, and *rim-picciol-ire*, ‘make smaller’.

- (392) a. Giovanni ha allargato il muro.
G. widened the wall.
- b. L’umidità ha allargato il muro.
Humidity widened the wall.
- (393) a. Giovanni ha appiattito il cuscino.
G. flattened the pillow.
- b. I collant hanno appiattito il sedere di Giovanna.
Stockings flattened Jeanna’s behind.
- (394) a. Il sergente ha rimpicciolito il plotone.
The sergeant made the squad smaller.
- b. Lo stucco ha rimpicciolito il buco.
The stucco made the hole smaller.

The second group consists of DPVs based on roots of surface⁹, such as *im-bianc-are*, ‘whiten, whitewash’, *in-sozz-are*, ‘dirty, tarnish’, and *a-nner-ire*, ‘blacken’.

- (395) a. Il pittore ha imbiancato la tela.
The painter whitened the canvas.
- b. La pittura ha imbiancato la tela.
The painting whitened the canvas.
- (396) a. Un delinquente ha insozzato la porta.
A delinquent made the door dirty.
- b. Il fango ha insozzato la porta.
the mud made the door dirty.
- (397) a. Maria ha annerito il soffitto.
Mary blackened the ceiling.
- b. Il fumo ha annerito il soffitto.
Smoke blackened the ceiling.

The third group is based on a psychological base, such as *in-stupid-ire*, ‘stun, daze’, *rimbecillire*, ‘make stupid’ and *in tristire*, ‘make sad’.

⁸This must be intended as a label.

⁹This must be intended as a label.

- (398) a. Il professore instupidisce i suoi studenti.
The professor stunned his students.
- b. La droga ha instupidito i ragazzi.
The drug stunned boys.
- (399) a. Il fratello ha rimbecillito la bambina.
The brother made the girl stupid.
- b. Il rumore ha rimbecillito i pazienti.
The noise made patients stupid.
- (400) a. Sandra ha intristito l'amica.
Sandra made her friend sad.
- b. Il decesso del nonno ha intristito i nipoti.
Granpa's passing made grandchildren sad.

In the first group, the change is physical since the base root denotes a core quality of an individual. In these verbs, the subject undergoes a change of one of its dimensions, of its inner properties.

On the other hand, verbs of surface involve a change that is external to the individual itself. For example, a wall does not see its inner properties changed if it is painted red: if it was 2 feet high it remains 2 feet high, if it was 1 inch deep, its depth remains unchanged. However, a wall does change its inner properties if it is widened. One can change the color of an object without even touching the object, but one cannot change the shape of an object without changing the object itself.

I will assume that the presence or the lack of a Δ (delta, i.e. a change) of inner properties contributes to the occurrence of two *aktionsarten*. If a physical change is produced, the verb can only have an eventive reading. If there is no physical change involving constitutive parts of the Theme, two readings are possible, which are clearly reflected by the (in)animacy of the subject. In section 7.8.2.1, I will analyse the nature of change and produce its definition.

We have seen that DPVs are divided into three groups (surface, form, psychological) and we will investigate the first two. We will leave for future research psychological predicates, since they constitute a peculiar and independent group which shows specific properties, as often shown in the literature (Belletti & Rizzi 1988; *inter al.*).

We will see in the next chapter that a systematic difference in eventuality is mostly produced when an inanimate subject appears as external argument of DPVs of surface, making the sentence stative. On the other hand, DPVs of form are interpreted as eventive independently on the (in)animacy of the subject.

7.6 Different eventualities in DPVs

This section reports evidence about the two possible readings of DPVs of surface, on the one hand, and the unique eventive reading for DPVs of form, on the other hand. We will resort to four tools: the epistemic interpretation under *dovere*, interpretation under *già* ‘already’, temporal narrative contribution and adjuncts (refer to chapter 6).

7.6.1 Interpretation of *dovere*

This subsection presents data useful to the identification of two eventualities expressed by DPVs of surface with modal *dovere*, ‘must’.

The *dovere* complex can generate two interpretations: deontic/obligational and epistemic.

The deontic/obligational reading concerns the future and expresses a command about an action that must be realized. The epistemic interpretation concerns a speculation about a present state of affairs. Interpretations are related to the eventuality of the predicate. Eventive predicates can receive only a deontic reading, while stative predicates can receive both.

7.6.1.1 Verbs of form

I have already shown that verbs of form do not generate a stative reading, since they involve a Δ in inner physical properties of the Theme.

In this subsection we will see that DPVs of form do not generate a stative reading in conjunction with *dovere*, neither with animate nor with inanimate subjects. I start by presenting evidence about future constraint of these verbs. In order to highlight it, I will resort to adverbial *entro domani*, ‘by tomorrow’.

- (401) a. Giovanni deve allargare il muro entro domani affinché il lavoro sia finito.
G. must widen the wall by tomorrow, in order to get the job finished.
- b. L’umidità deve allargare il muro entro domani affinché il lavoro sia finito.
Humidity must widen the wall by tomorrow, in order to get the job finished.
- (402) a. Giovanni deve appiattire il cuscino entro cinque minuti per andare a letto.
G. must flatten the pillow in five minutes in order to go to bed.

- b. I collant devono appiattire il sedere di Giovanna in un'ora affinché possa andare alla festa.
Stockings must flatten Jeanna's behind within one hour so that she can go to the party.
- (403) a. Il sergente deve rimpicciolire il plotone in tre giorni per partecipare all'esercitazione.
The sergeant must reduce the squad in three days in order to participate in the training.
- b. Lo stucco deve rimpicciolire il buco in un minuto affinché il lavoro sia finito.
The stucco must reduce the hole within one minute in order to get the job finished.

We saw that sentences involving DPVs of form entail a future constraint, independently of the (in)animacy of the subject. Both animate (Giovanni and the sergeant) and inanimate (humidity, stockings and stucco) give rise to actions which must take place in the future in order to get the statement true.

7.6.1.2 Verbs of surface

DPVs of surface give rise to two readings, which are made evident by the (in)animacy of the subjects¹⁰.

Accordingly, the modal verb *dovere* yields different interpretations. If the subject is animate a future constraint arises, if inanimate a present constraint.

¹⁰However, animate subjects can be interpreted as the correspondent inanimate subjects and serve as subject to a stative predicate when they are not Agents but Sources. Then in the next sections I will refer to animate subjects uniformly as Agents.

Animate subjects can generate a stative reading of DPVs of surface whenever they are read as inanimate.

- (1) Daria abbellisce la foto.
Daria embellishes the pictures.
- a. Daria makes the picture beautiful by painting it.
- b. Daria makes the pictures beautiful by her presence on it.

Inanimate subjects can generate a stative reading of DPVs of form whenever there is no physical change in the Theme.

- (2) Il divano ingrandisce la stanza (secondo Daria).
The sofa enlarges the room (in Daria's opinion).

I resort to adverbial ‘*entro/in X-time*’ to make the reading clear. Sentences with animate subjects are acceptable, while the ones with inanimate subjects are not. However, the purpose clause is acceptable in b. examples if intended as *must finish to*.

- (404) a. Il pittore deve imbiancare la tela entro domani per finire il lavoro.
The painter must whiten the canvas until tomorrow in order to finish the job.
- b. *La pittura deve imbiancare la tela entro domani per finire il lavoro.
The painting must whiten the canvas until tomorrow in order to finish the job.
- (405) a. Il delinquente deve insozzare la porta entro due minuti affinché il lavoro sia finito.
The delinquent must make the door dirty until two minutes so that the work is done.
- b. *Il fango deve insozzare la porta entro sabato affinché il lavoro sia finito.
The mud must make the door dirty until Saturday so that the work is done.
- (406) a. Maria deve annerire il soffitto entro sabato prossimo.
Mary must blacken the ceiling by next Saturday.
- b. *Il fumo deve annerire il soffitto entro sabato prossimo.
Smoke must blacken the ceiling by next Saturday.

Consider the following context:

It has been long time I haven't come to Giulia's. However, I remember the disposition of the furniture and the color of the walls. When I came in today I saw something different and I said:

- (407) “Il muro è nero! La vernice deve scurirlo.”
The wall is black! Paint must make it dark.

At the moment of utterance of (407), the wall is dark, the speaker states his/her surprise for this state of affairs. This means that the painting must have darkened the wall before the moment of utterance, no future constraint is involved. Furthermore, it easily receives an epistemic reading if the speaker is not sure about the actual cause of the wall state.

On the other hand, according to the same context, sentence (408) generates a misunderstanding. In fact, it is interpretable only if John is making the wall darker by means of his body (i.e. hanging on the wall).

- (408) Il muro è nero. # Giovanni deve scurirlo!
The wall is black! John must be making it dark.

These readings arise because eventive predicates under *dovere* generate a future constraint which is incompatible with the created context. At the moment of utterance the state of affairs expressed by the statement is already present.

According to the same context, we can produce a sentence which generates a future constraint, and entails an eventive reading, such as (409).

- (409) Il muro è bianchissimo! Giovanni deve scurirlo.
The wall is bone-white. John must make it dark.

In (409), the *dovere* complex verb is felicitous because it generates a future reading of the verb and this is not in contrast with the frame-sentence adjective *bianchissimo*. Bone-white and dark are in contrast and thus the future constraint of *dovere* is at work.

We see that DPVs of surface generate two readings under the modal ‘dovere’: (i) in presence of an inanimate subject they involve a present constraint; (ii) in presence of animate subject they generate a future constraint. According to previous assumptions, DPVs of surface with inanimate subjects are stative, while with animate subjects are (mostly) eventive.

In this section, we analyze the behavior of DPVs of both categories (surface and form) under modal *dovere*, ‘must’, which shows different interpretations as expected. DPVs of surface can trigger both deontic and epistemic reading, thus they are stative. DPVs of form generate only deontic reading, thus they are eventive.

7.6.2 Interpretation under *già*.

It has been noted by Mittwoch (2014) that the adverb ‘already’ can combine only with derived and lexical statives, such as progressives and perfects.

- (410) a. Daria corre già.
Daria already runs.
 b. *Daria corre già la Maratona di NY del 2016.
 **Daria already runs the NY Marathon 2016.*

- c. Daria sta già correndo la Maratona di NY del 2016.
Daria is already running.
- d. Daria ha già corso la Maratona di NY del 2016.
Daria has already run the NY Marathon 2016.

In the following sections I will apply this test to different categories of DPVs.

7.6.2.1 DPVs of form

In this subsection, I will explore the behavior of DPVs of form when used with *già*, ‘already’. Sentences below report DPVs of form with animate and inanimate subjects.

- (411) a. *Giovanni allarga già il buco del salotto.
G. already widens the hole in the living room.
- b. *L’umidità allarga già il buco della cucina.
Humidity already widens the hole in the kitchen.
- (412) a. *Il sergente rimpicciolisce già il plotone della sesta armata.
The sergeant already reduces the Sixth regiment squad.
- b. *Lo stucco rimpicciolisce già il buco del muro del salotto.
The stucco already reduces the hole in the living room wall.

Examples (411) and (412), where the presence of a quantized object prevents the possibility of interpreting them as habituais, confirm that DPVs of form are eventive with both types of subjects.

7.6.2.2 DPVs of surface

With DPVs of surface, the (in)animacy of the subject is a reflect of the eventuality of the sentence. Consequently, with *già* we should find difference in acceptability of sentences which are linked to the (in)animacy of the subject.

- (413) a. ??Il pittore imbianca già la tela del Caravaggio.
The painter already whitens Caravaggio’s canvas.
- b. La pittura imbianca già la tela del Caravaggio.
The painting already whitens Caravaggio’s canvas.
- (414) a. ??Un delinquente insozza già la porta del civico 33.
A delinquent already makes the 33rd door dirty.
- b. Il fango insozzato già la porta.
The mud already makes the 33rd door dirty.

Sentences with animate subjects are not acceptable with *già*¹¹.

This section analyses different behaviors of DPVs in relation with their semantics and the adverb *già*. The test reveals that only lexical and derived statives are grammatical in conjunction with *già*, while eventives are not.

This test confirms our hypothesis that DPVs of form are always eventive.

7.6.3 Temporal narrative contribution

This section presents the role of DPVs of form and DPVs of surface in building temporal chains in a narrative discourse.

It is a well known property of statives (Dry 1983; Katz 2003) that they do not contribute to the temporal progress of a narrative discourse (415), contrary to eventive verbs (416).

(415) Mary arrived. Her daughter was sitting and her dog was sleeping.

(416) Mary arrived. Her daughter sat down on the couch and her dog fell asleep.

In the following subsection I will apply this test to DPVs' categories.

7.6.3.1 DPVs of form

DPVs of form contribute to the narration progress, this means that they are interpreted as being part of a chain of consecutive events which take place one after the other.

Examples below point out that DPV of form *ingrandire*, 'increase', contribute to the progress of the narration. In example (417) Daria first arrives, then makes the hole bigger and then sits down. In example (418), the mold sprang, then made the hole bigger and then died.

(417) Daria è arrivata, ha ingrandito il buco e si è seduta sul divano.

Daria arrived, (she) made the hole bigger and (she) sat on the couch.

(418) La muffa si è formata, ha ingrandito il buco ed è morta.

The mold formed, (it) made the hole bigger and died.

7.6.3.2 DPVs of surface

In this subsection we analyze the temporal contribution of DPVs of surface to the narrative progress. We will see that they influence the narrative progress when the subject is animate, but fail to do so when the subject is inanimate.

¹¹It is worth noting again that the direct object must be quantized in order to generate an eventive reading, otherwise it generates an habitual reading which is stative.

- (419) Daria è arrivata, ha imbiancato la tela del Caravaggio e si è seduta sul divano.
Daria arrived, whitened Caravaggio's canvas and sat down on the couch.
- (420) La vernice è stata stesa, ha imbiancato il muro e ha schiarito la stanza.
The painting was painted, whitened the wall and brightened the room.

In (419), a narrative chain which starts with Daria's arrival and finishes with her sitting on the couch is described. Example (420), on the other hand, does not entertain a narrative chain; there is only one event: the painting. The other two verbs do not contribute to narration progress.

7.6.4 Adjuncts

Animate subjects (of both surface and form DPVs) can occur with adjuncts denoting instruments, i.e. individuals which belong neither to the object nor to the subject.

- (421) Il bambino rallegra la festa con i palloncini.
The child lightens up the party with balloons.
- (422) Giovanni schiarisce il té con il limone.
John makes the tea clearer with lemon.

With inanimate subjects the picture appears more complicated. Inanimate subjects with DPVs of surface accept *con*-‘with’ adjuncts, albeit with some restrictions, while DPVs of form do not.

Sentences built on DPVs of surface with inanimate subjects cannot contain adjuncts denoting independent instruments, they can only denote a proper part of the subject. In other words, individual denoted by the adjunct and the individual denoted by the subject are in an inalienable possession relationship. This fact is pointed out by the possessive adjective present in adjuncts. Sentences with animate subjects, built on DPVs of surface, can appear in combination with adjuncts lexicalizing the inalienable possession relationship between the subject and the inner cause. In this case, however, the sentence receives a stative reading, the animate subject being treated as an inanimate.

- (423) Giovanni imbianca la stanza con il suo sorriso.
G. whitens the room with his smile.
- (424) Giovanni insozza l'atmosfera con il suo muso.
G. dirties the atmosphere with his face.

- (425) La musica rallegra la festa con il suo ritmo incalzante/*con lo stereo.
*The music lightens up the party with its insistent pulse/*with the stereo.*

I suspect that the restriction is due to the fact that subjects in (423) to (425) can control secondary tools (Nielsen 1973; Schlesinger 1989) and cannot control instruments, unless they are in an inalienable possession relationship with them.

Sentences built on DPVs of form with inanimate subjects cannot contain adjuncts denoting properties or parts responsible for the eventuality in an *con*-adjunct, but in a *causa di*-‘because-of’ adjuncts.

- (426) a. ??La muffa ha allargato il muro con le sue spore.
The mold enlarged the wall with its spores.
 b. La muffa ha allargato il muro a causa delle (sue) spore.
The mold enlarged the wall because of its spores.
- (427) a. ??La nebbia ha allungato la rotta con la sua densità.
**The fog lengthened the route with its density.*
 b. La nebbia ha allungato la rotta a causa della (sua) densità.
The fog lengthened the route because of its density.

In example (427), the fog would be perceived as being voluntarily thick. The subject is an agent, but it is still inanimate and cannot have full control on other instruments.

7.6.5 To sum up

This section presented different behavior of DPVs depending on the semantics of the base, whether of surface or of form. Their interpretation under *dovere*, their interpretation under *già*, their contribution to the narrative chain and possible adjuncts. The (in)animacy of the subject of DPVs of surface helps in highlighting different readings.

A summary of stativity tests results which have been discussed is reported in table 7.5 (page 161).

		Dovere	Già	Temp. Contr.	Adjuncts
DPVs of form	Animate	deontic	*	✓	<i>con</i> , instruments
	Inanimate	deontic	*	✓	<i>a causa</i> , instruments
DPVs of surface	Animate	deontic	*	✓	<i>con</i> , instruments
	Inanimate	epistemic	✓	-	<i>con</i> , not instruments

Table 7.5: Recap of stativity tests results (DPV).

I argue that DPVs of form are eventive, while DPVs of surface alternate between a stative and an eventive readings. This alternation is made explicit by the (in)animacy of the subject, as reported in table 7.6 (page 162).

	DPVs of form	DPVs of surface
Animate	eventive	eventive
Inanimate	eventive	stative

Table 7.6: Eventualities of DPVs.

We will see that subjects of DPVs of form have tendencies to do, to act, thus they can combine with a dynamic/energetic structure. Subjects of DPVs of surface with stative reading have tendencies to be.

We will point out that the two argument structures differ in one point: the presence of energetic force (Copley & Harley 2015) in little *v*. Eventive DPVs are energetic causatives. Stative DPVs are static causatives.

In next sessions, we will discuss the causative nature of both DPVs types in details. We will see that DPVs have a peculiar property that differentiate them from other causative statives, such as Object Experiencer Psychological verbs (Pylkkänen 2000), due to the presence of personal judge parameter (Laherson 2005; Stephenson 2007).

7.7 Are all DPVs causative?

In this section, I will consider whether all DPVs present causative semantics.

The semantic role of Romance prefixes has been investigated by Martin & Tovina (2012)¹². It is worth noting that Romance languages do not present a productive prefix system capable to influence lexical and grammatical aspects of predicates, like Slavic languages.

7.7.1 DPVs of form

DPVs of form are shown to be eventive. Therefore, there are not specific issues which need to be accounted for, since eventive causative verbs do not pose problems in any theory of verbal lexical semantics (Copley & Harley 2015; Ramchand 2008; Borer 2005).

¹²They analyze deadjectival French verbs and investigate different semantics linked to different derivational morphological means in association with one single adjectival base. French possesses different ways of deriving a verb from an adjective: suffix *-izer/-ifier* or prefix *en-/an-*.

Analyzing the following sentences by means of correspondent paraphrases, we see that they are usual cases of causative verbs.

- (428) a. Giovanni ha allargato il buco. → G. ha fatto qualcosa per causare il fatto che il buco sia più largo di prima.
G. widened the wall. → G. did something to cause that the hole is larger.
- b. L'umidità ha allargato il muro. → L'umidità ha fatto qualcosa per causare il fatto che il buco sia largo.
Moisture widened the wall. → Moisture did something to cause that the hole is large.
- (429) a. Il sergente ha rimpicciolito il plotone. → Il sergente ha fatto qualcosa per causare il fatto che il plotone sia più piccolo di prima.
The sergeant reduced the squad. → The sergeant did something to cause that the squad is smaller.
- b. Lo stucco ha rimpicciolito il buco. → Lo stucco ha fatto qualcosa per causare il fatto che il buco sia piccolo.
The stucco reduced the hole. → The stucco did something to cause that the hole is smaller.

Paraphrases are particularly interesting because they can suggest different conceptual parts into which we can (informally) divide the event described by the predicate.

In case of DPVs of form, we see that the first conceptual part consists of a dynamic concept, *do something*. The subject carries out an undefined action which leads to the result. In (428a), we can imagine that the subject performs an action of demolition or an action of renovation which causes the result. The same way, in (428b), we can presume that *moisture* (although inanimate) performs an action that causes the result of being rot of the Theme.

Even though I argue that both environments are causative and eventive, two distinctions must be drawn between animate and inanimate subjects which both seem to depend on world-knowledge. First, the smaller range of possible actions performed by inanimate subjects influences plausibility. Clearly, the moisture -contrary to John- cannot perform an action such as "hammering" in order to get the result. Animate subjects, by their intrinsic nature¹³, can perform a large set of different actions. Second, animate sub-

¹³When I use the term "intrinsic nature" I refer to our common knowledge about the world and the handling power of individuals.

jects, contrary to inanimate, can exercise control over the actions. Inanimate subjects cause circumstances without will and without control.

The presence of prefix and the behavior within periphrases lead to the conclusion that DPVs of form are causative.

7.7.2 DPVs of surface

DPVs of surface have been shown to be ambiguous between an eventive and a stative reading. This ambiguity is made explicit by their subject's animacy. While inanimate subjects exclusively generate a stative reading, animate subjects mostly generate an eventive reading.

Resorting to paraphrases, we will see that the first conceptual part changes in relation to subject's animacy.

- (430) a. Il pittore ha imbiancato la tela. → Il pittore ha fatto qualcosa per causare il fatto che la tela sia (più) bianca.
The painter whitened the canvas. → The painter did something to cause that the canvas is (more) white.
- b. La pittura ha imbiancato la tela. → L'esistenza della vernice sulla tela ha causato il fatto che la tela sia bianca.
The painting whitened the canvas. → The existence of the painting on the canvas caused that the canvas is white.
- (431) a. Un delinquente ha insozzato la porta. → Un delinquente ha fatto qualcosa per causare il fatto che la porta sia (più) sporca.
A delinquent made the door dirty. → A delinquent did something to cause that the door is dirtier.
- b. Il fango ha insozzato la porta. → L'esistenza del fango sulla porta ha causato il fatto che la porta sia sporca.
The mud made the door dirty. → The existence of the mud on the door caused that the door is dirty.

These paraphrases differ considerably in their first part, which is about causing circumstances. Animate subjects perform actions, they do something, and these dynamic events provoke the result to come into existence. On the other hand, inanimate subjects do not perform actions, they do not participate in dynamic events. One should then ask how they can cause a result.

Inanimate subjects of DPVs of surface are in a particular state that is perceived by the speaker as the immediate cause for the result. While eventive verbs can be paraphrased by "the subject has made" because an eventive part is responsible for the inner flash of force in the system, stative verbs (which

by definition are not energetic) cannot be so paraphrased by “subject has done”, since no force is introduced in the system (section 7.8.1 for details).

The causative part of paraphrases above is constituted by “cause...”. The fact that this type of paraphrase is allowed for both animate and inanimate subjects suggests that all sentences are causal, with no distinction to their eventuality.

DPVs of surface are causative, as morphologically shown by prefixes and paraphrases.

7.7.3 To sum up

DPVs of form do not present particular issues about their causative nature. Prefixes and paraphrases corroborate this conclusion.

Evidence from prefixes and paraphrases prove that DPVs of surface are causative. However two kinds of causation seem to be at stake: a dynamic and a static causation. Static causation presents some puzzles. I will consider it in section 7.8, which reports previous studies about the existence of causative reading among certain types of stative verbs.

7.8 Causal relation

Human languages systematically employ different means in order to discriminate between causatives and non causatives scenarios. Some languages resort to dedicated morphological means, such as the presence of causative affixes within the verbal part (433) (Wallace 1981); other languages resort to syntactic means such as periphrastic causatives (??); some others do not resort to explicit morpho-syntactic means (437).

Differently put, we can find languages that express causation by means of specific morphemes in the verbal domain or other languages that are able to create causation by means of special constructions. Usually, in the literature, two different causation-creating strategies are identified, synthetic causation or periphrastic causation.

(432) mǎ kan **gar-chu**. (Nepali)
 1sg. work do-PRS.1sg.
I do the work.

(433) mǎ kam **gar-aũ-chu** (Nepali)
 1sg. work do-CAUS-PRS.1sg.
I have the work done.

- (434) Daria **mangia** una mela.
 Daria eat-3.SG. DET.F.SG. apple.
Daria eats an apple.
- (435) Daria **fa mangiare** una mela (a Maria).
 Daria make-3.SG. eat-INF. DET.F.SG. apple (to Mary).
Daria feeds Mary with an apple.
- (436) John eat pizza.
- (437) John feeds Mary with pizza.

The expression of causation is not independent from the wider discussion about argument realization, since adding causative semantics generates some changes in argument pattern as it is visible in examples above. For example, a difference in argument patterns of (436) and (437) is clear since the internal object is Goal in the previous example and an Experiencer in the latter. We will see that this is due to a general pattern about causal chains (Wolff 2007).

As we already discussed in chapter 2, linguistic theory has investigated how human beings lexicalize different real-world events; that is, how the participants in an event are expressed as arguments of a verb. Many different approaches can be identified, depending on the number and kind of theoretical constructions used.

In this section, we will focus on a force dynamic approach to causation (Talmy 1985a, 1985b, 1988; Croft 1998, 2012; Copley & Harley 2015; Copley & Wolff 2014b), since it can successfully solve some puzzles otherwise unexplained, we will see that it can be extended to account for ambiguous deadjectival verbs with two eventive readings, namely DPVs of color.

- (438) Giovanni **abbellisce** la stanza (con i quadri).
John embellishes the room (with pictures).
- (439) Le foto **abbelliscono** la stanza (con i loro colori).
Pictures embellish the room (with their colors).

According to evidence presented in previous sections, sentences (438) and (439) differ in their eventuality, the former is eventive and the latter is stative. We have also seen that causal chains they represent are different since in the stative reading the subject cannot control an external instrument argument, but only an inherent possessed part.

- (440) Il bambino **rallegra** la festa con i palloncini.
The child lightens up the party with balloons.

- (441) La musica rallegra la festa con il suo ritmo incalzante/*con lo stereo.
*The music lightens up the party with its insistent pulse/*with the stereo.*

It is worth noting that force-dynamic approach was born in a cognitive linguistics framework, but that it can be easily translated into a more formal approach to language (Copley & Harley 2015; Copley & Wolff 2014; Copley 2015). In fact, this approach seems to have identified the cognitive building blocks responsible for differences in causation expressions, and these building blocks seem to be discriminated in language expressions too. The fact that a concept is cognitively discriminated from others does not constitute an evidence *per se* for its linguistic importance: for example, vivid colors and dull colors are cognitively discriminated, but linguistically they are not (at least in English and Italian). However, when a concept is discriminated both cognitively and linguistically, it is worth investigating it.

The most widely discussed theory of causation in linguistics, called *counterfactual*, has been proposed by Lewis (1973). Counterfactual theory of causation belongs to the more general class of dependency theories. The common denominator of these theories consists in the fact that A causes B iff B depends on A in some sense. These theories have problems in the case of emption contexts; i.e. contexts in which a possible cause is not the real cause due to an emption event, introducing another possible causer (early pre-emption).

In order to account for causative stative verbs, I will propose a small extension to the analyses proposed by Copley & Harley (2015). Particularly, I will assume that eventive energetic causation is involved whenever an energetic force enters the system, as expected. On the other hand, stative causation arises when the system does involve only a “virtual force” (called abduction) introduced by the speaker (in DPVs) who is responsible for establishing the causal link between individuals, between Source¹⁴ and Theme.

In the next section, I introduce the constitutive parts of the force-dynamic approach to causation.

7.8.1 Force-dynamic approach

Force-dynamic approach to causation is rooted in cognitive linguistics, particularly in Talmy (1976, 1985, 1988, 2000) and Croft (1991, 2012).

¹⁴Here, Source is the role of external arguments of stative causatives. In Copley & Harley’s terminology Source is applied to all external arguments which are responsible for introducing energetic force in the system.

This approach has been conceived in order to provide explanation of different patterns of argument structure realization; particularly to find which cognitive principle regulates them. The cognitive principle responsible has been assumed to reside in the causal structure of events which links the participants of an event. It can be defined as the transmission of force between participants; causation in a force-dynamic approach is an asymmetric interaction between entities (Croft 2012: 198).

Talmy (1972, 1976) identifies four kinds of causation chains, according to the physical or mental nature of the two entities involved, namely initiator and endpoint (Croft 1991: 166): (i) physical causation characterized by a physical object acting on another physical object (physical initiator-physical endpoint); (ii) volitional causation where a volitional entity acts on a physical object (mental initiator-physical endpoint); (iii) affective causation characterized by a physical object acting on a volitional entity (physical initiator-mental endpoint); (iv) inductive causation where a volitional entity acts on a volitional entity affecting her mental state (mental initiator-mental endpoint).

The entities involved, both physical or volitional, have a particular force tendency (Talmy 1998, 2000). They can have the tendency to motion or the tendency to stasis. This means that in a state of affairs¹⁵ like *John stops the ball*, the ball has a tendency to fall which is contrary to the tendency of John to act on the ball. The event produced is the result of the addition of the two forces brought about by participants, the same way as in physics the vector sum of forces is responsible for equilibrium.

Psychological physicalist theories of causation, to which belongs force-dynamics, share some basic assumptions, such as the hypothesis that the causal nature of an interaction is due to internal factors (Wolff 2007: 85). Considering causal relationships as physical deterministic interactions determines the “*local level of granularity on the analysis*” (*ibidem*), from this it follows that, when two events are not temporally contiguous, a linking causal chain must be assumed.

Translated in a linguistic theory, this means that a verb, in a particular argument realization pattern, has a specific verbal profile that consists in the part of the causal chain (causal segment) it represents (Croft 2012: 205-206; Ramchand 2008). Prepositions too can profile causal segment of the causal chain, for example in the case of oblique arguments or benefactives. Verbal profile is able to account for argument realizations patterns, establishing a

¹⁵The term *situation* assumes a specific meaning in the force-dynamic approach. For this reason, I am not using it in contexts which require it. I will resort to *state of affairs* when I want to refer in a naive sense to “situation”.

link between role designation and realization and verbal semantics, by means of a relatively small range of rules, reported in 442 from Croft (1998a: 24). These linking rules: apply to any causal chain; are cross-linguistically valid; can account for oblique arguments.

- (442)
- a. The verbal profile is delimited by Subject and Object (if any);
 - b. Subject is antecedent to Object in the causal chain: SUBJ \rightarrow OBJ
 - c. An antecedent oblique is antecedent to the object in the causal chain, a subsequent oblique is subsequent to the object in the causal chain: A. OBL. \rightarrow OBJ \rightarrow S. OBL.
 - d. Incorporated arguments are between subject and object in the causal chain: SUBJ \rightarrow INCORP. \rightarrow OBJ

However, these linking rules are valid only for those verbs that are non-neutral force-dynamically, i.e. for verbs that involve a causal chain. Stative verbs with causative meaning remain unaccounted for in this approach (Croft 2012: 235).

The formal linguistic power of force-dynamic approach consists in the fruitful analysis of maintaining verbs, such as *stay* or *keep*, that are hardly accountable for in an event-based approach. These verbs are eventive, as shown by their well-formedness in the progressive; they are also causal (since something causes something else to be/do), yet they cannot be described as events causing events.

(443) John keeps the door open.

(444) John is keeping the door open.

In example (443) there is no act conducted by the subject on the door, in fact even without movement *John* would still be keeping the door open. Thus, verbs of maintaining do not involve actions, but are eventive since they allow progressive forms.

If we resort to forces, we can easily unify the analysis of eventive verbs. In the case of *keep*, for example, a force introduced by the subject is acting contrary to the disposition of the object: the *door* has a tendency to be closed, *John* applies an opposite and stronger force, with the result that the door is kept open.

7.8.1.1 Definitions in a formal framework (Copley & Harley, 2015)

The force-dynamic approach to event-structure and argument realization has its roots in cognitive linguistics. In these last years, some researchers imple-

mented this approach in a formal syntax-semantic framework, particularly Copley & Harley (2015), Copley (2015) and Copley & Martin (2014).

In order to apply this model in a formal theory of syntax, we must assume that forces are linguistic elements, whose presence is discriminated by the language, and not only conceptual elements.

These pieces of evidence come from a productive exchange between theory of causation in pure cognitive disciplines and linguistic disciplines. Each is able to show that there is a recurrent and regular link between cognitive types of causation and linguistic means implied in their expression. We acknowledge that linguistic expression of causation should follow – at least in part – from our cognitive perception of causal chains.

If we consider the usual classification of causatives in lexical and periphrastic constructions, they correspond to a difference in the (in)direct cognitive representation of the causal chain (Fodor 1970; Cruse 1972; Shibatani 1976; Smith 1970). In the following examples, (445) defines a direct causation chain in which the subject must himself open the door; while (446) defines an indirect causation chain in which the subject must provoke something/someone else to open the door.

(445) John opened the door.

(446) John made the door open.

This statement has been put to experiment by Wolff (2003) by means of a 3D reality models verbally described by English native speakers. The experiment shows that “*in both direct and indirect causation [...] an entity can be viewed as an intermediary only if it is fully independent of the causer and causee*”, (*Ibidem*: 6). This means that when the causative relationship is mediated, it is linguistically differentiated with different structures.

The formalization of the force-dynamic model made by Copley & Harley (2015) shares with the cognitive force-dynamic approach the set of basic concepts that finds a linguistic reflex. Furthermore, it has the virtue of requiring a very small number of definitions.

There are two main objects, force and situation, from which all force-dynamic event structures can be derived.

A **linguistic Force (f)** is spatially and temporarily located and it arises from individuals in the situation and their properties. It is defined as: “*a function from an initial linguistic situation s to the (ceteris paribus, linguistic) final situation s' , which corresponds to a conceptual net force φ . The latter is a (mental representation of) an input of energy that arises from all the individuals and their property attributions in a conceptual situation σ* ”

(Copley & Harley 2015: 15). It is a function of type $\langle s, s \rangle$, from situation to situation.

A **linguistic Situation** (s) is formed by objects and their properties (Barwise & Perry 1983: 7 ff.), is delimited by the speaker in her/his linguistic act and it is primary located in space and time. It is defined as “*correspond[ing] to a conceptual situation σ , which is a spatio-temporally bounded “annotated snapshot” of individuals and their property attributions*” (Copley & Harley 2015: 14). It is of type situation ($\langle s \rangle$).

Forces and situations are building blocks of a force dynamic approach to causation and they are related to each other in a causal chain. From these building blocks with a small number of definitions, all the force-dynamic approach to causation comes alive.

The *net force* (f_n or $net(f)$) is the sole and unique force that arises from a specific situation, i.e. it arises from all the individuals and their properties in that particular situation (by definition).

$$(447) \quad net(f) =: net \text{ force of } s$$

Applying the inverse of the net force function (net^{-1}) we can derive the initial and the final situation.

The initial situation ($init(f)$) is the situation of which f is net force.

$$(448) \quad init(f) = net^{-1}(f)$$

The final situation ($fin(f)$) is the situation that results when f takes s as its argument, i.e. it is the situation that results when net force applies to s .

$$(449) \quad fin(f) = f(net^{-1}(f))$$

The successor situation of s ($suc(s)$) is the situation that results when the net force takes s as its argument.

$$(450) \quad suc(s) = fin(net(s))$$

Predecessor situation of s ($pred(s)$) is the situation of which s is successor situation.

$$(451) \quad pred(s) = suc^{-1}(s)$$

A situation is efficacious when no external force intervenes, in a *ceteris paribus* (‘all the rest being equal’) case.

The opposite case is the case *ceteris non paribus* (‘all the rest not being equal’), in which a non-attended force intervenes.

Copley & Harley (2015), with the formal apparatus in place, propose a representation for the main eventuality types from a force-theoretic point of view.

They adopt core assumptions of the general approach to argument and event structure, particularly the one which sees the VP syntactically decomposed into different phrasal levels, isomorphic to the eventuality structure of the verb, dominated by a *vP* node (*ibid*: 18).

Copley & Harley (2015) begin with the analysis of the common class of causative-inchoative alternation, considering the inchoative form as the basic one. Usually, these verbs are treated in the literature as having two subevents: a causing eventive subevent and a stative result subevent. This fact is pointed out by different scopes of *again* adverb.

(452) Daria is closing the door again.

(453) Daria is again closing the door.

In example (452), the adverb takes low scope over the resultative subevent, originally over a SC. Thus, *Daria* is closing a door which has been previously closed. In example (453), the adverb takes high scope over the causative subevent, namely over *force*. The corresponding reading is that *Daria* is closing the door another time.

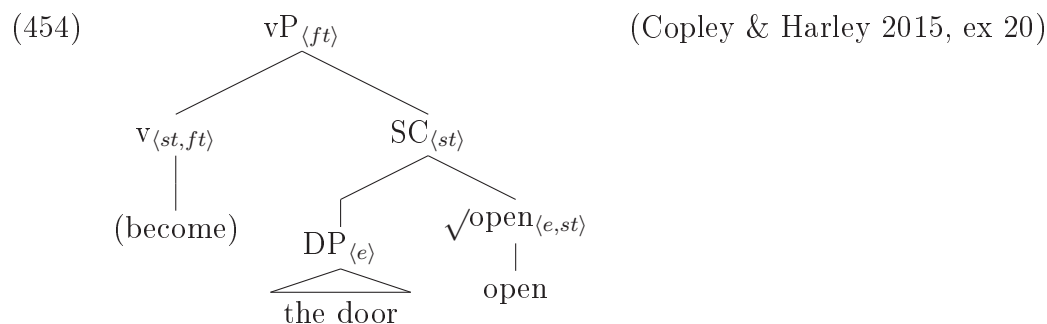
Therefore, causative verbs syntactically involve at least two phrasal projections.

In force-dynamic approach, the causing subevent is replaced by a force which is applied to a situation. The force is responsible for the situation not to hold, consequently yielding a situation where the result state holds (Dowty 1979). In other words, a force applies to a situation where the result state does not hold, this force *ceteris paribus* yields the result state.

Syntactically, the result state is represented by a SC (Harley 2005; Ramchand 2008) in the lower part of the verbal projection; being a state (a situation), it is a predicate of situations (type $\langle s, t \rangle$). Upwards, the *v* head introduces a force, assuring the right output as predicate of forces (which is needed by aspectual functional head), taking a predicate of situation as its input: “[and it] introduces a force *f* and asserts that *p* holds of the final situation of that force, that is, it identifies $\text{fin}(f)$ as a *p* situation. The v° head of a change of state predicate further imposes the requirement that the initial situation of the force is a *p* situation” (Copley & Harley 2015: 24). Therefore little *v* expresses an energetic force, which corresponds to the causative functional head, and Voice introduces the Source of the force¹⁶.

¹⁶We will use Source as label for external argument of causative statives, while Causer

In (454), we report the graphic derivation assumed for the inchoative structure *the door opened*:



The semantic contribution of v_{BECOME} head is the following:

$$(455) \quad \llbracket v_{\text{BECOME}} \rrbracket = \lambda p \lambda f. p(\text{fin}(f))$$

The transitive form of the causative verb is assured by the addition of a Voice functional head, responsible for the introduction of the external argument. The external argument is defined as the Source of the force generated in the event, as reported in (456).

$$(456) \quad \llbracket \text{Voice}_{\text{ACTIVE}} \rrbracket = \lambda \pi \lambda x \lambda f. \pi(f) \ \& \ \text{source}(x, f) \quad (\text{Copley \& Harley 2015, ex 22})$$

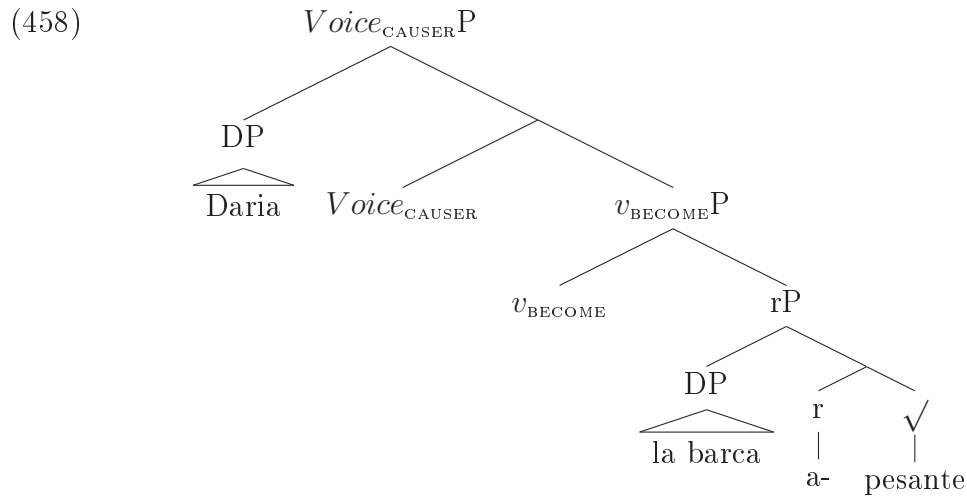
More generally, the Source role is not divided into different categories, such as Agent, Causer or Instruments. The Source argument is an individual that, because of its inner properties or because of its intentions to act, is responsible for the causing subevent.

The application of force-dynamic model on eventive DPVs, such as DPVs of form or DPVs of color with animate subjects, does not present particular issues.

We have seen that the base is a root and the prefix projects a relational projection responsible for the causative semantics. Contrary to Copley & Harley (2015), I call Causer the external argument of causative eventive verbs and Source the external argument of causative stative verbs.

$$(457) \quad \text{Daria appesantisce la barca.} \\ \text{Daria add weight to the boat.}$$

for external argument of causative eventive verbs.



It is worth noting that in (458), semantics of Voice is dynamic, since it is of type $\langle \text{ft}, \langle \text{e}, \text{ft} \rangle \rangle$, it is a function from force to truth-value to a function from individual to force to truth-value. We have seen in previous sections that it is the semantics of Voice that matches with v .

A big puzzle remains unexplained in (458), namely the respect of the mirror principle by the prefixes (Acedo-Matellan 2006). This appears to be an issue for all morphological theories of parasynthesis, since it appears to be a morphological derivational mechanism which creates circumfixes, which are not allowed in other contexts in Italian, and more generally in the Romance panorama.

With these formal means we are still in no position to account for the stative reading of ambiguous DPVs, which still involves a causative semantics. In fact, in (458), causation involves an energetic force; and by definition stative verbs do not involve energetic forces.

In next sections, I will propose an extension to force-dynamic approach that can account for stative causative verbs. Particularly, I will provide evidence for the distinction (linguistic and cognitive) between causation and change. Furthermore, I will produce a definition of change; I will investigate the force-dynamic nature of stative causation and the linguistic reality of non-physical perspectives in the prepositional domain.

7.8.2 Causation of stative verbs

It has already been demonstrated that inanimate subjects can, under particular circumstances, participate in causative structures (Alexiadou & Schäfer 2008):

(459) The stick breaks the window.

(460) Il vento rompe la finestra.

The wind breaks the window.

However, even in this regard there are contrasting judgments in the literature. For example, Folli (2001: 85), arguing against Reinhart's hypothesis that inchoative is derived from transitive causative by elimination of the external theta-role, assumes that (460) is ungrammatical and that the lexical verb should be replaced by periphrastic causative *Far rompere* ('make something break'). In my opinion, (460) is well-formed, contrary to Folli's (2001) opinion.

Monolithic nature of statives has been questioned by other researchers (Pesetsky 1996; Grimshaw 1990) who assume that psych-verbs do not constitute a homogeneous class, but are divided into individual level predicates (hence ILPs) and stage level predicates (hence SLPs).

(461) Firemen are available.

(462) Firemen are altruistic.

Example (461) represents a case of SLPs. It involves an individual in a definite moment of its life. *Firemen* have the characteristic of being available now.

Example (462) represents a case of ILPs. A general property of an individual is predicated which does not pertain to a specific moment. *Firemen* are generally altruistic.

SLP/ILP distinction is supported by experimental data by Hartshorne, O'Donnell et al. (2010). The authors consider different argument patterns of psych-verbs (subject-experiencer or object-experiencer), in order to investigate if consistent differences in their semantics are found. Building the experiments on Pykkänen (2000), the authors design a series of experiments whose informants (English or Japanese) were asked to decide which novel verbs (referring to argument realization frame) would be used in a sentence, depending on the event described. Results confirm Pykkänen's assumption: speakers are more likely to select object-experiencer psych verbs to describe short mental states, which constitute SLPs.

These results provide strong evidence for the non-uniformity of statives and the lack of correspondence between aspect and causality, leading to the conclusion that causation is independent from specific aspectual classes. The fact that some aspectual classes are linked to causation must be considered a tendency. I suppose that the fact that causation is more likely to be related to eventive predicates is due to the higher likelihood that causation is perceived as involving energetic ongoings for cognitive reasons.

Furthermore, other studies are providing new data against the oversimplification of the class of statives. Irimia (2015)¹⁷ presents some interesting data from Mandarin Chinese, where resultative secondary predicates occur with stative predicates.

Previous data from satellite frame languages, such as English and Icelandic, show that resultative secondary predicates were generally ungrammatical with stative verbs.

- (463) John walked the shoes flat (int. As result of John's walking, the shoes became flat).
- (464) *John loves Mary tired (int. As result of John's love, Mary became tired).

Data from Mandarin Chinese open a new perspective in the investigation about resultativity, causation and stativity.

- (465) Ta yige xiaoshi jiu kàn lèi le. (Irimia 2015)
 He one hour right-after see tired PERF.
As a result of his seeing, he became tired in an hour.

The data from Indo-european languages have led to an incorrect generalization about secondary predicates combined with stative verbs. Irimia's conclusions are interesting for three reasons: stative predicate can be further specified by secondary predications, causation is not exclusive for eventive predicates, causation and stativity can occur together.

In order to account for the stative reading of causative verbs, the force-dynamic approach to causation needs some new tools. Particularly, force-dynamic approach to causation can give account only to energetic causation, force being an input of energy.

Energetic causation is defined as the causal relationship generated by physical forces. As pointed out by Copley & Harley (2015), energetic causation does not imply change but forces. This means that for verbs of stasis, such as *keep* (466), no change is perceivable but a force is applied by the stone on the door. The type of causation involved in (466) is energetic, since energy is involved in the situation.

- (466) The stone keeps the door open.

We saw that causation can be involved in stative predicates, which by definition do not involve energy. We must ask ourselves which type

¹⁷Seminare Ontologie et Typologie des Etats, 23/03/2015, Laboratoire SFL, Paris.

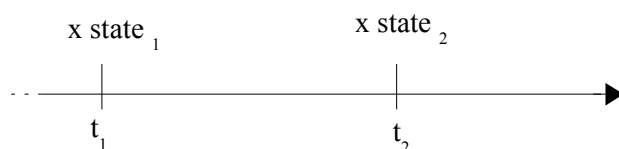
of causation this is. I will propose to introduce another type of causation, namely static causation. Static causation is the relationship which appears in the absence of energetic forces, and in presence of a clear subordination of one individual to some resulting state made by the speaker.

Before implementing this new type of causation it is necessary to draw a better distinction between change and causation. In the next section, I will provide better evidence for it.

7.8.2.1 Change is not causation

In the present study, we consider that there is change when the same individual is not in the same state at two different times, t_1 and t_2 .

Change is tightly connected to time, consequently it is linked to eventuality by means of time development. Eventive predicates are the only ones capable to make time progress in language.



(467)

We will assume that stative reading of DPVs of surface includes causation since a relationship is built between the external argument and the small clause involving the internal object. This relationship does not involve a change on the Theme, but a state.

This in turn implies that change is not directly involved by the presence of a result projection with the Theme. Relation projections represent states, change is introduced by an upper eventive head. The eventive head is responsible for the progress of reference time, it anchors an initial state to an initial time and a final state to a final time. I argue that the energetic force introduced by v_{BECOME} is responsible for the progress from t_1 to t_2 and expression of change.

Despite the fact that change and causation appear frequently associated, they represent two different phenomena as underlined by Copley & Harley (2015).

Change and causation appear together because we normally perceive causation by means of changes, and we advocate causation in cases where there are changes that we are not able to explain.

We can imagine that human beings are used to see physical effects of causal chains, for example one individual influencing (somehow) another one in a predictable sense. If we see someone touching a button and suddenly a light nearby turns on, we can say that *Someone has turned the light on*, even though the button is broken and the light turns on because of a temporary electricity pick. Obviously, not all events and individuals can be put in a causal relation since, in order to have causal inference, some pragmatic restrictions need to be respected, namely: temporal priority, temporal contiguity, spatial contiguity and covariation (Hume, 1739/1969, 1748/1955).

We can still easily recall different false beliefs which, being based on cultural stereotypes, build a causal link between events that are not (causally) related.

For example, in Italy one false belief states that women should not touch plants during their periods, otherwise plants will die. In this false belief a causal link between the touch of a women and the death of a plant is established. It is difficult to recall what kind of event (if there were one!) would have possibly given birth to this fabrication. We can suppose that a woman during her period once touched a plant and it died, since then a causal link was established between the two¹⁸.

Furthermore, human beings often recur to myths and create causal links in order to explain state of affairs that otherwise would be incomprehensible. Many different examples are available in different ancient civilizations. One example in the Roman mythology, based on the Greek one, consists in the myth responsible for the explication of the Earth rotation period. Ancient Romans refer to Apollo who, by means of his cart, drags the Sun in the sky. Thus, Romans recurred to a causal link started by an anthropological god in order to explain a natural phenomenon.

All these examples are useful in order to point out that organisation of state of affairs into causal relations is common in different situations where a change is produced in the real world. Change is linked to causation.

With the same line of reasoning, we can see that causal links are also established in order to explain states of affairs which do not involve changes. Consider for example the common superstition about the devil eye¹⁹. Traditionally, it is invoked whenever someone is in a particular state. Female sterility²⁰ depends on the devil eye. A particular female individual is in a condition which prevents her to have children; nothing is said about her previous condition, in other words there is no change involved in the woman's

¹⁸Or it is only a matter of sexual discrimination.

¹⁹It seems that this superstition is spread all over Europe with different names and different remedies.

²⁰Again a matter of sexual discrimination!

condition. However, a responsible is found: the devil eye. The devil eye causes the woman to be sterile, but no change in the woman is involved.

Myths and beliefs help us to perceive the role that causation plays in our ways of conceptualize the world.

The human tendency to build causal links, even though a direct causal relationship is missing (causal illusion or perception of causation) has been investigated by Thorstad & Wolff (2016) with a series of experiments.

In the Jedi Experiment, a man in an elevator moves his hand in correspondence with the opening of the elevator door. People inside the elevator are the experimental subjects. After having inadvertently assisted to the “Jedi’s power”, they are asked to fill a questionnaire, both qualitative and quantitative descriptions of the event. In the qualitative part (verbal free description), informants massively recur (91% of them) to causal linguistic structures. They describe what they have seen with sentences like: “*The man in the elevator kept causing the door to stay open on the wrong floor, like magic (Ibid.: 920)*”. In the quantitative part (Likert scale), informants rely to a causal chain, even though they significantly perceive it for a moment.

After a first moment in which they establish a causal relation between the Jedi and the opening of the doors, informants are able to recur to world knowledge in order to reassess the state of affairs, namely that Jedi’s powers do not exist in real world.

This experiment provides scientific evidence to the claim that human beings usually recur to causation even though no causal chain exists in nature. It is sufficient to perceive a direction and an outcome in order to correlate them to a force, and to establish a causal relationship between elements.

This means that change leads to conceptualization of causation, but the opposite claim is not valid. What is retained is that human beings recur to causation in order to explain states of affairs, regardless to change. In other words, causation is accessible in the presence or in the absence of change.

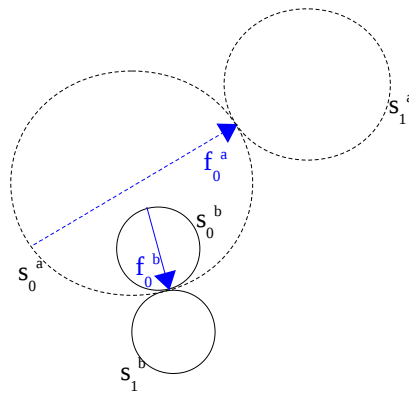
Causation is implied in change but the opposite is not true, change is not implied in causation. Causation without change does exist.

Linguistically, we can imagine verbs that do not denote change or culmination point such as atelic verbs to involve a causative semantics. This is particularly important in case of stative verbs; Copley & Harley (2015) already argued for causative semantics in activities.

The fact that change and causation are independent concepts is a fundamental starting point for further sections, as it allows us to theorize for the two concepts separately.

7.8.2.2 Stative causation

In a force-dynamic non-neutral state of affairs (for example the one described by an eventive causal verbs), a net force results from the initial situation. The net force is the sum of the forces produced by all the concerned individuals in the situation (468).

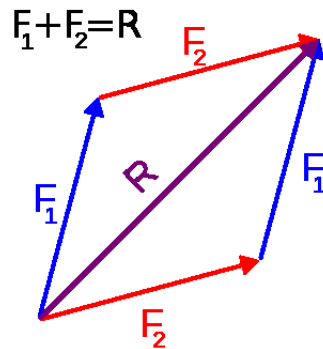


(468)

ex.17)

(Copley & Harley 2015,

Since force is a vectorial measure (described with direction and magnitude), the net force of a situation is the result of the sum of forces in that situation, as represented in figure (469).



(469)

Forces are either real objects²¹, as in cognitive linguistics, or abstract objects, as in formal linguistics. Figure in (469) must be interpreted as a simplification of the concept of energetic force. It can be interpreted as real or abstract, but it remains a vectorial measure.

²¹Present in the world.

In one single situation (cognitively and linguistically significant) there are different individuals and different forces which arise from them. Consider two individuals in a situation s_1 : individual x produces a force f_x , individual y produces a force f_y . The net force of s_1 is the sum of f_x and f_y . The net force of s_1 leads to a specific final situation. If different individuals were in s_1 , or different forces were produced by the same individuals, we would obtain a different final situation.

In the model proposed by Copley & Harley (2015), a force consists in an input of energy which is responsible for the transfer from one situation to the next. How is input of energy defined?

Until now, the input of energy has been implicitly defined by means of situation: there is an input of energy when situations change. For this reason, I refer to this type of causation as *energetic causation*.

The notion of causation is linked to the notion of change, but I previously showed that change and causation are separate, even though often concurrent. I consider that we are missing one possibility, namely the one in which causation takes place without change. We must now define another formal means to get from the initial situation to the final situation.

Consider the possibility we want to analyze: causation without force. The lack of force would lead to the impossibility of assuming the transfer between an initial situation and a final situation, and no formal means guarantee the translation from s_0 to s_1 . At this point the main question is whether stative causation is plausible within a force-dynamic approach, and if so, which linguistic clues are necessary to account for it.

In the next sections, I will try to answer whether stative causation falls within force-dynamics.

7.8.2.2.1 Is stative causation force-dynamic? I will show that the answer to this question is no, since it cannot be generated by energetic force, as assumed by the general force-dynamic approach.

We refer to the 2000 version of Talmy's approach, where force is assumed to be a linguistic primitive with direct grammatical representation (*ibid*: 409), particularly for causation. In Talmy's formulation, the notion of force can be extended to psychological predicates, although they do not involve physical force since a psychological force is involved (*ibid*: 430). Psychological forces are supposed to act within an individual (the *divided self*) characterized by different direction and magnitudes depending on the predicates involved.

However, in Talmy's approach to force-dynamics the definition of psychological predicates differs from the one assumed in the present work. In fact, in Talmy's account, the behavior of all sentient individuals is driven by

psychological forces (2000: 433). In sentences such as (470), the subject is supposed to use her psychological force in order to physically act.

(470) An attendant restrained the patient. (Talmy 2000, ex. 20)

In the analysis proposed in this chapter, predicates such *restrain* are neither stative nor psychological *sensu strictu*. I do not deny the influence that psyche has on sentient individuals, but I assume that it is not always linguistically relevant. It is linguistically relevant when causation happens **only** in the psyche of an individual without explicit reference to the “outside” world.

We depart from Talmy’s conception of forces, since he does not consider that two kinds of forces are at stake cognitively and linguistically. In the approach I want to put forth, we must assume the presence of two types of forces: energetic force and abduction. I propose that these two kinds of force constitute two different linguistic objects and are visible, to some extent, in different constructions.

7.8.2.2.1.1 Linguistic evidence for the reality of a non-physical perspective. Besides the specific case of causation, languages seem to make distinctions in the domain of reference of expressions: whether physical or mental. Concretely, this happens in the verbal domain by means of morphological elements.

Italian possesses some verbs that generate two readings: one applied to the physical domain and the other applied to the psychological domain. The two readings are expressed by means of a different argument configuration, which can be characterized by the presence or absence of a preposition, by different prepositions, or by (in)transitivity.

For example, the verb *incidere* has a physical and a psychological meaning, correlated with the presence or absence of the preposition *su*. It can be translated in English as ‘*carve*’ if no preposition is present, or as ‘*affect*’ if the preposition *su* is present. The same behaviour is attested for verbs such as *condire*, ‘season’, *colpire*, ‘hit’ and *posare*, ‘lay’.

The following verbs are extracted from LeMonnier (2014).

- (471) a. Giovanni **ha inciso** la cortecchia dell’albero.
John carved the tree’s bark.
- b. Giovanni **ha inciso sull’**educazione di Maria.
John affected Mary’s education
- (472) a. Giovanni **ha condito** l’insalata **con** l’aceto.
John seasoned the salad with vinegary.

- b. Giovanni **ha condito** il discorso **di**/*con stupidaggini.
John spiced the discourse with nonsense.
- (473) a. Giovanni **ha colpito** il cane **con**/*per il bastone.
John hit the dog with the stick.
- b. Giovanni **ha colpito** Maria **per** la sua gentilezza.
John struck Mary with his kindness.
- (474) a. Giovanni **posa** come modello.
John poses as model.
- b. Giovanni **posa a** gentiluomo.
John acts the gentleman.

These sentences demonstrate that language makes distinctions between actions that have a correspondent energetic counterpart in the real world (physical), and actions that do not have an energetic counterpart in the real world but have only psychological reality.

We see that natural languages discriminate between physical and psychological reality. We must conclude that both are perceivable cognitively and expressible linguistically as two distinct phenomena.

Consequently, we adopt Wolff's physicalist approach to energetic causation "[whose] basic idea [...] is that such relationships [between objects] can be reduced to physical quantities in the world, such as energy, momentum, linear and angular momentum, impact forces, chemical forces, and electrical forces, among others" (*ibid.*: 85).

As stative verbs do not represent situations characterized by those quantities, they do not involve *physical energies*. We are therefore forced to assume that stative causative verbs are not ascribable in a traditional force-dynamic model which makes use only of energetic forces. Thus we need different formal means in order to account for the presence of causality in stative verbs.

Assuming the neutral force-dynamic status for causative statives does not prevent us to employ theoretical concepts of force-dynamic research. Rather, the use of such means helps us in proposing a sort of unified/symmetric account for both cases²².

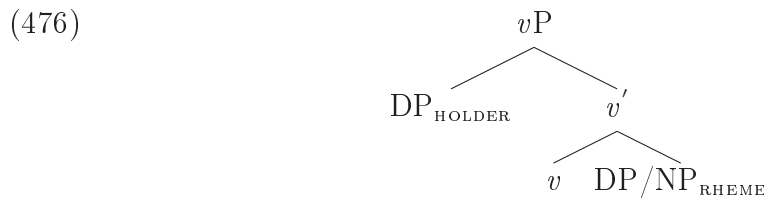
7.8.2.2.2 Causation without change In this section, I will propose an account for stative causative verbs that involves the concept of static causation and slightly redefines the notion of situation.

²²A possible objection to this conclusion could be that stative causative verbs do not participate in particular argument realization configurations, rather they enter in usual patterns, exception made for unaccusatives.

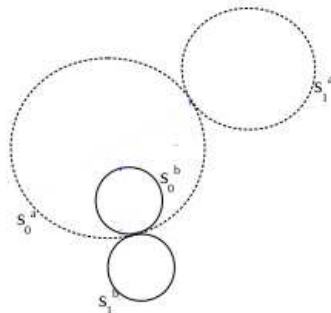
In sentence (475), we cannot assume that there is a change since, as shown in Section 7.7, it is stative.

(475) The drape darkened the room.

The person who pronounces this sentence expresses a link between individuals in a particular situation. This relationship is not only Figure-Ground of the type assumed for ILPs by Ramchand (2008: 55) and reported in (476).



This means mainly two things about change; and about force. For change, the property of Experiencer is persistent, and no change is involved in its status. Namely, previous state/property of the object is linguistically relevant: *the room* is dark now, will be dark in the future and was dark sometimes in the past²³. There is no salient change expressed linguistically, of course, being SLP the properties of individuals are alterable, but the potential moment of change is not expressed. Regarding force, no force is involved, since the predicate is stative, no input of energy is involved. Consequently, no transition from an initial situation to a next situation takes place as shown by (477) where there are only situations and no force arises.



(477)

Since no change and no force are involved in sentence (475), we should assume that there would be only one (initial) situation, if we stick to a classic force-dynamic approach. This would make impossible to account for the causal meaning of these sentences.

²³For persistence in time of stative predicates, refer to Altshuler & Schwarzshild (2012).

In the case of stative causation, we assume that a situation is cut around a single individual and its properties. Propositions are sets of possible situations, rather than sets of possible worlds. Possible situations are parts of possible worlds. Lumping is the operation that assures the right truth values to propositions.

Lumping

A proposition p lumps a proposition q in a world w if and only if (i) and (ii) both hold:

(i) p is true in w

(ii) Whenever a situation s is part of w and p is true in s , then q is true in s as well

[Kratzer (1989: 611)]

According to examples of contexts proposed by Kratzer (1989: 608) and reported in (478) and (479), we can see that a same state of affair in the world (naively speaking) can be cut off in different ways such that all are true.

(478) Dialogue with a pedant.

Pedant: What did you do yesterday evening?

Paula: The only thing I did yesterday evening was paint this still life over there.

Pedant: This cannot be true. You must have done something else like eat, drink, look out of the window.

Paula: Yes, strictly speaking, I did other things besides paint this still life. I made myself a cup of tea, ate a piece of bread, discarded a banana, and went to the kitchen to look for an apple.

(479) Dialogue with a lunatic.

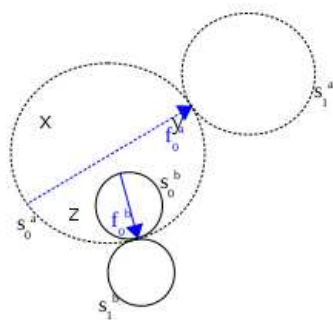
Lunatic: What did you do yesterday evening?

Paula: The only thing I did yesterday evening was paint this still life over there.

Lunatic: This is not true. You also painted these apples and you also painted these bananas. Hence painting this still life was not the only thing you did yesterday evening.

Imagine that the world is a room and that in this room different objects exist. You can ask your friends to describe the state of affairs. One of them can say *It is a room*, another one *It is a warehouse* and another one *It is a bunch of objects in the same place*. All these sentences refer to the same room, but each underlines something different of this same room. It is what happens for situations.

Both in force-dynamics and in static causation, a situation contains all salient individuals. However, force-dynamics and static causation differ for the size of situations involved. In force-dynamics, a situation contains different individuals (480), in static causation only one (486).



(480)

In the case of stative causative verbs involving two arguments, we are in presence of two situations, each of which contains one individual (denoting the argument) and its salient properties.

If in a force-dynamic model, the situation is cut around individuals and the derived net force, in static causation the situation is cut around one individual and its properties. Thus, in an energetic causation there is force, and in a static causation there is property.

We saw that a situation contains a state of affairs that can be described by a state. Since static causation involves two situations, there are two states in relation: the existence of the external argument and the state of the internal one.

Which element is responsible for the introduction of causal meaning? The link between existence of the external argument and the state of the internal one is not created by an energetic force, but it is brought in the system by a human being (the speaker). She is responsible of the establishment of causal relation by means of her abductive capacity.

In order to define abduction, the following context is useful. Imagine that "[o]ne morning you enter the kitchen to find a plate and cup on the table, with breadcrumbs and a pat of butter on it, and surrounded by a jar

of jam, a pack of sugar, and an empty carton of milk. You conclude that one of your house-mates got up at night to make him- or herself a midnight snack and was too tired to clear the table. This, you think, best explains the scene you are facing. To be sure, it might be that someone burgled the house and took the time to have a bite while on the job, or a house-mate might have arranged the things on the table without having a midnight snack but just to make you believe that someone had a midnight snack. But these hypotheses strike you as providing much more contrived explanation”, (<http://plato.stanford.edu/entries/abduction/>, Douven: 2011).

The abductive way of reasoning is the following:

- a. All peas of this box are green.
- b. These peas are green.
- c. Then, these peas belong to this box.

The truth of the third sentence is only probable and not certain, since these peas can belong to another box.

It is important noting that abduction is a way of reasoning used in the presence of energetic causation too, since it is the sole way of reasoning able to raise our level of knowledge of the world. What I define here as abduction is a sort of extreme of the philosophical concept. That is, abduction arises when the speaker establishes a link between two entities, assuming that a general property of one of these is responsible for the property of the other, in the absence of explicit and visible causal chain. In other words, abduction is the reasoning about causes by effects.

If in a force-dynamic model there is the production of physical energy which generates causation, in a non force-dynamic model there is abduction of a sentient individual, as summarized in Table 7.7 (page 187).

Model	Generator of causation	Preference
Force-Dynamic	physical energy	
Static causation	abduction	

Table 7.7: Distinctive traits of eventive and static causation (provisional).

It is worth noting that abduction is the sole “force”²⁴ able to create static causation. In the absence of a sentient individual who ascertains a causal link between two states, so who inserts abduction, no causation can be assumed.

²⁴If it can be considered a force.

Furthermore, for establishing a static causal link between two objects in the world, both objects must be present. In other words, the presence of the Source in the situation is necessary so that a speaker establishes a causal link between it and the Theme's state.

For energetic causation, imagine a context in which an egg is broken. This state can be due to different causes, for example, John opened the fridge too violently or the cat played with an egg left on the counter-top.

In each of these cases, if we enter the kitchen we can construct some hypotheses about the breaking of the egg, even though John or the cat are not present. The main point is that a person can assume that someone or something is at the origin of the egg's actual state, even if the responsible is not present at the time utterance.

(481) John broke the egg.

(482) The egg is broken, it must be John.

Imagine, on the other hand, a state of affairs in which you see a wall. You cannot suppose that it is yellowish because of the sofa, if the sofa is not there. This means that sentence (484) cannot be pronounced if the sofa is not under our eyes.

The presence of the Source is mandatory for assuming Theme's state. If the Source is not physically present, a relation between it and the Theme cannot be established.

(483) The sofa yellowed the wall.

(484) The wall is yellow, it must be the sofa.

In energetic causation, the result alone is sufficient to allow the expression of a link between it and a possible Causer, even though the latter is no more present in the state of affairs. On the other hand, in static causation the speaker cannot abduct about the Theme's state if the state of the Theme cannot be led back to the Source, i.e. if the Source is not present.

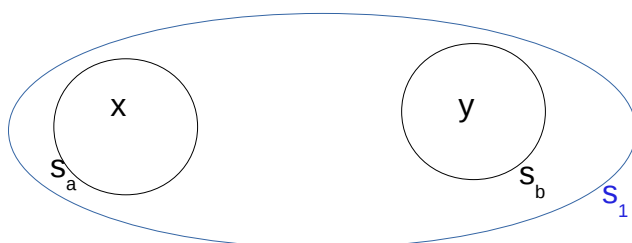
We can apply static causation approach to causative statives, such as *fear* in (485).

(485) Nightmares frighten John.

The two individuals present in the argument structure, *nightmares* and *John* are linked by means of John's state of mind. John is the sole person in the world who can feel that *nightmares scare John*. For this reason, John is the sole individual who can establish a causal relation with nightmares.

Why do nightmares have this effect on John? We don't know from sentence (485), since it only states that one or more properties of nightmares are responsible for one property of John, namely the one of being scared, which is lexicalized by the verb.

This way, what is defined as *static causation* is a connection between two properties of two individuals. The connection is not physical, in the sense that no physical energetic force intervenes to establish it, rather it is created/perceived by the psyche of an individual, thanks to abduction. There are properties of an individual which are perceived to be responsible for properties of another individual. These are consequently lexicalized as a causal link.



(486)

Figure (486) represents the cognitive situation: two individuals x and y belong to two distinct situations s_a and s_b which are not in relation to one the other, we can imagine that they belong to another wider situation s_1 .

When an organism (Barwise & Perry 1983: 10) established a causal link between s_a and s_b , she's stating that in her opinion²⁵ some imprecise property of x is responsible for a property of y which is exemplifiable with $p(y)$, without generating a change.

I assume that sentient individual can establish this link by means of tendencies possessed by objects. Just as in force-dynamic model, where individuals possess preference to *act*, in static causation, individuals have preference to *be*. Individuals have tendencies to possess particular properties that are interpreted as possible causal "antecedents".

A property belonging to an individual is part of its inherent qualities. This means that proper parts, proper features of an object constitute its properties. The definition of property is not objective, since one and the same object can be assigned different properties by different individuals or different context, because *de gustibus non disputandum est*.

In this regard, we can use the following examples and see that they are grammatically fine, but pragmatically odd.

²⁵For what she knows about the world.

- (487) ??Il cemento ingiallisce l'albero.
The concrete yellows the tree.

The oddity of (487) is due to the fact that the concrete does not have a tendency towards yellow trees. If we substitute *concrete* with *guano*, such as in (488), the sentence becomes more plausible. We can imagine that *guano* has a tendency towards yellow trees.

- (488) Il guano ingiallisce l'albero.
Guano yellows the tree.

Thus, traits that distinguish energetic causation and static causation (as summarized by table 7.8, page 190) are: (i) different generators of the causal trend, energy for the former and abduction for the latter; and (ii) the tendency of involved individuals, to *act* for the former and to *be* for the latter.

Model	Generator of causation	Tendency
Force-Dynamic	physical energy	to act
Static causation	abduction	to be

Table 7.8: Distinctive traits of eventive and static causation (definitive).

Static causation does not involve energetic force, thus situations are necessarily completely time-overlapping, contemporaneous, represented by the wider s_1 , in (486).

The assumption of a wider situation can explain the high cross-linguistically consistent intra-linguistic variability in argument structure of stative verbs, such as for psychological verbs.

All configurations lexicalize the same cognitive situation by means of different linguistic argument patterns. They are symptoms of a changing in cognitive and linguistic nature of the bond between individuals: locative stative relation, such as (489) and (490), or causative stative, such as (489) and (490).

- (489) a. Le foto sono sul muro.
Pictures are on the wall.
 b. Le foto abbelliscono il muro.
Pictures embellish the wall.
- (490) a. Giovanni teme gli incubi.
John fears nightmares.

- b. Gli incubi spaventano Giovanni.
Nightmares frighten John.

The lack of energetic force allows humans to recur to different argument patterns to express the static situation they perceive, taking advantage of this vagueness in order to put different elements in prominence. In eventive predicate this is not allowed, as seen in section 7.8.1, since argument structure mirrors the causal chain.

To summarize, in static causation there are two individuals (x and y) with their properties (p and q). There is not just one possibility to rely p(x) to q(y). In speaker's opinion, it is the case that p(x) causes q(y), i.e.: for what she knows, for what she sees, she can abduct that p(x) is in a causal link with q(y).

Thanks to abduction, x and y are ordered and this has immediate reflects on the argument structure: x is prominent and y is lower. x is Source and y is Theme (generally), x is subject and y is object.

We can apply these new improvements to stative DPVs. We have already seen that they are root derived and that the prefix is expression of the causative head. This means that syntactically, stative DPVs do not differ in this extent to their eventive counterparts. The main and substantial difference consists in their lack of eventive projection. Eventive causative DPVs are generated by v_{BECOME} , stative causative DPVs are generated by v_{RELATION} .

$$(491) \quad \llbracket v_{\text{BECOME}} \rrbracket = \lambda p \lambda f. p(\text{fin}(f))$$

$$(492) \quad \llbracket v_{\text{RELATION}} \rrbracket = \lambda p \lambda s. p(s)$$

v_{RELATION} , which is a predicative head, establishes a causal relation between two elements. (491) and (492) differ in the nature of the transfer involved: energetic causation involves transfer of energy from Causer to Theme, static causation involves a virtual²⁶ and non permanent transfer of property.

The head v_{RELATION} assures the causal relation between a property of the subject and a property of the object. A stative sub-event causes a stative result, this is possible because of the speaker building that link which is not otherwise physically present. This means that no eventive sub-events are assumed in the derivation.

Different semantics of v^0 assures different Voice heads which are responsible for the introduction of external arguments. In stative DPVs, the subject is not responsible for the introduction of force, while in eventive DPVs it is.

²⁶In the sense that it is not really perceivable by means of a physical change.

$$(493) \text{ Voice}_{\text{CAUSER}} = \lambda f. \text{causer}(x, f)p(\text{fin}(f))$$

$$(494) \text{ Voice}_{\text{SOURCE}} = \lambda s. \text{source}(x, s)p(\text{suc}(s))$$

In this section we showed that static causation does not belong in a force-dynamic model of causation. It involves a single situation. The cognitive element responsible for causation's generation is abduction, which is introduced by the a sentient individual (the speaker).

If the Source is not present in the state of affairs, no static causation can arise. Subjects of static relation have tendency to be, and general world-knowledge about their properties can generate oddity.

I propose that static causation is structurally built by a functional head called v_{RELATION} which is responsible to establish a link between the presence of the Source and the state of the Theme. The causative meaning arises because of the presence of a lower rP.

7.9 Syntactic derivations

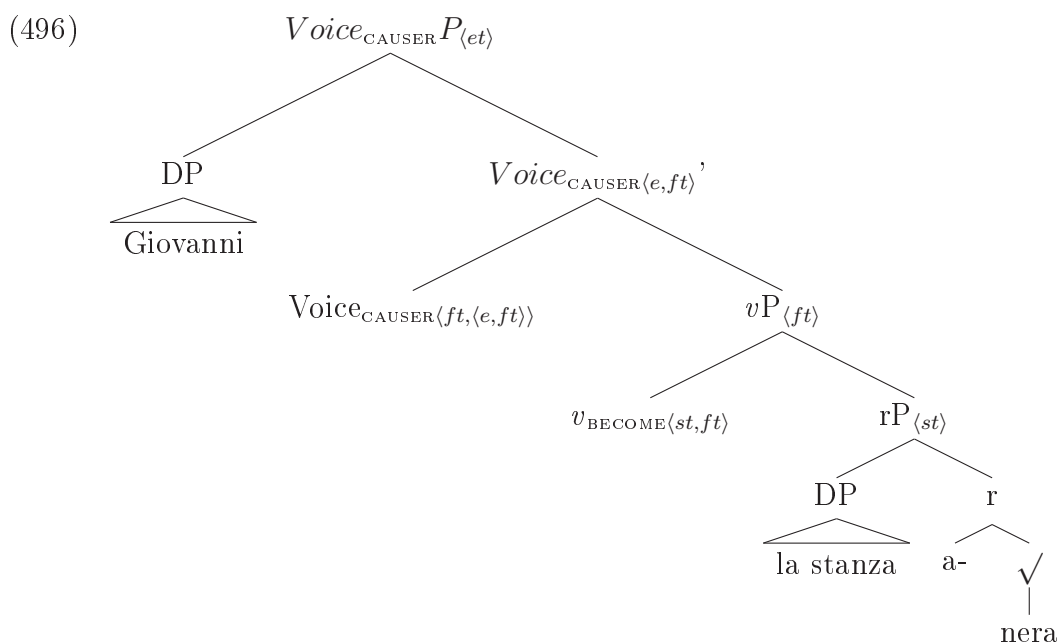
7.9.1 Causative eventives

We have seen that eventive DPVs do not differ from other causative eventive verbs. This means that their causative semantics is compatible with the presence of a lower predicative structure (here rP, elsewhere SC) (Hoekstra 1988; Schäfer, 2008) and the eventive/causative semantics is introduced by v_{BECOME} .

v_{BECOME} is responsible for establishing a relation between the external argument and the new state of the internal one by means of energetic force.

The functional head $\text{Voice}_{\text{CAUSER}}$, according to the eventive semantics of v , introduces the external Causer argument.

- (495) Giovanni annerisce la stanza.
John blackened the room.



In section 7.11, we will see that another element must be taken into account in the derivation. This is a judge parameter introduced by the base root in relation to its nature of predicate of personal taste.

7.9.2 Causative statives

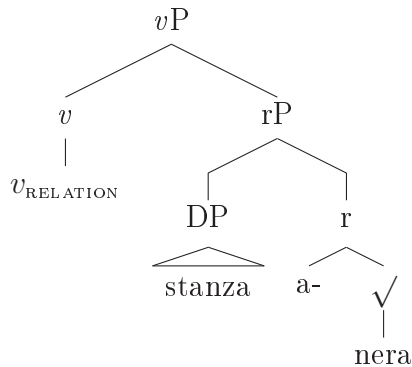
We have seen that statives can be causatives due to abduction, which is introduced in the system by a sentient individual. Abduction is not an energetic force. The speaker's intellect is able to establish a causal relationship between the presence of the external argument and the state of the internal argument.

We have considered the verbal part, which in case of stative verbs does not involve any energetic force. We represent this by means of v_{RELATION} which is responsible for the relational link between the lower relational projection (the state of the internal object) and the existence of the external argument. In particular, v_{RELATION} denotation is as the following:

$$(497) \quad v_{\text{RELATION}} = \lambda p \lambda s.p(s)$$

(498) Il divano annerisce la stanza.
The sofa blackens the room.

(499)



In case of stative reading of DPVs, the Voice head introduces a Source external argument. $Voice_{SOURCE}$'s derivation is:

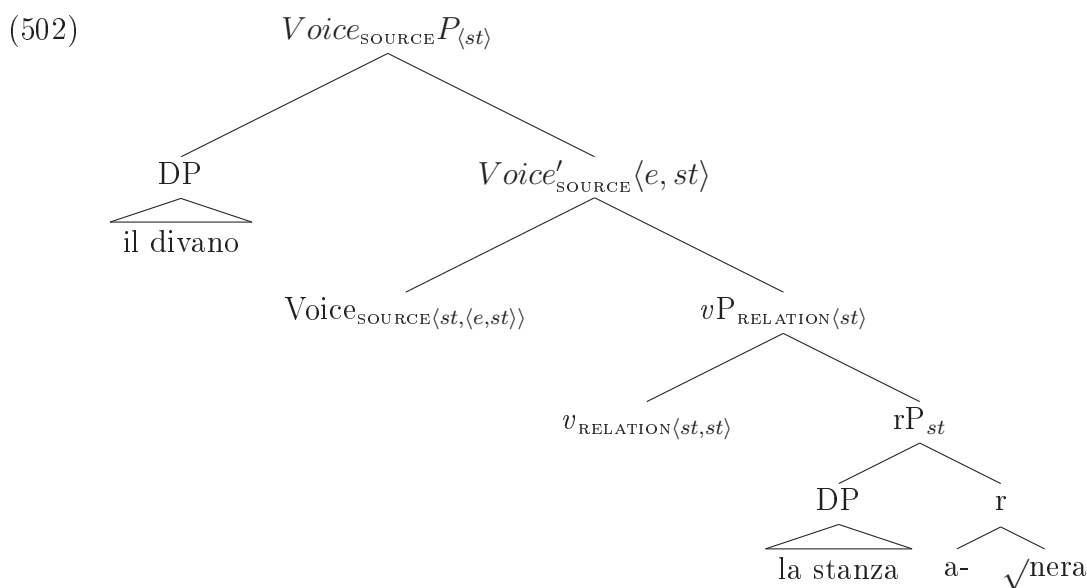
(500) $Voice_{SOURCE} = \lambda s.source(x, s)p(suc(s))$

The external argument (Source) is perceived by the speaker as responsible for the causal link between it and Theme, it has a property responsible for the state of the internal argument.

I will conclude that the causal relation between external and internal arguments is brought into the system by the speaker. This is semantically further supported by the presence of a judge parameter introduced in the derivation by the base root, which represents speaker's opinion (section 7.11.3).

The causal meaning of these verbs is determined by the presence of a *r* head in the lower part of the derivation which projects a *rP*, just as in eventive verbs.

(501) Il divano annerisce la stanza.
Sofa blackens the room.



Note that the result of the derivation is of type $\langle st \rangle$, which prevents stative verbs to combine with the progressive aspect in English; the progressive selects predicates of forces of type $\langle ft \rangle$.

A dilemma remains open, and it involves the relationship between real world and cognitive situations. In energetic causation, a parallelism between real world, cognition and language can be established: a force is in the world, it can be cognitively perceived, hence a cognitive causal chain is produced, and a matching linguistic structure can be employed. Does the same hold for static causation? We must ask what cognitive situation means. In fact, if cognitive situation corresponds to what happens in the real world, we must acknowledge two different operations generating $suc(s)$ in relation to the verb's aktionsart. When a force is produced in the world, it is cognitively perceived (whenever it is actually perceived) as involving an energetic force. Linguistically, a causal dynamic verb can represent the cognitive situation, and this is represented by the operation $suc(s)$. When a force is not produced in the world, an energetic force is not cognitively perceived. Consequently $suc(s)$ should not be involved. However, since causation is involved, $suc(s)$ must be a licit operation. Thus, cognitively, in the speaker's mind, causation happens and, by means of abduction, $suc(s)$ can be successfully applied. In order to solve this issue, studies can be conducted about how human reactions to possible real world static situation and how they establish cognitive and linguistic causal chains.

7.10 Causative statives and statives

The difference between statives and causative statives is the same as the one observed between eventive verbs and causative eventives. The difference reduces to the presence of a non-eventive relational link between the direct object and the verbal base in the lower part of the derivation, namely a rP.

Causative eventives involve a resultative reading by means of the presence of energetic force in *v* head, which is consequently characterized by force. Causative statives do not yield a resultative reading, since no change is involved, the characterization of their *v* (v_{RELATION}) must differ from the eventive one: no energetic force is contained.

We can ask then what is the difference between causative statives and regular statives, since both present a v_{RELATION} verbalising head. Exactly as for eventives, causative statives contain a rP, while regular non-causative statives present a simple individual.

In sentence (503), there is a relationship between the external argument and a state of the room. In sentence (504), there is a relationship between the external argument and the car, namely the relation of possession *Daria is in a state of possessing the car*. The point is that no property is attributed to the car because of its possession relationship with Daria.

(503) Pictures embellish the room.

(504) Daria owns this car.

In their analysis of causative eventive verbs, Folli & Harley (2005) point out that different phenomena are linked to causation in eventive verbs.

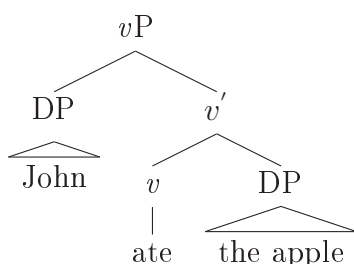
They analyse consumption verbs, such as *eat*, and show that when an animate individual is the external argument, no causation and no result are implied. This is reported in (507), where the *v* head is occupied by the verb *eat* and no SC is present.

(505) John ate the apple.

(506) Mario mangiò la mela.

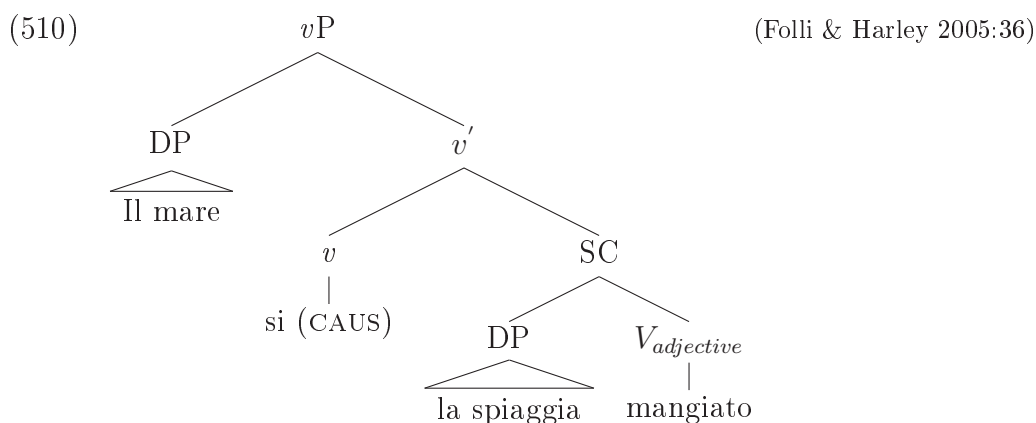
Mario ate the apple

(507) (Folli & Harley 2005, ex. 30)



When an inanimate subject is involved, a result subevent is mandatory, since the subject does not have control on the event. The result event introduces telicity and causative semantics.

- (508) a. *The sea ate the seaside.
 b. The sea ate the seaside away.
- (509) a. *Il mare ha mangiato la spiaggia.
The sea ate the beach.
 b. Il mare si è mangiato la spiaggia.
The sea ate SELF the beach.
 c. Il mare ha mangiato via la spiaggia.
The sea ate the beach away.



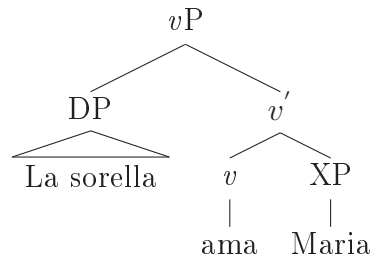
Folli & Harley (2005) do not recur to Voice head for the introduction of external arguments, which are introduced by v head. Note that roles of the external argument in (507) and (510) are different: the former is an Agent, the latter is a Causer.

We proposed that external arguments are introduced by a Voice head, thus different subjects roles are introduced by different Voice heads. These are determined by the eventuality of v . In the case of force-dynamics, $Voice_{CAUSER}$ relates to a dynamic v and produces a Causer external argument. In the case of static causation, $Voice_{SOURCE}$ relates to a stative (predicative) v and gives a Source external argument.

In other words, whenever a rP is present in the derivation, causative meaning is generated. Regular statives do not contain rP on the internal object (512), thus they do not have causative meaning.

- (511) La sorella ama Maria.
The sister loves Mary.

(512)

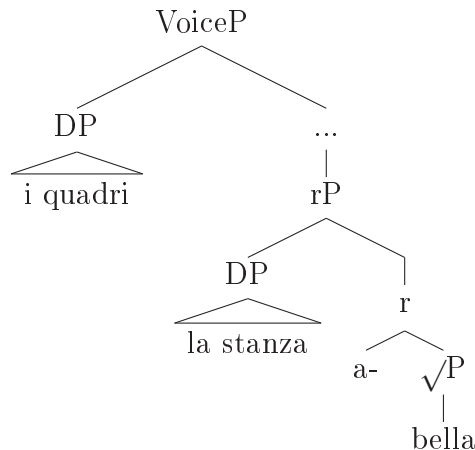


In the following example, a rP is present, so causative semantics arises. The Source individual introduced by Voice is consequently perceived as responsible for the internal state of the object.

(513) I quadri abbelliscono la stanza.

Pictures embellish the room

(514)



7.11 Predicate of personal taste

DPVs present a further element that must be discussed: a pragmatic judge parameter. Predicates of personal taste predicate of questions of opinion and not of matters of facts (Larson 2005).

In this section we will see the role of judge parameter in relation to verbal aspect. The two types of DPVs differ in the allowed reference of the judge parameter. In eventive DPVs, the judge parameter, cannot relativize parts of the sentence that are spelled out as being different from rP. In stative DPVs, the judge parameter can relativize all parts of the l-syntax of the verb (*Voice*, *v* and rP). This is due to the fact that stative causatives DPVs are created by abduction which is *per se* a matter of opinion, making possible to relativize the result, the fact that there has been causation or the fact that the responsible for the Theme's state is the Source. This statement is

supported by results of a disagreement test (Stephenson 2007), conducted in Section 7.11.1.

In formal semantics literature, adjectives of personal taste are associated with the presence of a judge parameter that relativizes truth-values to a specific individual.

(515) The cake is tasty.

(516) The car is beautiful.

The truth value of sentences above changes in relation to a specific individual, called the judge. Therefore, we can question for whom *the cake is tasty* and for whom *the car is beautiful*. In other words, the cake can be tasty for Mary, but quite disgusting for Daria.

Different hypotheses have been proposed to determine which individual is the judge. Predicate of personal taste “*relate to an internal state or experience, the question arises as to whose internal state or experience is being reported in any particular case*” (Stephenson 2007: 490).

7.11.1 Disagreement test

In order to determine to which individual the judge of sentence like (515) refers, it is possible to resort to the disagreement test (Stephenson 2007: 492).

Disagreement test consists of questions between two individuals who disagree about the state of a given object. If the state of the given object is expressed by an adjective of personal taste, a possible disagreement between the two individuals does not generate a contradiction, such as in (517). Otherwise, if the state is expressed by another type of adjective, disagreement generates contradiction, such as in (518).

(517) A: Mary’s car is cool.

B: Yes, it’s cool.

C: Oh no, it’s not cool at all.

(518) A: Mary’s car is red.

B: Yes, it’s red.

C: # Oh no, it’s not red at all.

This same test can be applied to Italian, for adjectives like *bella*, ‘beautiful’²⁷. In sentence (519), the adjective predicates over *macchina*, ‘car’, but it

²⁷Note that not all adjectives are able to introduce a judge parameter.

is difficult to attribute this judgment to a precise subject. Is the car beautiful for me, for everybody, only for some people?

According to Stephenson (2007: 492), in example (520) a predicate of personal taste pronounced by subject B, *the car is beautiful*, can be denied by a person C without generating a contradiction. What B is saying does not mean that the car is beautiful only in his/her opinion, and the same is true for C for the contrary statement.

- (519) Questa macchina è bella.
This car is beautiful.
- (520) A. Com'è questa macchina ?
How's this car?
- B. È bella!
It's beautiful!
- C. Oh no, non è bella per niente!
Oh no, it is not beautiful at all!

Whenever explicit reference is made about the person who expresses her taste, by means of *for* in English and of *per* in Italian, the parameter is set on someone and disagreement generates contradiction.

- (521) A. The car is beautiful for John.
B. # Oh, no, it is ugly!

In the next section we will use disagreement tests on DPVs of surface, in order to see whether their base root is a predicate of personal taste and to see different possibilities of reference of the judge parameter in relation to the verbal aspect.

7.11.2 Judge Parameter (eventive reading of DPVs)

In this subsection I present some evidence which shows that in the case of eventive structures, the pragmatical possibilities of reference of the judge parameter are restricted to the state of the internal object, as shown by (522) which reports a disagreement test on the result part.

- (522) A. Cosa fa Giovanna?
What does Giovanna do?
- B. Abbellisce la stanza.
She's embellishing the room.

- C. Oh no, non la abbellisce per niente, quei quadri sono disgustosi!
Oh no, she doesn't embellish it at all! That frames are really ugly.

Person C does not disagree on the fact that *Giovanna* is performing an action on the room, rather she's arguing about the result of her doing.

The following representations sketch the reason of the non contradictory nature of the disagreement in (522).

- (523) B is saying [G CAUSE [the room BE beautiful for j]], where j is the judge who evaluates
- (524) C is saying [G. CAUSE [the room BE not beautiful for j]], where j is the judge who evaluates, which is different from j for B

If we try to disagree about the fact that the event of *abbellire* has taken place, we will see that contradiction is generated. In eventive DPVs, the judge parameter cannot relativize the eventive part.

- (525) A. Cosa fa Giovanna?
What does Giovanna do?
- B. Abbellisce la stanza.
She embellishes the room
- C. ???Oh no, non fa niente!/Oh, no, lava i piatti!
Oh no, she doesn't do anything!/Oh, no, she washes the dishes.

In (525), the disagreement between B and C is about what *Giovanna* does, thus about the nature of the causative event. Therefore it derives in a contradiction.

- (526) Giovanna abbellisce la stanza.
Jeanna makes the room beautiful.
- a. Giovanna fa
Jenna acts
- b. per rendere
to cause
- c. la stanza bella (per judge). *the room beautiful (for judge)*

7.11.3 Judge Parameter (stative reading of DPVs)

A different picture emerges with stative reading of DPVs of surface. We will see that the judge parameter can relativize the meaning of all the l-syntactic

layers. In disagreement tests no contradiction is generated even in case of disagreement about the nature of causation.

Using disagreement test in (553), we see that no contradiction arises from the negation by C of the statement by B about the the state of the Theme (*beautiful table*).

- (527) A. What are these flowers doing on the table?
 B. They are embellishing it.
 C. Oh no, they are not embellishing it at all.

In (528), we can see that disagreement about the responsible for the table state does not lead to a contradiction. The judge parameter can relativize the relationship between the Source and the state of the Theme.

- (528) A. Why is the table this way?
 B. Because of the flowers.
 C. Oh no, not at all, it is this way because of the light!

Results of disagreement test for DPVs of surface can be illustrated by means of paraphrase (529). It is useful to clarify that an individual's opinion is contained not only for the definition of table state, but also for the definition of the individual and causative event perceived as responsible for this state.

- (529) The flowers embellish the table. → The flowers make the table beautiful.
 = In the opinion of the speaker the table is beautiful and in the opinion's of the same speaker the main fact responsible for this is the flowers on the table.

I suggest that this is possible because DPVs of surface involve a static causation, where the speaker is responsible for establishing a causal link between the subject and the object. In other words, the speaker, through abduction, establishes a causal link otherwise not present in the world between two objects. Consequently, causation is matter of speaker's opinion. This allows the judge parameter to refer to every part of DPVs of surface. In other words, the non-contradiction in disagreement test on the causal part of stative DPVs of surface is due to abduction, which consists in a personal matter of the speaker.

- (530) I quadri abbelliscono la stanza.
The pictures embellish the room.

- a. I quadri sono (per judge)
The pictures are (for judge)
- b. per rendere
to make (for judge)
- c. la stanza bella
the room beautiful (for judge)

7.12 Conclusions

In this chapter, I have analyzed Italian parasynthetic deadjectival verbs of the type *abbellire*, ‘to embellish’, *ingrandire*, ‘to enlarge’ and *instupidire*, ‘make someone stupid’.

Morphosyntactic evidence shows that the base is not adjectival, rather it involves a non-categorized root. The prefix is responsible for the projection of a non-eventive relational structure which involves the internal object as a subject and selects the base root. The presence or the non-eventive projection is responsible for the causal meaning.

We divided DPVs into three classes, according to the semantics of the base root: (i) psychological; (ii) of form; (iii) of surface. The first group has not been treated in this work. The latter two present different properties when the subject is inanimate: DPVs of surface are stative and DPVs of form are eventive. These aspectual characteristics have been put forth based on thanks to four tests: interpretation under modal; interpretation under *già*; temporal narrative contribution; different adjuncts. Both stative and eventive DPVs are causal.

In order to account for stative causative verbs, we adopted a force-dynamics approach to causation (Copley & Harley 2015; Copley & Wolff 2014; *inter al.*), introducing some new tools.

Having demonstrated the existence of causation independently from the presence of change, I argued for static causation. Static causation arises in the presence of a rP and relates the existence of the external argument to the state of the direct object. We have introduced a virtual force, called abduction, which is brought into the system by the speaker. Abduction is responsible for establishing the causal static link between subject and object.

Furthermore, we showed that, contrary to energetic causation, the presence of Source is mandatory in static causation and no causal static relationship can be recovered by the sole presence of individual denoted by the Theme.

We gave account for different l-syntax of eventive DPVs, of stative DPVs and of usual statives.

We have shown, by means of disagreement tests, that DPV can be relativized by a judge parameter which is made available by the base root. Judge parameter (meaning: *in someone's opinion*) presents differences depending on the type of causation. In the case of eventive verbs it can relativize only the result part. In the case of stative verbs it can relativize all different parts of l-syntax. We propose that in DPVs of surface the behavior of the judge parameter is caused by the fact that static causation is created by abduction. Abduction is a virtual force introduced by the speaker who *in her opinion* believes that there is a causal link.

Chapter 8

Stativity can be automatically detected

8.1 Introduction

This chapter is the outcome of a collaboration in a project conducted by Dr. Copley (CNRS-SFL, France) and Dr. Wolff (Emory University, Georgia, US). I have collaborated only in one part of the project which concerns a possible automatic identification of stative verbs in a corpus.

The aim of the wider project is to identify the temporal orientation of sentences from structural criteria defined *a priori*, which can be applied by an artificial intelligence.

The part of the project which constitutes this chapter aims to identify stativity diagnostics to be implemented in automatic natural language processing.

In this general framework, the identification of stative verbs is fundamental. We have seen that stative verbs involve different temporal constraints (chapter 6). For example, in a present tense sentence, eventive verbs receive a habitual reading, while stative verbs easily receive a particular reading in which they refer to a present ongoing situation.

- (531) a. Mary breaks a glass (# now/once a week).
b. Mary is breaking a glass (now/once a week).
- (532) a. Mary owns a muscle car (now).
b. ??Mary is owing a muscle car (now).

There are many ways to provide the system with a classification of stative verbs. The simplest strategy consists in providing a list of stative verbs.

Although easily created, this strategy presents different issues: a list is incomplete; stative verbs can be forced to an eventive reading by structures.

Another strategy consists in the identification of some structural criteria which can discriminate stative structures. This chapter adopts this second way and describes it in details. It presents the procedure we designed in order to automatically identify statives, on the one hand; and produce a gradient for stativity of English verbs, on the other hand.

The first goal has been reached by means of the definition of syntactic rules which can be interpreted by a parser. The second goal has been reached by the interpolation of data obtained by machines and human data.

8.2 Practical applications

Chapter 6 describes some of the interpretative differences that stative and eventive verbs generate, and underlines the importance of using them as possible eventuality diagnostics.

All the described diagnostics are useful if used by human beings. In this section we will see how to inflect them in order to get them understood by a machine.

Human beings are able to catch the difference between two readings generated by the same structure. Such as (533) and (534), where the previous implies a deontic reading and the latter a prevalent epistemic reading.

(533) John must go to the shop.

(534) John must own a bicycle.

Different readings can have other semantic consequences, for example (533) and (534) are subject to two different future constraints.

The opportunity to catch different readings is not given for free to a machine and it cannot be ignored if we want to arrive at a good automatic language interpretation. For this reason, stativity, the identification of which can appear to be unnecessary, is in reality very important in relation to temporal interpretation of a sentence.

The first step for the automatic identification of stativity consists in the definition of a set of semantic and syntactic structures which behave differently in the presence of stative and eventive verbs. It is worth recalling that syntax can force stative verbs into an eventive reading. Consequently, we should not expect that rules identify a closed set of stative verbs. Corpus analysis will pick up all those utterances in which the structure generates a

stative reading. We should rather expect a sort of ranking of stativity, from the most likely eventive verbs to the most likely stative verbs.

English disposes of several syntactic and semantic constructions which discriminate between stativity and eventivity. They can be translated in rules to be processed by a computer.

We proceed with the definition of syntactic stativity/eventivity rules, and their translation into parser (Tregex) rules. Then, we apply Tregex rules to a corpus. Each Tregex rule looks for a construction and consequently produces a list of verbs with the number of utterances in which a single verb was found in that construction.

A syntactic annotated corpus was used (Thorstad & Wolff 2016) and it was explored by means of Tregex. The next subsection reports the steps followed to get to the verb ranking.

8.2.1 Clues and notated corpus rules

We have seen that stativity is defined and detected negatively. For this reason, we mainly employed eventivity diagnostics in order to produce a gradient from the most eventive to the most stative verb.

Syntactic clues for eventivity are the possibility of appear with: progressive (535) and imperative (536), agent oriented adverbs such as *involuntarily*, *deliberately* (537), unaccusative structures (538). Stative verbs cannot appear in these structures.

- (535) a. Mary was kicking Abel.
 b. ??Mary was hating Abel.
- (536) a. Don't eat that sandwich!
 b. *Don't love that dog!
- (537) a. Mary deliberately kicked Abel.
 b. *Mary deliberately hated Abel.
- (538) a. From the explosion the glass melted.
 b. *From the explosion John loved (*int.* John undergone a change from not loving to loving)

These structures must be translated in a algorithm which can be processed by a computer. Consequently, not all are useful for the present aim, in particular those which are based on a semantic interpretation. Since English

does not have specific morphological means for imperative¹, it cannot be employed here.

On the other hand, English progressive is expressed by specific morphological means: verb *be* + gerund, which can be translated into an algorithm processable by a computer. It is worth noting that the global utterance rate for a verb in a progressive form is not informative *per se*, and must be related to the global utterance rate of the same verb in present and past tense.

Table 8.1 (page 209), reports algorithms which retrieve progressive forms. The obtained results must be interpolated with the global amount of utterances of that verb in the corpus.

Table 8.2 (page 210), reports some of the sentences picked out in a corpus of English tweets for different countries. This shows different structures identified by each rule.

Rules 1, 2 and 3 pick verbs in a non-progressive form. Rule 1 selects for all forms of a verb in the simple present (non-third and third person) and past tense, present and past participle. Rule 2 selects verb in -ing form (its gerund or present participle) with or without the presence of the verb *be*, which is the formal means to express the progressive. Rule 3 selects only verbs in simple present (non-third and third person).

These three rules are required to normalize the utterances of progressive forms, in order to get rid of a frequency effect.

Rules 4 and 5 are specific for selecting progressive forms. Rule 4 selects all verbal phrases in which verb *be* and a participle occur. Rule 5 selects verbal phrases embedded in higher sentences, this allows the program to pick up progressive forms embedded in a bigger sentence.

Another criteria that can be easily translated in a machine-friendly rule is the causative-anticausative alternation.

(539) a. Sandra broke the window.

b. The window broke.

(540) a. Sandra loved that window.

b. *The window loved.

The fact that the English anticausative construction does not present specific morphological traits makes impossible to look directly for it. We

¹The most prominent syntactic characteristic is the lack of subject. This could be perceived as a sufficient clue, since English is a non pro-drop language. However, the corpus of English tweets is a non-controlled language which often lacks otherwise mandatory grammatical subjects.

Ref.	Rule name	Tregex rule
1	Verb: base form	$VP (VB VBD VBG VBN VBP VBZ = verb)$
2	Verb: gerund/Pr.Part.	$VP < (VBG = verb)$
3	Verb: simple	$ROOT < (S < (VP < (VB VBP VBZ = verb)! < (VP < VBG)))$
4	Progressive 1	$VP < (VB VBD VBG VBN VBP VBZ < be am 'm is 's are 're was were been) < (VP < VBG = verb)$
5	Progressive 2	$ROOT < (S < (VP < (VB VBG VBP VBZ < be am 'm is 's are 're) < (VP < VBG = verb)))$

Table 8.1: Rules involved in the search of progressive.

Ref	Sentence type
1	I am at route 66
2	Getting this liquor ready for next week
3	Be happy for these moments, is your life
4	Mika is going to be on BBC tonight
5	Is now disappointed because he realises tomorrow we are going to Mostar

Table 8.2: Sentences types picked out by rules of table 8.1.

must compare the utterances of a same verb in transitive and intransitive forms. Presumably, verbs whose transitive/intransitive rate is near 1 are verbs which can participate in the anticausative construction, making them very likely eventive.

Table 8.3 (page 212), reports the rules employed to pick verbs with a high probability of participate in the anticausative construction. Table 8.4 (page 213), reports examples of sentences picked up by these rules.

Rule 1 identifies intransitive verbs, verbs without an embedded NP in their structure. Rule 2 picks those in which there is an embedded NP. Rule 3 identifies reduced sentences without a conjugated verb but with an embedded NP. Rule 4 picks embedded declarative sentences (that are introduced by a transitive declarative verb).

Again, for each lexical verb, the rate between utterances extrapolated by rule 1 and the other rules defines the verb placement in the gradient.

In order to find verb frequency, a search for VP has been conducted. It picks all verbs in the corpus, with no matter to tense.

Since stative verbs in present simple refer to present ongoing situations, in addition to the usual habitual reading, we expect that they occur more frequently than eventive verbs. For this reason, a search for verbs in present tense has been conducted. Its output is a gradient from more probable stative verbs to more probable eventive verbs. In other words, the more frequently a verb appear in present simple, the more it is probable that the verb is stative.

With the definition of different criteria, several stativity/eventivity gradients are produced. Namely, one for each rule, with the implication that a same verb can occupy different positions in different gradients. For example, in the ranking obtained with progressive rules, the verb *obtain* can be at rank 100 and in the ranking obtained with the anticausative rules it can be ranked 2000. Which ranking is the most meaningful? An interpolation between gradients produced by different rules must be performed.

Our ultimate aim is to obtain a single gradient which contains all lexical verbs present in the analyzed corpus. We can reach it by means of an equation which can contain the weight to be assigned to each rule. In other words, it is necessary to identify which of all criteria is more performing in the identification of eventive/stative verbs.

We need an independent measure of stativity/eventivity. This is obtained by the collection of human data by means of a semantic interpretation task. The semantic interpretation task is built on some English verbs and asks to English speakers their judgment about the stativity of verbs (please refer to the following section for exact procedure and instructions). Results are a YES/NO value about stativity for each verb. Consequently, we obtain the

Ref.	Rule name	Tregex Rule
1	Intransitive	$ROOT < (S < (VP < (VB VBD VBG VBN VBP VBZ = verb))! < NP)$
2	Transitive 1	$ROOT < (S < (VP < (VB VBD VBG VBN VBP VBZ = verb)) < NP)$
3	Transitive 2	$ROOT < (S < (VP < (VB VBD VBG VBN VBP VBZ = verb) < (S < NP)))$
4	Transitive 3	$ROOT < (S < (VP < (VB VBD VBG VBN VBP VBZ = verb) < (SBAR < WHNP)))$

Table 8.3: Rules involved in the search of anticausatives.

Ref.	Sentence
1	Be my home just for the day
2	Yes, I'm eating all-bran at 4:00
3	Having my coffee in the cold while watching the sun climbing up
4	Waiting what we will hear on a press next weekend

Table 8.4: Sentences picked up by rules of Table 8.3.

independent measure that can be employed to weigh Tregex rules.

8.2.2 Semantic interpretation task

We need independent measure in order to compare results of Tregex rules searches. We provided it by means of a semantic interpretation task.

48 verbs were selected from utterance corpus list and employed to build an experiment. Of these 48 verbs, 24 were chosen as “likely stative” and 24 as “likely eventive” (the complete list is given in table 8.5 (page 216), along with sentences in which they were employed).

The experiment consists in a semantic interpretation task under a modal. Informants were asked to judge whether a sentence, containing the modal verb *must*, represented a command (deontic interpretation) or an assumption about a matter of fact (epistemic interpretation).

The experiment is divided into two parts: (i) the socio-linguistic questionnaire; (ii) the linguistic part.

The socio-linguistic questionnaire registers age, sex and residence of participants with an usual format.

The linguistic part is composed of 48 sentences: 24 sentences with an eventive verb and 24 sentences with a stative verb. Subjects of both groups were equally divided into animate and inanimate nominals, i.e. that 24 sentences contain an animate subject and 24 an inanimate.

Sentences contain the modal *must* at the present tense. All sentences involve the schema *subject + verbal complex + direct object and complements*. Since generic objects influence eventuality, we used quantized objects.

Sentences below are examples of different conditions of experimental items. (541) contains an animate subject and a stative verb; (542) contains an inanimate subject and a stative verb; (543) contains an animate subject and an eventive verb; (544) contains an inanimate subject and an eventive verb.

(541) This child must belong to Mary.

(542) His answer must reveal his stupidity.

(543) Sandra must plan her maternity leave.

(544) The couple must change their wedding date.

The experiment was uploaded on Ibexfarm, which was the actual administering platform. Participants were recruited by means of Amazon Mechanical Turk (henceforth MTurk). They were enrolled thanks to MTurk and that were redirected to Ibexfarm in order to complete the experiment. Participants were paid 1,25 US dollars each at the completion of the experiment.

Participants were asked to judge all 48 sentences, which were presented in random order (determined by IbexFarm).

25 (15 female) American English native speakers completed the task. Mean age is 35,84 years (min. 24; max 69). They were all residents in the US territory at the moment of the task.

Results confirm the predictions. From I01 to I24 verbs are stative (majority of answer “assumption”) and from I25 to I48 they are eventive (majority of answer “command”).

8.3 Stativity/eventivity gradient production

Data obtained by Tregex rules and data obtained by our experiment can now be compared.

The goal is the definition of the most powerful Tregex rules (called also variables) by the attribution of different weights. This yields the definition of an equation which combines the weight of the most powerful Tregex rules in order to obtain 100% accuracy.

We conducted a logistic regression between values obtained by human beings as dependent variable (called: group 0 for statives and 1 for eventives) and values obtained by corpus search.

Results show that we obtain 100% accuracy in verbal aspect definition with three variables: VP, ration Progressive1 over VP and sum of intransitives minus sum of transitives.

VP rule is important to get rid of frequency effect. Ratio Progressive1 over VP shows a very high positive correlation with group variable 1 (eventives), being accurate at 96% alone, and accounting for a frequency effect. The difference between sum of intransitive rules and sum of transitive rules represents the effect of transitivity. Results are reported in the regression equation in figure 8.3 (page 217).

Results are interesting from two perspectives. First, they provide a mathematical tool that can be employed in NLP whenever the verbal *aktionsart* is at stake. Second, they are evidence of the stativity/eventivity distinction. Statistics shows that some diagnostics are better than others to detect this aspectual ambiguity.

8.4 Conclusions

This chapter is part of a wider project by Dr. Copley (CNRS-SFL, France) and Dr. Wolff (Emory University, Georgia, US), which proposes an automatic

Ref.	Verb	Sentence
I01	Matter	The disciplinary commission decision must matter to Sandra
I02	Belong	This child must belong to Mary
I03	Reveal	His answer must reveal his stupidity
I04	Love	John must love this swimming pool
I05	Hinge	This mathematical problem's solution must hinge on this variable
I06	Foster	The circumstances must foster this type of crime
I07	Bewilder	The latest news from New York must bewilder the readers
I08	Enthrall	The magician must enthrall Robin
I09	Buttress	This pillar must buttress the cathedral's nave
I10	Regret	Sandra must regret John's leaving
I11	Hate	John must hate his neighbour
I12	Cherish	Sandra must cherish her pocketwatch
I13	Know	Mary must know this answer
I14	Need	John must need a car
I15	Crave	Sandra must crave that phone
I16	Dislike	Mary must dislike this cake
I17	Envy	John must envy his brother
I18	Deserve	John must deserve that treatment
I19	Dismay	John must dismay his parents
I20	Detest	Sandra must detest that couch
I21	Despise	Mary must despise his behavior
I22	Own	Sandra must own that place
I23	Believe	John must believe in the ghost
I24	Disappoint	Sandra must disappoint her brother
I25	Increase	Sandra must increase her income
I26	Start	John must start this poem
I27	Produce	Those workmen must produce 2000 shirts
I28	Kill	That man must kill the chicken
I29	Change	The couple must change their wedding date
I30	Teach	The teacher must teach the new song
I31	Provide	That magnate must provide 2000 gallons of water
I32	Fall	John must fall in that ditch
I33	Keep	Sandra must keep this door open
I34	Go	Mary must go to the flower shop
I35	Work	Sandra must work on Julia's birthday party
I36	Play	John must play in the championship
I37	Run	Mary must run the 2016 New York Marathon
I38	Become	Sandra must become a scientist
I39	Use	John must use a pen
I40	Make	Mary must make a milkshake
I41	Plan	Sandra must plan her maternity leave
I42	Move	John must move to Los Angeles
I43	Leave	Mary must leave a message
I44	Wait	Sandra must wait for her sister
I45	Break	John must bake twelve cupcakes
I46	Write	Mary must write her PhD dissertation
I47	Fight	Sandra must fight those superstitions
I48	Study	John must study four chapters

Table 8.5: Sentences used in the experiment.

Classification Table^a

		Observed	Predicted		Percentage Correct
			group 0	group 1	
Step 1	group 0	0	24	0	100.0
	group 1	1	0	24	100.0
Overall Percentage					100.0

a. The cut value is .500

Variables in the Equation

		B	S.E.	Wald	df	Sig.	Exp(B)
Step 1 ^a	intrans_minus_transitive	.000	.017	.000	1	.986	1.000
	prog1_over_VP	4419.126	213548.243	.000	1	.983	.
	verb_phrase	.000	.013	.000	1	.985	1.000
	Constant	-95.532	4620.744	.000	1	.984	.000

a. Variable(s) entered on step 1: intrans_minus_transitive, prog1_over_VP, verb_phrase.

Figure 8.1: Regression Table for Tregex Rules.

temporal interpretation of sentences. The issue of the identification of verbal eventuality plays a big role in temporal interpretation, since stative and eventive verbs are interpreted differently in certain tenses.

I described syntactic rules that target different eventualities in automatic corpus searches. They produce different gradients of stativity/eventivity. Furthermore, the procedure of data interpolation is described which is conducted between rankings and data obtained by means of a semantic interpretation task of verbs under modal *must*, conducted on 25 English native speakers.

Results of a logistic regression are reported and produce a correlation equation that defines the most powerful variables in the identification of verbal aspect.

Chapter 9

Conclusion

The present dissertation analyzes the syntactic behavior of denominal and deadjectival parasynthetic verbs. Both groups are interesting from argument structure perspective, but for different reasons. Denominal parasynthetic verbs challenge theories of argument structure in pseudo-resultative configurations, while deadjectival parasynthetic verbs play an important role in the elucidation of the nature of aspectual ambiguities and causative statives. For this reason the dissertation is divided in two parts that share the common interest in argument structure.

An in-depth reflection about data collection methodologies is presented in chapter 1. I argue in favor of the use of stricter experimental protocols in the generative framework, particularly in case of subtle interpretation judgments, in order to (i) avoid imprecise results and (ii) to improve scientific exchanges with other fields in cognitive sciences which only employ structured methodology. I report: (i) cases in which the methodology was responsible for the collection of false results (Langendoen *et al.* 1970; Wasow & Arnold 2005; Gibson & Fedorenko 2013) and (ii) experimental protocols that are employed in the present work or that would be useful in the syntax/semantic generative research (Ionin 2012; Gordon & Chafetz 1986; Bard, Robertson & Sorace 1996). However, I emphasize the importance of introspection when a linguistic fact has to be delineated, in the first steps of investigation.

After presentation of argument structure theories (chapter 1) (Hale & Keyser 1993 and ff; Ramchand 2008; Borer 2005), I adopt a general constructionist approach in which the lexicon is not completely emptied of syntactic information, and different readings of a same lexical verbs are attributed to different syntactic structures. Furthermore, I adopted a force-dynamic approach (Copley & Harley 2015) to causation (section 7.8.1) which treats causation as the result of application of dynamic forces.

I present the main class of parasynthetic verbs in Italian in chapter 3.

I report three theories on derivational steps responsible for parasynthesis (Darmester 1890; Iacobini 2004; Scalise 1990; Crobin 1987), pointing out that none of them is able to explain the position of the prefix which does not respect the mirror principle. I demonstrate the root nature of the stem of parasynthetic verbs, and the semantic causal contribution of prefixes. In particular, I propose that prefixes are in the head position of a non-eventive relational projection caller rP (Acedo-Matellan 2006), that selects the root and has in specifier position the direct object. The presence of the rP made a verb causative (Hoekstra 1998; Schäfer 2008).

The first part of the dissertation focuses on denominal parasynthetic verbs which can be paraphrased as “(make) X become(s) an N”, where N is the base and X is the Theme (called BN). In chapter 4, I introduce the pseudo-resultative construction (Levinson 2007 and ff.), which is composed of an adjective that modifies the implicit entity of the verb. I expose structural differences between implicit and explicit creation verbs: the individual created in the course of the event does not belong to the argument structure of the former, but does so in the case of the latter. I argue for the implicit creation nature of BN verbs on the basis of three criteria: (i) they are goal verbs (Clark & Clark 1979); (ii) they imply the creation of a shadow argument (Geuder 2000); (iii) they require the mandatory presence of an affected object. In order to investigate whether Italian BNs behave like their English counterparts in the pseudo-resultative construction (PR), I conduct a semantic interpretation task with 106 Italian native speakers. Results indicate that: (i) PR is grammatical in Italian in context with explicit direct object (545), since it receives 85% of answers; and (ii) PR is the only possible interpretation in context with a pronominal direct object (546).

(545) Daria impilò i libri alti.

Daria piled books high.

(546) Dopo aver letto i libri, Daria li impilò alti.

After having read the books, Daria piled them high.

Since Italian explicitly marks gender on adjectives, grammaticality of Italian PR and results of the experiment confirm Levinson’s (2007) analysis of pseudo-resultatives, in particular her treatment of adjectival agreement. In PR construction, the adjective agrees with the direct object, even though it is not the modified entity, because the implicit entity, being a non-categorized root, cannot check the ϕ features of the adjective. Consequently, the adjective has to check them with the direct object, the first c-commanding DP.

A magnitude estimation task was conducted in order to investigate the difference in acceptability between adjectival vs. adverbial modification in

pseudo-resultative configuration. Results show that adverbs are preferred to adjectives. Since BNs are resultative verbs and have at least two projections that can be modified by the adverb, I propose that adverbs can have two scopes, narrow and wide. The previous modifies the resultative part, the latter the eventive part.

(547) Daria ammucchia i vestiti disordinatamente.

Daria stacks the clothes untidily.

- a. As a result of the action of Daria, the clothes are in a untidy stack.
- b. The action of Daria is untidy.

With respect to secondary predicates, Italian behaves in a slight different manner than other Romance languages. Italian being a verb-frame language (Talmy 1991, 2000), we would expect the absence of strong resultatives in this language. However, according to Folli (2001), Italian can form adjectival resultatives with activity verbs under certain circumstances, such as the reduplication of the adjective (548).

(548) Daria ha martellato il metallo piatto
 Daria have-3SG.PR. hammer-PART. det-SG.M. metal flat-SG.M.
 piatto.
 flat-SG.M.

Daria hammered the metal flat.

We have seen that Italian can also form pseudo-resultatives. In order to investigate whether this is a peculiar behavior in the Romance panorama, I conduct a semantic interpretation task involving PR construction in French with 44 French native speakers (549). I discover that PR is not generally acceptable in French. However, its acceptability improves significantly for three verbs (*empiler*, ‘pile’; *tresser*, ‘braid’; *trancher*, ‘slice’). I argue that this depends on the higher phonological transparency. The three verbs entertain a direct phonological correspondence with the noun built on the same root base (*empiler*, ‘to pile’, *pile*, ‘a pile’), this phonological transparency allows speakers to perceive the link between the implicit entity and the adjective.

(549) ? Claude a empilé les livres hauts.

Claude piled the books high.

In the second part of the dissertation, I analyze the behavior of another class of parasyntetic verbs formed from adjectives with causative semantics

(DPVs), and sometimes with a double aspectual reading. I divide the class further, depending on the lexical semantics of the root. Three subclasses are thus presented: DPVs of form, DPVs of surface, psychological DPVs. Chapter 7 studies the behavior of the first two groups, leaving psychological DPVs aside for future researches.

In order to define which DPVs alternate between an eventive and a stative reading, I consider different stativity diagnostics proposed in the literature. Chapter 6 reports and analyses syntactic and semantic stativity tests applied to Italian: ungrammaticality with progressive and imperative; contribution to the narrative time, deontic/epistemic reading with modal *dovere*, ‘must’ and future/present constraint. I show that syntactic tests seem to detect not the stativity *per se* but some related phenomena, thus these tests do not count as reliable tools for defining stativity (Squartini 1990, 1998; Levin 2007; Bertinetto 2000). Concerning semantic tests, I show that: (i) stative verbs under modal entertain two possible interpretations, deontic and epistemic, while eventives only one, deontic (Giorgi & Pianesi 1997); (ii) stative verbs generate a present constraint, while eventive verbs a future constraint (Katz 2003; Condoravdi 2002); (iii) stative verbs do not contribute to narrative time progress (Katz 2003; Dry 1983). In support of (ii), I conduct a semantic interpretation test with 188 Italian native speakers; its results confirm the different interpretation of statives and eventives under modal *dovere*, ‘must’, and confirm that, whenever instructions are clear, naive speakers can be useful in order to refute a particular analysis. In addition to syntactic and semantic stativity diagnostics, stative verbs are shown to differ from eventives in their processing correlates. I report results of a self-paced reading test conducted by Gennari & Poeppel (2003), which pointed out that stative verbs are read significantly slower than eventive verbs.

Chapter 7 resorts to semantic diagnostics in the analysis of aspectual ambiguities of DPVs. I demonstrate that DPVs of form are always eventive, (550a) and (550b), while DPVs of surface can be eventive or stative. The difference is pointed out by the (in)animacy of the subject, when DPVs of surface receive an eventive reading the subject is animate (551a), while a stative reading is available when the subject is inanimate (551b).

- (550) a. Daria ha allargato il buco nel muro.
Daria enlarged the window.
- b. La muffa ha allargato il buco nel muro.
The mold enlarged the hole in the wall.
- (551) a. Daria ha abbellito la camera nuova.
Daria embellished the new bedroom.

- b. Il divano ha abbellito la camera nuova.
The sofa embellished the new bedroom.

Next, I show that, even though they often co-occur, causation and change are not systematically co-generated: when a change is produced, causation is involved; when causation is present, change can be produced or not. For this reason, I adopt a force-dynamic approach to causation (Copley & Harley 2015), which can account for the presence of causation even in the absence of change, since causation is generated by an energetic force and it is not a sub-event linked to an event argument (section 7.8.1). Energetic causation is involved in causative eventive verbs, since it is generated by the presence of an energetic force. In the case of stative verbs, no energetic force is produced in the situation. For this reason, I update the approach by the introduction of abduction. Abduction is a “virtual force” which is generated by the speaker’s opinion. In other words, causation in stative DPVs of surface (551b) is produced by the speaker who established a link between the existence of the external argument and the state of the internal object: *the presence of the sofa is related to the bedroom to be beautiful*. Consequently, contrary to dynamic causation, the absence of Source in the situation implies the impossibility of causal link between it and the direct object’s state: if the *sofa* is not present in the situation, the speaker cannot state that *the room is beautiful because of something*.

The importance of the speaker for static causation is further supported by a pragmatic judge parameter (Larson 2005). It is introduced by the base root, and relativize statements on someone’s opinion (the judge’s opinion). Disagreement tests (section 7.11.1) show that the judge parameter can relativize different parts of DPVs depending on their eventuality.

- (552) A. Cosa fa Giovanna?
What does Giovanna do?
- B. Abbellisce la stanza.
She’s embellishing the room.
- C. Oh no, non la abbellisce per niente, quei quadri sono disgustosi!
Oh no, she doesn’t embellish it at all! That frames are really ugly.

Person C does not disagree on the fact that *Giovanna* is performing an action on the room, rather she disagrees about the result of her doing.

When stative, it can relativize also the causal part of the sentence. Static causation is generated by abduction, introduced by the speaker who is responsible for establishing the causal link. In other words, static causation is by definition relative to a personal opinion.

- (553) A. What are these flowers doing on the table?
 B. They are embellishing it.
 C. Oh no, they are not embellishing at all.

I argue that the causal meaning of both stative (559) and eventive DPVs (561) is structurally determined by the presence of a rP which involves the internal object (Hoekstra 1988; Schäfer 2008; Folli & Harley 2005). Difference between stative and eventive readings is generated by a different flavor of v . Eventive DPVs involve a dynamic functional head, and are formed by different flavors of the same functional projections. The verbalizing head is v_{BECOME} and the projection in which merges the external argument is $\text{Voice}_{\text{CAUSER}}$. Stative DPVs involve a stative functional head (predicative head). The derivation of stative DPVs involves the verbalizing functional head which is a predicative head (v_{RELATION}) (557), and a functional head according to the v is responsible for the introduction of the right external argument, in the case of stative DPVs it is Source ($\text{Voice}_{\text{HOLDER}}$) (555).

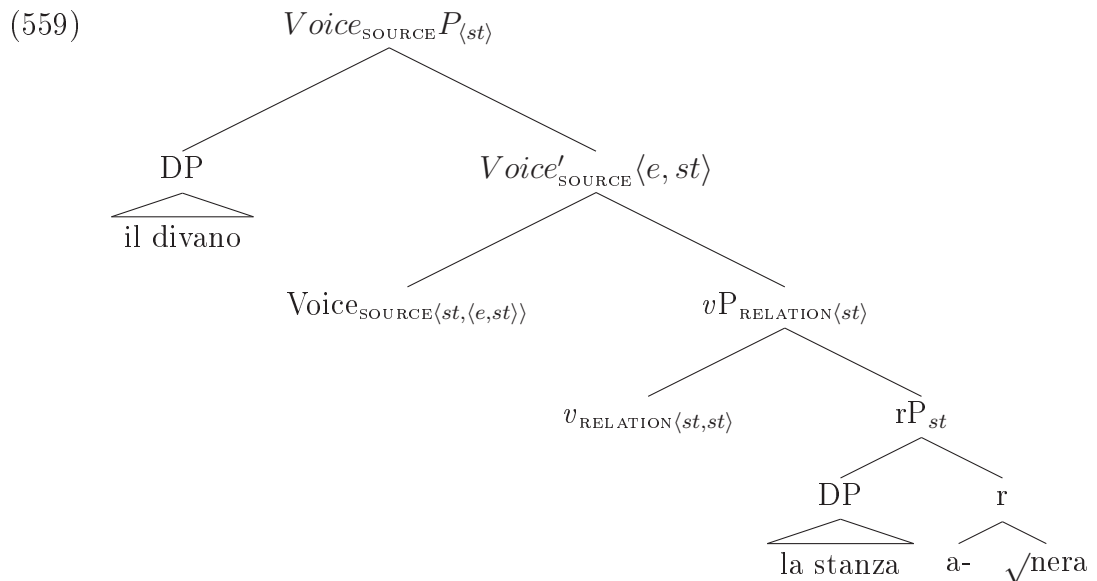
$$(554) \text{Voice}_{\text{SOURCE}} = \lambda f. \text{source}(x, f) p(\text{fin}(f))$$

$$(555) \text{Voice}_{\text{HOLDER}} = \lambda s. \text{holder}(x, s) p(\text{suc}(s))$$

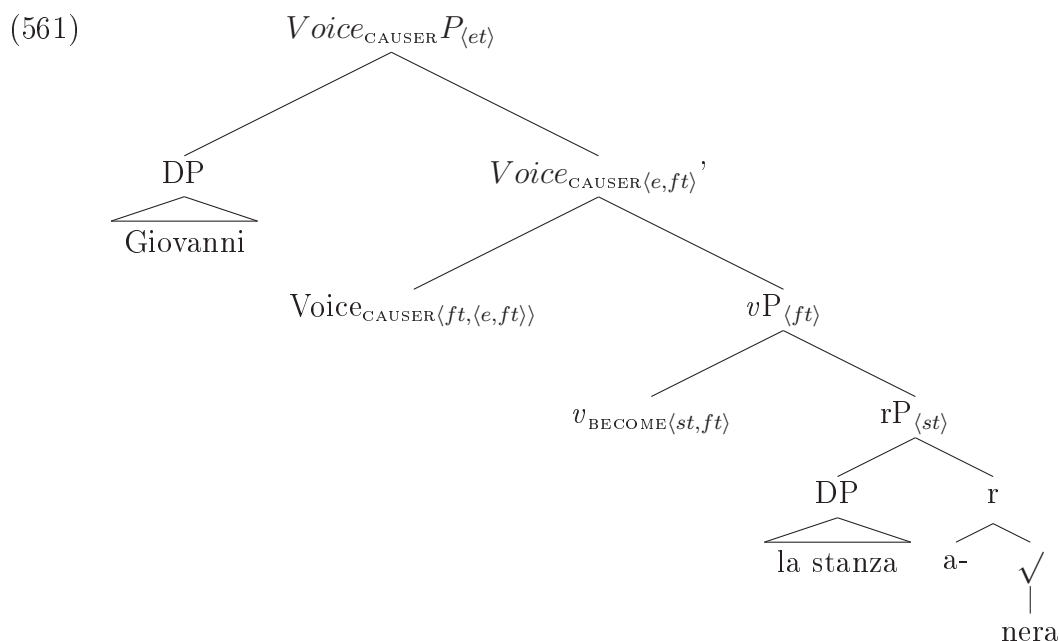
$$(556) \llbracket v_{\text{BECOME}} \rrbracket = \lambda p \lambda f. p(\text{fin}(f))$$

$$(557) \llbracket v_{\text{RELATION}} \rrbracket = \lambda p \lambda s. p(s)$$

- (558) Il divano annerisce la stanza.
Sofa blackens the room.



(560) Giovanni annerisce la stanza.
John blackened the room.



In case of stative causatives, the result part does not determine a change of the object, but a state which is not dependent on any event. This is expressed to the presence of the predicative head which does not introduce force in the system; without energetic force, no change can be derived. In this sense, derivations proposed for statives and eventives causatives are similar and the difference resides in the flavor of *v*.

Some questions remain open, particularly: whether all causative statives are generated by the structure proposed in this work; the morphological confirmation of flavor of little *v*; the nature of causative psych verbs and the origin of its peculiarity.

Stative/eventive division plays a critical role outside theoretical linguistics. Since it has important consequences both on interpretation and grammaticality, it plays a big role in automatic language processing.

Chapter 8 aims to the automatic determination of the eventuality of English verbs by means of syntactic rules that can be translated in parser-friendly rules, and to the creation of a stativity/eventivity gradient of English verbs. Not all stativity diagnostics involve linguistic means that can be detected in automatic corpora search.

I was interested in determining the stativity diagnostics useful in automatic search which present some morphological means. In particular, I translated into Tregex rules: progressive form; simple present; causative/inchoative

alternation. I conducted a search of these Tregex rules into corpus and a list of verbs frequency for each rule is obtained.

In order to create a single gradient of English verbs, ordered from the most probable stative to the most probable eventive, I had to determine the weigh of each rule, its power in the selection of stative verbs. I normalize the frequencies of verbs obtained by the corpus search with an independent value. This vale was obtained by means of a semantic decision task conducted with English native speakers about the deontic/epistemic interpretation of verbs under modal *must*. Participants were asked to judge whether 48 English sentences (24 stative verbs, 24 eventive verbs) could be interpreted as a command or an assumption. Results were used to determine the power of each rule in the determination of stativity. In particular, a logistic regression was conducted.

An equation with 100% accuracy can be produced that evaluates and determines the probability of a verb to be stative. Such an equation is most useful in all researches that investigate phenomena linked to verbal eventuality.

The dissertation investigates different aspects of argument structure from different perspectives (lexical, syntactic, semantic and IT). Its main contributions are: reflection on methodologies about data collection; investigation of Italian pseudo-resultative construction; reflection on stativity diagnostics; definition of stative causation; creation of a syntactic gradient for the automatic determination of verb eventuality.

Different questions remain open for future research and I look forward to answering them.

Appendix A

This appendix is about Part I.

A.1 List of denominal parasynthetic verbs

Verb	Structure	Translation
accampare	tr, pron intr	to camp
accappare	tr	to make a noose
accartocciare	tr	to roll in form of a cone
accartocciarsi	intr, pron intr	to roll self in form of a cone
accatastare	tr	to set into a heap
accoppiare	tr	to make, to form a couple
accoppiarsi	refl	to make self into a couple
accorpare	tr	to unify in a single organism
accovonare	tr	to tie sheaf
affaldellare	tr	to make or to reduce smth in frayed canvas
affardellare	tr	to collect into bundles
affastellare	tr	to collect into bundles
affascinare	tr	to collect into a wooden bundles
aggomitolare	tr	to collect smth as in a ball of wool
aggomitolarsi	pron intr	to dispose self in a fetal position
aggrovigliare	tr	to tangle up
aggrovigliarsi	intr pron	to tangle self up (figurative)
allineare	tr	to place in line
allinarsi	refl	to place self in line
ammassare	tr	to pick up in big quantity, to create a mass
ammassarsi	intr pron	to create a mass of people
ammattassare	tr	to roll up a hank
ammonticchiare	tr	to pile up in chaotic form
ammucchiare	tr	to pile up in chaotic form
appaiare	tr	to put together smth to create a pair
appaiarsi	refl	to put together self to create a pair
appallottolare	tr	to reduce in a spherical form
appezzare	tr	to join pieces of fabrics
asservire	tr	to reduce in slavery
asservirsi	refl	to reduce self in slavery

(Continues on the next page)

Verb	Structure	Translation
assoggettare	tr	to reduce smone under other's people will
assoggettarsi	refl	to reduce self under other's people will
azzerare	tr	to take a tool's indicator to zero
azzerarsi	pron intr	to run out
azzerarsi	refl	annihilate
imballare	tr	to collect in bales
imbambarirsi	pron intr	to barbarize self
impietrire	tr and intr	to convert into stone, to become harder
impilare	tr	to collect, to dispose into a pile
inacetire	tr	to become sour (figurative or not)
incenerire	tr	to burn untill ashes
incolonnare	tr	to collect, to organize in column
infilzare	tr	to skewer
intrecciare	tr	to braid
affettare	tr	to cut into slices
aggrumare	tr	to reduce in clumps
arrugginire	tr	to reduce smth rusty
sbriciolare	tr	to reduce in crumbles
sbrindellare	tr e intr	to reduce in scraps
sbranare	tr	to reduce in scraps
scollare	tr	for clothes, to cut the collar off
sfaldare	tr	to reduce in thin layers
spezzare	tr	to reduce in pieces
spezzettare	tr	to reduce in small pieces

A.2 Semantic interpretation task ITA

EXPERIMENTAL ITEMS. Condition 1.

- A1 SENT: Anche se non è una parrucchiera, Maria intreccia i capelli stretti.
Even though she's not a hair-dresser, Mary braid hair tight.
 QUEST: A partire dai capelli, Maria crea una treccia stretta.
From hair, Mary creates a tight braid.
 QUEST: A partire dai capelli stretti, Maria crea una treccia.
From tight hair, Mary creates a braid.
- B1 SENT: Quando prepara il salame di cioccolato, Maria sbriciola i biscotti fini.
When she prepares the cake, Mary crumbles biscuits thin.
 QUEST: A partire dai biscotti, Maria crea delle briciole fini.
From biscuits, Mary creates thin crumbles.
 QUEST: A partire dai biscotti fini, Maria crea delle briciole.
From thin biscuits, Mary creates crumbles.
- C1 SENT: Per preparare i panini, Maria affetta il salame sottile.
In order to prepare sandwiches, Mary slices salami thin.
 QUEST: A partire dal salame, Maria crea delle fette sottili.
From salami, Mary creates thin slices.
 QUEST: A partire dal salame sottile, Maria crea delle fette.
From thin salami, Mary creates slices.
- D1 SENT: Quando giocano, i bambini incolonnano i lego storti.
When they play, children column building-blocks crooked.
 QUEST: A partire dai lego, i bambini creano delle colonne storte.
From building-blocks, children create crooked columns.
 QUEST: A partire dai lego storti, i bambini creano delle colonne.
From crooked building-blocks, children create columns.
- E1 SENT: Se hanno bisogno di posto, i bibliotecari ammucciano i libri alti.
If they need more space, librarians stack books high.
 QUEST: A partire dai libri, i bibliotecari creano dei mucchi alti.
From books, librarians create high stacks.
 QUEST: A partire dai libri alti, i bibliotecari creano dei mucchi.
From high books, librarians create stacks.
- F1 SENT: Se non erano esperte nella filatura, le donne aggomitolavano il cotone lasco.
If they were not fining experts, women winded loose cotton.
 QUEST: A partire dal filo di cotone, le donne creavano dei gomitioli laschi.
From cotton string, women created loose balls of wool.
 QUEST: A partire dal filo di cotone lasco, le donne creavano dei gomitoli.
From a loose cotton string, women created balls of wool.
- G1 SENT: Quando non c'erano le macchine, i boscaioli accatastavano la legna scombinata.
When cars didn't exist, lumberjacks dumped mixed-up wood.
 QUEST: A partire dalla legna, i boscaioli creavano delle cataste scombinata.
From wood, lumberjacks created mixed-up heaps.
 QUEST: A partire dalla legna scombinata, i boscaioli creavano cataste.
From mixed-up wood, lumberjacks created heaps.

- H1 SENT: Alle fontane, le lavandaie impilavano i vestiti confusi.
At fountains, washerwomen piled mixed-up clothes.
 QUEST: A partire dai vestiti, le lavandaie creavano delle pile confuse.
From clothes, washerwomen created mixed-up piles.
 QUEST: A partire dai vestiti confusi, le lavandaie creavano delle pile.
From mixed-up clothes, washerwomen created piles.
- I1 SENT: Alla festa dell'altro giorno, i bambini hanno spezzettato la cioccolata sottile.
At the party of the other day, children broke-in-pieces the thin (bar of) chocolate.
 QUEST: A partire dalla cioccolata, i bambini hanno creato dei pezzetti sottili.
From chocolate, children created thin pieces.
 QUEST: A partire dalla cioccolata sottile, i bambini hanno creato dei pezzetti.
From thin (bar of) chocolate, children created pieces.
- L1 SENT: Nel numero 50 di Topolino, Paperon de' Paperoni ha ammonticchiato il denaro informe.
In the n° 50 of Mickey Mouse magazine, Scrooge McDuck piled up the shapeless cash.
 QUEST: A partire dal denaro, Paperon de' Paperoni ha creato dei monti informi.
From cash, Scrooge McDuck created shapeless piles.
 QUEST: A partire dal denaro informe, Paperon de' Paperoni ha creato dei monti.
From shapeless cash, Scrooge McDuck created piles.
- M1 SENT: Ieri, dopo averlo raccolto, il contadino ha imballato il fieno rotondo.
Yesterday, after having harvested it, the farmer packed the hay round.
 QUEST: A partire dal fieno, il contadino ha creato delle balle rotonde.
From hay, the farmer created round packs.
 QUEST: A partire dal fieno rotondo, il contadino ha creato delle balle.
From round hay, the farmer created packs.

EXPERIMENTAL ITEMS. Condition 2

For experimental questions, refer to Condition 1. In fact, question sentences were maintained equal for condition 1 and condition 2.

- a2 Anche se non è una parrucchiera, quando tocca i capelli, Maria li intreccia stretti.
Even though she's not a hair-dresser, when she touches hair, Mary braids them tight.
- B2 Quando prepara il salame di cioccolata con i biscotti, Maria li sbriciola fini.
When she prepares the cakes with biscuits, Mary crumbles them thin.
- C2 Per preparare i panini, Maria prende il salame e lo affetta sottile.
To prepare sandwiches, Mary takes the salami and she slices it thin.
- D2 Quando giocano con i lego, i bambini li incolonnano storti.
When they play with building-blocks, children column them crooked.
- E2 Se hanno bisogno di posto, i bibliotecari spostano i libri e li ammucchiano alti.
If they need more space, librarians move books and they piled them high.
- F2 Se non erano esperte nella filatura del cotone, le donne lo aggomitolavano lasco.
If they were not experts in fining the cotton, women winded it loose.

- G2 Quando non c'erano le macchine per la legna, i boscaioli la accatastavano scombinata.
When machine for wood didn't exists, lumberjacks dumped it mixed up.
- H2 Alle fontane, dopo aver lavato i vestiti, le lavandaie li impilavano confusi.
At fountains, after having washed clothes, washerwomen piled them mixed-up.
- I2 Alla festa dell'altro giorno, giocando con la cioccolata, i bambini la hanno spezzettata sottile.
At the party of the other day, playing with chocolate, children broke it in thin pieces.
- L2 Nel numero 50 di Topolino, sistemando il suo denaro, Paperon de' Paperoni lo ha ammonticchiato informe.
In the n° 50 of Mickey Mouse magazine, arranging his cash, Scrooge McDuck piled it up shapeless.
- M2 Ieri, il contadino ha raccolto il fieno e lo ha imballato rotondo.
Yesterday, the farmer harvested the hay and he packed it round.

FILLERS

1. SENT: Dopo i tornado, le persone abbandonano i villaggi distrutti.
After tornados, people leave destroyed villages.
QUEST: Le persone sono distrutte.
People are destroyed.
QUEST: I villaggi sono distrutti.
Villages are destroyed.
2. SENT: Durante la guerra, i soldati intercettano le comunicazioni cifrate.
During the war, soldiers intercept coded communications.
QUEST: Le intercettazioni sono cifrate.
Interceptions are coded.
QUEST: Le comunicazioni sono cifrate.
Communications are coded.
3. SENT: In alcune culture antiche, gli sposi addobbavano la casa nuova.
In some ancient cultures, couples adorned the new house.
QUEST: L'addobbo era nuovo.
The decoration was new.
QUEST: La casa era nuova. *The house was new.*
4. SENT: Durante le riunioni diplomatiche, i capi di stato intrattengono dei discorsi ufficiali.
During diplomatic meetings, presidents make official speakings.
QUEST: L'intrattenimento è ufficiale.
The making is official.
QUEST: I discorsi sono ufficiali.
The speakings are official.
5. SENT: Durante la sua carriera, Giovanni ha strigliato i cavalli rossi.
During his career, Jon curried red horses.
QUEST: La strigliata era rossa.
The curry was red.

- QUEST: I cavalli erano rossi.
Horses were red.
6. SENT: Come tecnica di difesa, i guerrieri smussavano le lance aguzze.
As defence technique, warriors rounded sharp lances.
QUEST: La smussatura era aguzza.
The round-making was sharp.
QUEST: Le lance erano aguzze.
Lances were sharp.
7. SENT: Durante il suo trasloco, Giovanni ha ingombrato il garage nuovo.
During his moving, Jon encumbered the new garage.
QUEST: L'ingombro era nuovo.
The obstruction was new.
QUEST: Il garage era nuovo.
The garage was new.
8. SENT: Essendo un esperto di profumo, Giovanni l'ha spruzzato buono.
Being a perfume expert, Jon sprayed it good.
QUEST: Lo spruzzo era buono.
The spray was good.
QUEST: Il profumo era buono.
The perfume was good.
9. SENT: Giovanni era un sarto per spose, le abbigliava sempre eleganti.
Jon was a brides tailor, he dresses them always elegant.
QUEST: L'abbigliamento era elegante.
The dress was elegant.
QUEST: Le spose erano eleganti.
Brides were elegant.
10. SENT: Giovanni costruiva orologi, li assemblava minuti.
Jon built clocks, he assembled them tiny.
QUEST: L'assemblaggio era minuto.
The assembly was tiny.
QUEST: Gli orologi erano minuti.
Clocks were tiny.
11. SENT: Gli assassini uccidono le persone, le seppelliscono vive.
Assassins kill people, they bury them alive.
QUEST: La sepoltura è viva.
The burial is alive.
QUEST: Le persone sono vive.
People are alive.
12. SENT: I consiglieri preparano i vestiti della regina, li scelgono sontuosi.
Queen's counselors prepare queen's dresses, they choose them sumptuous.
QUEST: La scelta è sontuosa.
The choice is sumptuous.
QUEST: I vestiti sono sontuosi.
Dresses are sumptuous.

13. SENT: Giovanni non ha fortuna con le donne, le ha incontrate solo brutte.
Jon does not have a chance with women, he met them ugly.
 QUEST: Gli incontri erano brutti.
Meetings were ugly.
 QUEST: Le donne erano brutte.
Women were ugly.

A.3 Magnitude estimation task

EXPERIMENTAL ITEMS

1.
 - a. Dopo aver lavato i capelli, Maria li intreccia stretti.
After having washed her hair, Mary braid them tight.
 - b. Dopo aver lavato i capelli, Maria li intreccia strettamente.
After having washed her hair, Mary braid them tightly.
2.
 - a. Prima di mangiare i biscotti, Mario li sbriciocia fini.
Before eating biscuits, Mario crumbles them faint.
 - b. Quando Mario usa i biscotti secchi, li sbriciocia finemente.
Before eating biscuits, Mario crumbles them faintly.
3.
 - a. Quando Mario mangia il salame, lo affetta sottile.
When Mario eats the salami, he slices it thin.
 - b. Quando Mario mangia il salame, lo affetta sottilmente.
When Mario eats the salami, he slices it thinly.
4.
 - a. Quando Mario spazza la polvere, la ammassa confusa.
When Mario sweeps the dust, he stacks it crooked.
 - b. Quando Mario spazza la polvere, la ammassa confusamente.
When Mario sweeps the dust, he stacks it crookedly.
5.
 - a. Quando Mario si toglie i vestiti, li impila confusi.
When Mario takes his clothes off, he piles them mixed-up.
 - b. Quando Mario si toglie i vestiti, li impila confusamente.
When Mario takes his clothes off, he piles them mixed-up-ly.
6.
 - a. Prima di mangiare la cioccolata, Mario la spezzetta sottile.
Before eating chocolate, Mario breaks it thin.
 - b. Prima di mangiare la cioccolata, Mario la spezzetta sottilmente.
Before eating chocolate, Mario breaks it thinly.
7.
 - a. Quando Mario ha molte banconote, le ammonticchia verticali.
When Mario has many banknotes, he piles them vertical.
 - b. Quando Mario ha molte banconote, le ammonticchia verticalmente.
When Mario has many banknotes, he piles them vertically.
8.
 - a. Quando Mario lavora la lana, la aggomitola molle.
When Mario knits the wool, he winds it loose.

- b. Quando Mario lavora la lana, la aggomitola mollemente.
When Mario knits the wool, he winds it loosely.
- 9. a. Quando Mario sposta i documenti, li ammucchia caotici.
When Mario moves the documents, he piles them chaotic.
b. Quando Mario sposta i documenti, li ammucchia caoticamente.
When Mario moves the documents, he piles them chaotically.
- 10. a. Dopo aver tagliato l'erba, Mario la imballa stretta.
After having cut the grass, Mario packs it tight.
b. Dopo aver tagliato l'erba, Mario la imballa strettamente.
After having cut the grass, Mario packs it tightly.
- 11. a. Dopo aver riempito i barattoli, Mario li allinea verticali.
After having fill the cans, Mario lines them up vertical.
b. Dopo aver riempito i barattoli, Mario li allinea verticalmente.
After having fill the cans, Mario lines them up vertically.
- 12. a. Dopo aver tagliato i rami, Mario li spezza strani.
After having cut branches, Mario brakes them strange.
b. Dopo aver tagliato i rami, Mario li spezza stranamente.
After having cut branches, Mario brakes them strangely.

FILLERS

- 13. Dopo aver raccolto i fiori, Mario li annusa gialli.
After having picked up flowers, Mario smells them yellow.
- 14. Quando prenota un tavolo, Mario lo grande chiede.
When he books a table, Mario asks big it.
- 15. Quando mangia esotico, Mario prende la cinese zuppa.
When he eats exotic, Mario takes the soup chinese.
- 16. Dopo aver osservato la frutta, Mario la molle compra.
After having observed fruits, Mario buys soft it.
- 17. Quando Mario si toglie i vestiti, li lava sporchi.
When Mario takes clothes off, he washes them dirty.
- 18. Quando legge un libro, Mario lo traduce polacco.
When he reads a book, Mario translates it Polish.
- 19. Quando lancia un sasso, Mario lo rompe grande.
When he throws a stone, Mario brakes it big.
- 20. Dopo aver comprato le scarpe, Mario le indossa strette.
After having bought the shoes, Mario wears them tight.
- 21. Dopo aver visitato il grande museo, Mario lo fotografa.
After having visited the big museum, Mario photographs it.
- 22. Dopo aver esaminato un problema confuso, Mario lo risolve.
After having examined the mixed up problem, Mario solves it.

A.4 Semantic interpretation FR

EXPERIMENTAL ITEMS

1. SENT: Quand Marie rangeait la maison, elle amassait ses chaussures chaotiques.
When Mary organized her house, she stacked her shoes chaotic.
QUEST: À partir des chaussures, Marie faisait des amas chaotiques.
From her shoes, Mary made chaotic stacks.
QUEST: À partir des chaussures chaotiques, Marie faisait des amas.
From her chaotic shoes, Mary made stacks.
2. SENT: Quand Zeus souffle sur les nuages, il les amoncelle énormes.
When Zeus blow on clouds, he stacks them big.
QUEST: À partir des nuages, Zeus fait des monceaux énormes.
From clouds, Zeus makes big stacks.
QUEST: À partir des nuages énormes, Zeus crée des monceaux.
From big clouds, Zeus makes stacks.
3. SENT: Marie est coiffeuse, elle tresse les cheveux serrés.
Mary is a hair-dresser, she braids hair tight.
QUEST: À partir de cheveux, Marie fait une tresse serrée.
From hair, she makes tight braids.
QUEST: À partir de cheveux serrés, Marie fait une tresse.
From tight hair, she makes braids.
4. SENT: Quand Jean rentre à la maison, il entasse ses affaires désordonnées.
When Jon comes home, he piled his belongings messy.
QUEST: À partir de ses affaires, Jean fait des tas désordonnés.
From his belongings, Jon makes messy piles.
QUEST: À partir de ses affaires désordonnées, Jean crée des tas.
From his messy belongings, Jon makes piles.
5. SENT: Quand elle était petite, Marie émiettait les biscuits fins.
When she was a child, Mary crumbled biscuits faint.
QUEST: À partir des biscuits, Marie faisait des miettes fines.
From biscuits, Mary made faint crumbs.
QUEST: À partir des biscuits fins, Marie faisait des miettes.
From faint biscuits, Mary made crumbs.
6. SENT: Quand Marie avait trop de livres, elle les empilait hauts.
When Mary has too many books, she piled them high.
QUEST: À partir des livres, Marie faisait des piles hautes.
From books, Mary made high piles.
QUEST: À partir des livres hauts, Marie faisait des piles.
From high books, Mary made piles.
7. SENT: Pour la préparation des sandwiches, Marie tranche le salami fin.
To prepare sandwiches, Mary slices the salami thin.
QUEST: À partir du salami, Marie fait des tranches fines.
From salami, Mary makes thin slices.
QUEST: À partir du salami fin, Marie fait des tranches.
From thin salami, Mary makes slices.

8. SENT: Après la filature, les hommes pelotonnaient la laine épaisse.
After having form a string, men made thick balls of wool.
 QUEST: À partir de la laine, les hommes faisaient des pelotes épaisses.
From wool, men did thick balls.
 QUEST: À partir de la laine épaisse, les hommes faisaient des pelotes.
From thick wool, men made balls.
9. SENT: Quand elle était petite, avant de manger les biscuits Marie les émiettait fins.
When she was a child, before eating biscuits, Mary crumbled them thin.
 QUEST: À partir des biscuits, Marie faisait des miettes fines.
From biscuits, Mary made thin crumbles.
 QUEST: À partir des biscuits fins, Marie faisait des miettes.
From thin biscuits, Mary made crumbles.
10. SENT: Quand Jean essaye de ranger ses affaires, il les entasse désordonnées.
When Jon tries to organize his belongings, he stacks them messy.
 QUEST: À partir de ses affaires, Jean fait des tas désordonnés.
From his belongings, Jon makes messy stacks.
 QUEST: À partir de ses affaires désordonnées, Jean crée des tas.
From his messy belongings, Jon makes stacks.
11. SENT: Quand Marie coiffe les cheveux, elle les tresse serrés.
When Mary dresses hair, she braids them tight.
 QUEST: À partir des cheveux, Marie fait une tresse serrée.
From hair, Mary makes tight braids.
 QUEST: À partir des cheveux serrés, Marie fait une tresse.
From tight hair, Mary makes a braid.
12. SENT: Pour la préparation des sandwiches, Marie achète le salami et elle le tranche fin.
To prepare sandwiches, Mary buys salami and she slices it thin.
 QUEST: À partir du salami, Marie fait des tranches fines.
From salami, Mary makes thin slices.
 QUEST: À partir du salami fin, Marie fait des tranches.
From thin salami, Mary makes slices.

FILLERS

13. SENT: Quand il était en colère, Zeus envoyait le brouillard blanc.
When Zeus was angry, he sent white fog.
 QUEST: Pendant la colère, Zeus était blanc.
During his rage, Zeus was white.
 QUEST: Pendant la colère de Zeus, le brouillard était blanc.
During his rage, the fog was white.
14. SENT: Pendant l'école, les enfants écrivent sur le papier épais.
During school time, children write on thick paper.
 QUEST: Les enfants sont épais.
Children are thick.
 QUEST: Le papier est épais.
Paper is thick.

15. SENT: Après la guerre, les personnes ont abandonné les villages dévastés.
After the war, people leave destroyed villages.
QUEST: Après la guerre, les personnes étaient dévastées.
After the war, people were destroyed.
QUEST: Après la guerre, le villages étaient dévastés.
After the war, villages were destroyed.
16. SENT: Les conseillers préparent les vêtements pour la reine, ils les choisissent somptueux.
Queen's counselors prepare queen's dresses, they choose them sumptuous.
QUEST: À cause du choix, les vêtements sont somptueux.
For the choice, dresses were sumptuous.
QUEST: À cause du choix, les conseillers sont somptueux.
For the choice, counselors were sumptuous.
17. SENT: Aux temps des rois, les gens buvaient l'eau marron.
In the monarchy, people drank brown water.
QUEST: Dans le passé, les gens étaient marrons.
In the past, people were brown.
QUEST: Dans le passé, l'eau était marron.
In the past, water was brown.
18. SENT: Pendant la guerre, les soldats interceptaient les communications codées.
During the war, soldiers intercept coded communications.
QUEST: Pendant la guerre, les soldats étaient codés.
Communications were coded.
QUEST: Pendant la guerre, les communications étaient codées.
Interceptions were coded.
19. SENT: Les assassins tuent les personnes, certains les enterrent vivantes.
Assassins kill people, some of them bury them alive.
QUEST: Les assassins sont vivants.
Killers are alive.
QUEST: Les personnes sont vivantes.
People are alive.
20. SENT: Quand Jean allait à la plage, il lisait les romans longs.
When Jon went at the seaside, he read long romances.
QUEST: Jean était long.
Jon was long.
QUEST: Les romans étaient longs.
Romances were long.

Appendix B

This appendix is about Part II.

B.1 List of deadjectival parasynthetic verbs

Verb	Structure	Translation
abbellire	tr, pron intr, refl	to embellish
abbellare	tr	to embellish
abbonire	tr	to calm
abbreviare	tr, pron intr	to abbreviate, to shorten
abbrutire	tr, intr, pron intr	demean
abbruttire	tr, intr, pron intr	to make ugly
accecare	tr, intr, pron intr, refl	to blind
accertare	tr, pron intr	to verify
acchetare	tr, pron intr	to calm
acciuccire	tr, intr	to dull
acclarare	tr	to lighten, to clarify
addestrare	tr, refl	to train
addolcire	tr, pron tr, pron intr	to sweeten
adimare	tr, pron intr	to lower
affertilire	tr	to make fertile, prolific
afflosciare	tr, pron intr	to wit
affloscire	tr	to wit
affreddare	tr, pron intr	to cool
aggentilire	tr, pron intr	to make kind, to make delicate
aggiustare	tr, refl	to repair
aggrandire	tr, intr	to enlarge
allargare	tr, intr, pron intr	to broaden, to extend
alleggerire	tr, refl	to lighten, to simplify
allentare	tr, pron intr	to loosen
allietare	tr, pron intr	to cheer
allontanare	tr, pron intr	to distance
allungare	tr, pron intr, refl	to extend, to lengthen
ammiserire	tr	to impoverish
ammodernare	tr, refl	to modernize
ammollare	tr, pron intr	to soak

(Continues on the next page)

Verb	Structure	Translation
ammollire	tr, pron intr	to soften
ammorbidire	tr, pron intr	to soften
ammosciare	tr, intr, pron intr	to make flaccid
ammutare	tr, intr, pron intr	to silence
annerare	tr, intr, pron intr	to blacken
annerire	tr, intr, pron intr	to blacken
appesantire	tr, pron intr	to add weight to
appiattare	tr, refl, pron intr	to flatten
appicciare	tr	to make smaller
approfondire	tr, pron intr	to deepen
arricchire	tr, intr, pron intr	to make or become rich
arricciare	tr, pron intr	to curl
arrocchire	tr	to make smone hoarse
arrossare	tr, intr, pron intr	to redden
arrotondare	tr, pron intr	to round
arroventare	tr, pron intr	to make or become red hot
arruffianare	tr, pron tr, pron intr	to flatter
arruvidire	tr, intr, pron intr	to make smth rough
asserenare	tr, pron intr	to calm
assordare	tr, intr, pron intr	to deafen
assordire	tr, intr, pron intr	to deafen
attristare	tr, pron intr	to make or become sad
attristire	tr, intr	to make or become sad
avverare	tr, pron intr	to bring about, to come true
avvicinare	tr, refl	to near, to get close
avvilire	tr, pron intr	to depress, to sadden
avvivare	tr pron intr	to revive
azzoppare	tr, intr, pron intr	to lame
azzurare	tr, pron intr	to make or become blue
imbarbarire	tr, intr, pron intr	to make or become less civilized
imbastardire	tr, intr, pron intr	to degenerate

(Continues on the next page)

Verb	Structure	Translation
imbellire	tr, intr, pron intr	to embellish, to adorn
imbiancare	tr, intr	to whiten
imbianchire	tr, intr	to whiten
imbiondire	tr, intr, pron intr	to make or become blond
imbirbonire	tr, intr, pron intr	to make or become a rascal
imborghesire	tr, intr, pron intr	to make or become a bourgeois
imbricconire	tr, intr, pron intr	to make or become a rascal
imbrocchire	tr, intr, pron intr	to make or become mediocre
imbrunire	tr, intr, pron intr	to darken
imbrutire	tr, intr, pron intr	to make or become a beast
imbruttire	tr, intr, pron intr	to make or become ugly
immelensire	tr, intr, pron intr	to make or become silly
immeschinire	tr, intr, pron intr	to make or become miserable
imminchionire	tr, intr, pron intr	to make or become stupid
immiserire	tr, intr, pron intr	to make or become miserable
immollare	tr, pron intr	to impregnate
immorbidire	tr, intr, pron intr	to soften
impedantire	tr, intr, pron intr	to make or become pedantic
impicciolire	tr, intr, pron intr	to make or become smaller
impiccolire	tr, intr, pron intr	to make or become smaller
impigrire	tr, intr, pron intr	to make or become lazy
impoverire	tr, intr, pron intr	to impoverish
impratichire	tr, pron intr	to get practice
impreziosire	tr, pron intr	to enhance
imputridire	tr, intr, pron intr	to rot
inacerbare	tr, pron intr	to exacerbate
inacerbire	tr, pron intr	to exacerbate
inacidire	tr, intr, pron intr	to embitter, to go sour
inacutire	tr, pron intr	to embitter
inagrire	tr, intr, pron intr	to embitter
inaridire	tr, intr, pron intr	to dry up

(Continues on the next page)

Verb	Structure	Translation
inasprare	tr, intr, pron intr	to embitter
inasprire	tr, pron intr	to embitter
inazzurrare	tr, pron intr	to make or become blue
incanutire	intr, tr	to go white
incattivire	tr, intr, pron intr	to make or become wicked
incitrullire	tr, intr, pron intr	to make or become stupid
incivilire	tr, pron intr	to make or become more civilized
incretinire	tr, intr, pron intr	to make or become stupid
incrudelire	tr, intr, pron intr	to make or become ferocious
incrudire	tr, intr, pron intr	to exacerbate
incupire	tr, intr, pron intr	to cloud
incuriosire	tr, pron intr	to intrigue
incurvire	tr, intr, pron intr	to bend
indebolire	tr, intr, pron intr	to weaken
indocilire	tr, intr, pron intr	to domesticate
indolcire	tr, intr, pron intr	to sweeten
indurire	tr, intr, pron intr	to harden
inebetire	tr, intr, pron intr	to make or become stupid
infetidire	tr, intr	to make or become fetid
infiacchire	tr, intr, pron intr	to weaken, to exhaust
infievolire	tr, pron intr	to abate, to weaken
infiochire	tr, intr, pron intr	to make or become feeble
infittire	tr, intr, pron intr	to tighten, to intensify
infoltire	tr, intr, pron intr	to thicken
infradiciare	tr, pron intr	to soak
infralire	tr, intr	to weaken
infreddare	tr, intr, pron intr	to cool
infrigidire	tr, intr, pron intr	to cool
infrullire	tr, intr, pron intr	to make the meat become high
ingagliardire	tr, intr, pron intr	to strengthen, to invigorate
ingaglioffare	tr, pron intr	to make or become clumsy

(Continues on the next page)

Verb	Structure	Translation
ingaglioffire	tr, intr, pron intr	to make or become clumsy
ingelosire	tr, intr, pron intr	to make or become jealous
ingentilire	tr, intr, pron intr	to make or become gentle
ingiallire	tr, intr, pron intr	to yellowish
ingiovanire	tr, intr	to make or become young
ingoffire	tr, intr, pron intr	to make or become clumsy
ingolosire	tr, intr, pron intr	to make or become greedy
ingracilire	tr, intr, pron intr	to make or become slender
ingrandire	tr, intr, pron intr	to enlarge, to increase
ingrassare	tr, intr, pron intr	to fatten
ingrigire	tr, intr, pron intr	to make or become gray
ingrossare	tr, intr, pron intr	to fatten
ingrullire	tr, intr, pron intr	to make or become stupid
innervosire	tr, pron intr	to annoy, to irritate
inottusire	tr, intr	to make or become stupid
inselvatichire	tr, intr, pron intr	to grow wild, to make or become unsociable
inseverire	tr, intr	to make or become strict
insordire	tr, intr, pron intr	to deafen
insozzare	tr, refl	to dirty, to soil
insudiciare	tr, pron tr, refl	to dirty, to soil
insuperbire	tr, intr, pron intr	to make or become arrogant
intenerire	tr, intr, pron intr	to soften, to move
intiepidire	tr, intr, pron intr	to warm
intimidire	tr, intr, pron intr	to frighten
intontire	tr, intr, pron intr	to make or become stupid
intorbidare	tr, intr, pron intr	to roil
intorbidire	tr, intr	to roil
intorpidire	tr, intr, pron intr	to numb, to make sluggish
intristire	tr, intr, pron intr	to sadden
inturgidire	tr, intr, pron intr	to swollen
inumidire	tr, pron tr, pron intr	to dampen

(Continues on the next page)

Verb	Structure	Translation
invecchiare	tr, intr, pron intr	to age
inverare	tr, pron intr	to make or become true
inverdire	tr, intr, pron intr	to green
invermigliamenti	tr, pron intr	to make or become vermilion
invigliacchire	tr, intr, pron intr	to make or become coward
inzotichire	tr, intr, pron intr	to make or become uncivilized
inzuppare	tr, pron intr	to immerse
irrobustire	tr, pron intr	to strengthen
irrigidire	tr, pron intr	to stiffen
irruvidire	tr, intr, pron intr	to roughen
isterilire	tr, pron intr	to make or become infertile
istupidire	tr, intr, pron intr	to make or become stupid
sbassare	tr, pron intr	to lower
sbiancare	tr, intr, pron intr	to whiten
sbianchire	tr, intr, pron intr	to whiten
sbollentare	tr, pron tr	to parboil
scaldare	tr, intr, pron intr	to warm
schiarare	tr, intr, pron intr	to lighten
schiarire	tr, intr, pron intr	to lighten
scurire	tr, pron tr, intr, pron intr	to darken
sgagliardire	tr, pron intr	to strengthen, to invigorate
sgravare	tr, intr, pron intr	to unburden
sgrezzare	tr, pron intr	to rough-cut
sgrossare	tr, pron intr	to rough-cut
slargare	tr, intr, pron intr	to broaden, to wider
slungare	tr, pron intr	to enlarge
smagrire	tr, intr, pron intr	to slim down
smezzare	tr, pron intr	to halve
snudare	tr, pron tr	to bare
spigrire	tr, pron intr	to make or become lazy
stiepidire	tr, pron intr	to cool down a little

(Continues on the next page)

Verb	Structure	Translation
svecchiare	tr, refl	to renew
svilire	tr, pron intr, refl	to devalue

Interpretation under modal ITA

STATIVES WITHOUT CAUSATIVE MEANING

1. Carla deve adorare il suo nuovo collega.
Carla must adore his new colleague.
2. Giulio deve amare il gelato al cioccolato.
Giulio must love chocolate ice-cream.
3. Maria deve ammirare la nuova trasmissione televisiva.
Maria must admire the new tv show.
4. Questo bell'anello deve appartenere a Maria.
This beautiful ring must belong to Mary.
5. Giulio deve apprezzare le canzoni di Battisti.
Giulio must appreciate Battisti's songs.
6. Carla deve conoscere il contenuto del testamento di Maria.
Carla must know Mary's will content.
7. Maria deve credere alle bugie di suo marito.
Maria must believe in her husband's lies.
8. Giulio deve desiderare quelle scarpe in vetrina.
Giulio must desire that shoes in the shop window.
9. Maria deve detestare quel divano marrone.
Maria must detest that brown couch.
10. Carla deve invidiare Maria.
Carla must envy Maria.
11. La presenza del sole deve mancare a Giulio.
Giulio must miss the presence of the sun.
12. Sandro deve odiare il caffè macchiato.
Sandro must hate latte.
13. Sandro deve possedere quella macchina sportiva rossa.
Sandro must possess that red sport car.
14. Sandro deve temere il cane del suo vicino di casa.
Sandro must fear his neighbour's dog.

STATIVES WITH CAUSATIVE MEANING

15. I brutti sogni devono angosciare il bambino di Maria.
Nightmares must anguish Mary's baby.
16. Questa tisana deve agitare Carla.
This infusion must agitate Carla.
17. Il concerto deve annoiare Sandro.
The concert must annoy Sandro.

18. Lo spettacolo del mago deve divertire Giulio.
The magician's show must amuse Giulio.
19. La giostra del parco deve impaurire Maria.
The park carousel must scary Mary.
20. Maria deve infastidire Carla.
Maria must annoy Carla.
21. Le bollicine sulla pelle di Carla devono inquietare Giulio.
Blisters on Carla's skin must unsettle Giulio.
22. Il libro sulla storia d'Italia deve interessare Maria.
The book about Italian history must interest Mary.
23. La puntura del calabrone deve intimorire Giulio.
The hornet sting must scare Giulio.
24. L'assenza del presidente deve stupire gli impiegati.
The principal's absence must astonish the office workers.
25. Maria deve preoccupare sua mamma.
Mary must worry her mother.
26. La musica cubana deve rallegrare la festa.
Cuban music must cheer up the party.
27. L'aumento del prezzo dei bus deve scocciare molti utenti.
Bus ticket price increase must bother many users.
28. Il colore di capelli di Sandro deve stupire Carla.
Sandro hair color must astonish Carla.

EVENTIVES

29. Giulio deve agitare bene lo sciroppo.
Giulio must shake the sirup properly.
30. Maria deve porre delle condizioni precise.
Mary must dictate precise conditions.
31. Il flessibile deve spezzare la catena della bicicletta.
The angle grinder must brake the bicycle's chain.
32. L'aumento delle tasse del 2017 deve azzerare le differenze sociali.
The 2017 tax increase must reset social differences.
33. Sandro deve sciogliere del burro.
Sandro must melt the butter.
34. Maria deve diventare una dottoressa.
Mary must become a doctor.
35. Giulio deve guadagnare il suo primo stipendio.
Giulio must earn his first salary.
36. Carla deve vendicare la morte di suo fratello.
Carla must avenge her brother's death.

37. La cerimonia di apertura deve intrattenere gli spettatori coreani.
The opening ceremony must entertain Korean spectators.
38. Giulio deve lavorare alla sua tesi.
Giulio must work on his dissertation.
39. Carla deve affittare la sua casa in campagna per un mese.
Carla must rent her countryside house for a month.
40. Maria deve pesare il prosciutto.
Mary must weight the ham.
41. L'azienda deve importare 8 container di pezzi di ricambio.
The society must import 8 containers of spare parts.
42. Sandro deve sostituire la sua vecchia automobile.
Sandro must change his old car.
43. Maria deve votare il nuovo delegato sindacale.
Mary must vote the new labor union delegate.
44. Carla deve riferire la notizia a Giulio.
Carla must refer the news to Giulio.
45. Giulio deve rubare mille euro dalla cassaforte di suo papà.
Giulio must steal 1000 euro from his father's safe.
46. La procedura disciplinare deve declassare Sandro.
The disciplinary procedure must downgrade Sandro.
47. La medicina deve guarire Sandro.
The cure must cure Sandro.
48. La manovra finanziaria deve azzerare il debito pubblico.
The financial law must reset the national debt.
49. La disinfestazione deve eliminare metà delle zanzare.
The extermination must eliminate half of the mosquitos.
50. La legge deve abolire la schiavitù.
The bill must abrogate slavery.
51. Il riscaldamento autonomo deve rimpiazzare quello centralizzato.
The independent heating system must replace the central one.
52. La ristrutturazione deve allontanare i due muri portanti.
The renovation must distance the two load-bearing walls.
53. Il dibattito televisivo di stasera deve contrapporre gli avversari.
The tv debate of tonight must contrast the rivals.
54. La nuova giunta comunale deve distruggere il vecchio centro commerciale.
The new municipal council must eliminate the old mall.
55. Sandro deve avvelenare tutti i topi che abitano nel suo granaio.
Sandro must poison all mice living in his garden.
56. La fiala di antidoto per il veleno deve risvegliare Giulio.
The poison antidote phial must wake Giulio up.

Interpretation under modal ENGL

STATIVES

1. The disciplinary commission decision must matter to Sandra.
2. This child must belong to Mary.
3. His answer must reveal his stupidity.
4. John must love this swimming pool.
5. This mathematical problem's solution must hinge on this variable.
6. The circumstances must foster this type of crime.
7. The latest news from New York must bewilder the readers.
8. The magician must enthrall Robin.
9. This pillar must buttress the cathedral's nave.
10. Sandra must regret John's leaving.
11. John must hate his neighbour.
12. Sandra must cherish her pocketwatch.
13. Mary must know this answer.
14. John must need a car.
15. Sandra must crave that phone.
16. Mary must dislike this cake.
17. John must envy his brother.
18. John must deserve that treatment.
19. John must dismay his parents.
20. Sandra must detest that couch.
21. Mary must despise his behaviour.
22. Sandra must own that place.
23. John must believe in the ghost.
24. Sandra must disappoint her brother.

EVENTIVES

25. Sandra must increase her income.
26. John must start this poem.
27. those workmen must produce 2000 shirts.
28. That man must kill the chicken.
29. The couple must change their wedding date.

30. The teacher must teach the new song.
31. That magnate must provide 2000 gallons of water.
32. John must fall in that ditch.
33. Sandra must keep this door open.
34. Mary must go to the flower shop.
35. Sandra must work on Julia's birthday party.
36. John must play in the championship.
37. Mary must run the 2016 New York Marathon.
38. Sandra must become a scientist.
39. John must use a pen.
40. Mary must make a milkshake.
41. Sandra must plan her maternity leave.
42. John must move to Los Angeles.
43. Mary must leave a message.
44. Sandra must wait for her sister.
45. John must bake twelve cupcakes.
46. Mary must write her PhD dissertation.
47. Sandra must fight those superstitions.
48. John must study four chapters.

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