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1. Introduction

Linguistic research on purpose and result adverbial clauses often assumes that these categories are relatively homogeneous (Huddleston and Pullum 2002; Kortmann 1997; Nykiel 2020; Palmer 1987; Quirk et al. 1985; Vestraete 2007, 2008). However, corpus data for the English purpose and result conjunction *so (that)* (see examples in (1a-b) for purpose and (2a-b) for result) reveal that these categories are more heterogeneous than previously assumed. This paper investigates how Functional Discourse Grammar (FDG) can account for both the shared and divergent features within and between these two categories.

- (1) a. *He promptly ordered loudspeakers mounted in certain sections of the ball park so that fans could go there...* (COHA:purpose)¹
b. *Assistant Scoutmaster and caving expert Dan Slick set up a rope so the guys could rappel down into the cave...* (COHA:purpose)
- (2) a. *He touched his cheek in confusion, so that dabs of wet clay rubbed off...* (COHA:result)
b. *Our industry is hazardous, so we safety train people* (COHA:result)

This study contributes to the ongoing discussion on information structure in adverbial clauses and their representation in FDG. Specifically, the analysis addresses: (i) the use of heuristics for diagnosing focus and discourse status; (ii) the internal structure of Communicated Content frames in adverbial clauses; and (iii) the potential for adverbial clauses to function as separate Discourse Acts.

Previous FDG research on adverbials, particularly on purpose and result clauses, has yielded several competing analyses. Initially, finite purpose and result clauses were analyzed as Referential Subacts within a single Communicated Content frame (Hengeveld and van Lier 2008: 770). Subsequently, Mackenzie (2019), drawing on evidence from reportative modifiers, proposed that adverbials should be modeled as separate Communicated Contents, resulting in two Content frames in an equipollent relationship within a single Discourse Act (see also Olbertz and Vázquez Rozas 2022). Most recently, Hengeveld et al. (in prep) have proposed two alternative configurations: (i) two or more non-hierarchically related Communicated Contents embedded in a higher Communicated Content layer, and (ii) a Communicated Content frame embedded in the Comment layer. In most cases adverbials have a separate content frame, since they have a separate information structure. Nevertheless, three competing analyses remain and raise the questions: which Communicated Content configuration best corresponds to the empirical behavior of

¹ COHA: The Corpus of Historical American English.

adverbial clauses, and what are the formal consequences of choosing one structure over another?

Using data from the *Corpus of Contemporary American English* (COCA) and the *Corpus of Historical American English* (COHA), this study explores these three options, thereby discussing the nature of the Communicated Content in relation to purpose and result clauses in English. This paper proposes that, in the case of purpose clauses, the position of the intender changes the underlying representation, though not the Communicated Content layer. For result clauses, it examines how the conceptualization of the relationship between the two events denoted in the main and dependent clauses affects the underlying representation. Finally, I argue that the use of purpose and result adverbials with directives is an intermediary category between embedded purpose and detached result clauses.

In the paper, Section 2 starts with a brief overview of the distinction between purpose and result as proposed by the literature, while Section 3 provides a brief overview of previous work on adverbials in FDG. Section 4 presents an FDG analysis of *so*-purpose clauses; Section 5 looks at the *so*-result clauses. The findings from this discussion are then applied to *so* (*that*) clauses used with directives in Section 6. Section 7 summarizes and concludes the findings.

2. Distinguishing between purpose and result

A number of criteria and potential tests have been proposed for distinguishing between purpose and result clauses, which will be reviewed in this section. Section 2.1 discusses the proposed semantic parameters; Section 2.2 focuses on the pragmatic ones. Section 2.3 presents the formal differences between purpose and result clauses, before providing an overview of the differences in Section 2.4.

2.1 Semantic features

Purpose clauses convey an intended consequence of the event in the main clause, as in (3) (Quirk et al. 1985: 1107–1108). Kortmann (1997: 86) proposes the formula “in order to *p*, *q*”, whereby “*p* is an intended result or consequence of *q* that is yet to be achieved”, making purpose clauses non-factual and future oriented (Huddleston and Pullum 2002: 733). In sentences with purpose clauses, the main clause agent (usually the subject) undertakes the action described in the main clause with the intention of bringing about the event depicted in the subordinate clause (Nykiel 2020: 357); the main clause usually has a dynamic verb. The primary role of intention is also highlighted in Wierzbicka’s (1998: 183) semantic primitives for the conceptual structure of purpose, which comprises WANT, BECAUSE and THINK, where WANT is defined as intention. Furthermore, Verstraete (2008) argues that the propositional content of the purpose clause denotes the main clause agent’s or an element of the main clause’s intention, not that of the speaker (see also Schmidke-Bode 2009: 47). One semantic test for a purpose reading of *so* (*that*) is that the subordinator can be replaced by *in order that* without changing the meaning (Quirk et al. 1985: 1107–1108).

- (3) *the studio wanted the movie to be “ethnic” and more “mainstream” so it allegedly would appeal to a wider audience.* (COHA:NEWS:1995)

Result clauses express the consequence of the event depicted in the main clause as illustrated in (4) (Kortmann 1996: 86; see also Nykiel 2020: 357; Quirk et al. 1985: 1108–1110; Verstraete 2008: 761). In a sentence with result clauses, the main clause is either an event or a state with no direct agency (Nykiel 2020: 357), and the result clause designates the actual consequence of this event or state (Palmer 1987: 99; Quirk et al. 1985: 1108). Since result clauses depict a completed event, the use of modality in the dependent clause is less frequent (Huddleston and Pullum 2002: 733; Quirk et al. 1985: 108). In those cases where the main clause has an agent, as in (2a), the agent of the matrix clause does not necessarily intend the event in the subordinate clause: the event in the dependent clause is the consequence of the main clause event (Verstraete 2008: 761; see also Cabrillana 2011: 43; Huddleston and Pullum 2002: 732–33). A semantic test for result is the substitution of the subordinator *so* (*that*) by *with the result that* (Huddleston and Pullum 2002: 732).

- (4) *...his mother did not die, so he reportedly had his friend kill her with a shotgun.* (COCA:SPOK:2005)

2.2 Pragmatic features

Verstraete (2007, 2008) is one of the few researchers who discuss complex sentence pragmatics, including both coordination and subordination. In his description of purpose and result clauses, Verstraete (2007: 200–202; 2008: 772) argues that one of the primary distinctions between purpose and result adverbials is the use of modality or what he calls mood marking. Verstraete (2008: 765) explains that purpose clauses describe a potential state of affairs that is bound to the main clause agent; thus, any modality that occurs in the subordinate clause would also be bound to this agent and does not figure in speaker-hearer interaction (see example (5)).

- (5) *she would leave her children in Britian **so that they may** have a reasonable future* (CB ukmags; Verstraete 2007: 201).

Result clauses have subjective modality, which expresses the speaker’s assessment of the state of affairs, thus playing a role in the speaker-hearer interaction and being separate from the agent in the main clause. Compare the use of *could* in example (6) to *may* in (5) (Verstraete 2007: 117, 200–201).

- (6) *the president’s veto of the civil rights bill was sustained in the Senate by only one vote, **so that the change of a couple of votes in the Senate could m—could be consequential.*** (CB npr; Verstraete 2007: 201)

A second distinction between purpose and result clauses is that the former can fall under the scope of the main clause illocution, meaning the main and subordinate clause

together make up a single speech act (Verstraete 2007: 117–118). Shared scope means that the subordinate clause can be the focus of a cleft sentence² and the focus of a question (see Section 2.3 for more discussion). Result clauses do not share main clause scope.

2.3 Syntactic features

The semantic and pragmatic features that distinguish purpose from result correspond with several formal differences. Purpose and result clauses have different degrees of integration into the main clause: purpose tends to be more integrated, whereas result is less. Quirk et al. (1985: 1109) and Huddleston and Pullum (2002: 728) classify purpose clauses as adjuncts. The potential reading found in purpose clauses means that it usually has an overt marker of modality as demonstrated in (7) (Huddleston and Pullum 2002: 727–728; Nykiel 2020: 354; Quirk et al. 1985: 1070), although, as discussed in Section 2.2, the type of modal used is restricted. The purpose function can also be negated, as shown in (7a): in this example the speaker does not deny that the event took place but denies that the event in the subordinate clause was the purpose of the main clause event (Huddleston and Pullum 2002: 733; Schmidtke-Bode 2009: 45). Negation in the matrix clause can also scope over the purpose clause as demonstrated in (7b-c).

- (7) a. *As for you, Mr. Kestrel, be so good as to remember I sent for Mr. Craddock, **not so that** you **could** quarrel with him, but to allow you to question him about a possible link between the murder and my brother's letters.* (COHA:1993:FIC)
 b. *You **cannot** sacrifice your people **so that** you **might** be at ease.* (COHA:FIC:2017)
 c. *You **cannot** sacrifice your people **so that** you might be at ease, but you can sacrifice them for the greater good.*

As a result of their tighter syntactic integration and shared scope, purpose clauses (unlike result clauses, see (10) below) can be the focus of a cleft sentence (Quirk et al. 1985: 504), allow for fronting (Palmer 1987: 99), and be the focus of a *wh*-question, as shown in (8b), (8c) and (8d) respectively (see Quirk et al. 1985: 1070 for further syntactic tests).

- (8) a. *We tend to make everything big **so kids are captivated**.* (COHA:2002:MAG)
 b. *It is **so kids are captivated** that we tend to make everything big.*
 c. ***So kids are captivated**, we tend to make everything big.*
 d. *Why do you make everything big?*
 So kids are captivated.

Result clauses, on the other hand, are more detached from their host clauses; Huddleston and Pullum (2002: 733) analyze them as “supplements” and Quirk et al. (1985:

² As one reviewer has pointed out, Radford (2009: 50) and others have observed the fact that in general, most adverb phrases cannot be the focus of a cleft sentence: **It was **very sadly** that he announced his resignation*. This might weaken Verstraete’s argument that this is evidence of a separate illocution but does not affect the arguments made here. In FDG, a separate illocution is argued on the basis of other criteria, see the discussion in Section 6.

613) as “disjuncts”. The fact that a result clause encodes a completed event means that it is less likely to be marked by modality (see discussion in Section 2.1). This also means that it cannot be negated, and negation in the main clause only scopes over the main clause as shown in (9) (Huddleston and Pullum 2002: 733; Schmidtke-Bode’s 2009: 45).

- (9) *The doors **would not** close tightly **so** it was easy to hear my parents*
(COHA:1999:MAG)

Result clauses cannot be clefted (10b), fronted (10c) or questioned (10d) (Quirk et al. 1985: 612–613), and their detachment is often orthographically marked with a comma (10a).

- (10) a. *The water view dominates, **so** the dining room is decorated au naturel,*
(COHA:2004:MAG)
b. **It is **so** the dining room is decorated au naturel, that the water view dominates.*
c. *#**so** the dining room is decorated au naturel, the water view dominates.*³
d. *#Why does the water view dominate?*
***So** the dining room is decorated au naturel.*

The result *so* is often considered to be neither a pure subordinator nor a pure coordinator (Cabrillana 2011: 19–20; Huddleston and Pullum 2002: 1321; Palmer 1987: 99). It is not a prototypical subordinator because it allows the insertion of *and* as in example (11). It cannot be a coordinator because *so* expresses an asymmetric relationship and can only link declarative clauses, not other forms of clauses and not phrases, e.g. two interrogative clauses (Huddleston and Pullum 2002: 1321–1322).

- (11) *The water view dominates, **and so** the dining room is decorated au naturel.*

These differences (semantic, pragmatic and syntactic) influence the different FDG representations of these adverbials.

2.4 Purpose vs result resumé

Previous research has provided us with the parameters outlined in Table 1 to distinguish purpose from result clauses.

³ Often when fronted or questioned, the sentence develops an intentional reading, as in (10), the house was planned so that the water view dominates for the purpose of decorating the dining room au naturel.

Table 1. Criteria proposed by the literature for distinguishing between purpose and result.
(MC = main clause, SC = subordinate clause)

Purpose		Result	
Semantic		Features	
• An intended consequence of the event in the MC • MC agent (usually subject) undertakes action to bring about event in subordinate clause • SC is non-factual (potential), future oriented • SC can take modality linked to main clause agent-subject • Subordinator substituted by <i>in order that</i>		• An unintended consequence of the event in the MC • MC event or state with no direct agency • SC is actual or achieved event (factual, factive) • SC has interpersonal modality (speaker-hearer interaction) • Subordinator substituted by <i>with the result that</i>	
Pragmatic		Features	
• Main clause agent modality [-modality] • SC can be integrated in main clause illocution or not [+/-scope]		• Interpersonal modality [+modality] • SC separate from main clause illocution[-scope]	
Syntactic		Features	
• Frequently has overt marker of mood • Fronting • Clefting • Negation of SC (not presupposed) • Negation in main clause scopes over SC • No <i>and</i> insertion		• Overt marker of mood (modality) less likely • No fronting • No clefting • No negation of SC • Main clause negation does not scope over SC • Allows <i>and</i> insertion	

3. Adverbials in Functional Discourse Grammar

Originally, at the Interpersonal Level, adverbial clauses were analyzed as corresponding to Referential Subacts in the Communicated Content (Hengeveld and van Lier 2008: 770). In a later paper, Mackenzie (2019) proposes an analysis where sentences with adverbial clauses consists of two Communicated Contents in a single Discourse Act (A₁) as in (12) (see also Olbertz and Vázquez Rozas 2022).

(12) (M₁: (A₁: [(F₁) (P₁)_S (P₂)_A (C₁) (C₂)] (A₁)) (M₁)) (simplified, Mackenzie 2019: 312)

Mackenzie (2019: 312-313) points out that adverbial clauses have a separate information structure from the main clause, and reportative and attitudinal modifiers, such as *reportedly*, *allegedly*, *unfortunately*, and *surprisingly*, can scope over the main clause (13a) and the subordinate clause (13b), respectively.

- (13) a. *After she saw the man drop the dog, the woman **reportedly** rushed down the stairs and stabbed him in the thigh.*
b. *After she **reportedly** saw the man drop the dog, the woman rushed down the stairs and stabbed him in the thigh.*
(variation of Mackenzie's (2019: 312) example; my emphasis)

More recent work at the Interpersonal Level in Hengeveld et al. (in prep) incorporates Mackenzie's (2019) analysis but embeds two Communicated Content frames into a higher Communicated Content frame (14a). They also propose an alternative frame by expanding the Communicated Content frame to include a Comment layer (Cm), as shown in (14b). The addition of the Comment layer allows the model to better account for pragmatic functions that influence the structure of the message, such as Topic, Focus and Background. They then also propose that the Comment may contain further Communicated Contents.

- (14) a. $(C_1: [(C_2) (C_3)] (C_1))_{\text{Mess}}$
 b. $(C_1: [(R_1/T_1)^{N_{\{\phi\}}} (Cm_1: [(R_2/T_2)^{N_{\{\phi\}}} (C_2)_{\{\phi\}}] (Cm_1))_{\{\phi\}}] (C_1))_{\text{Mess}}$
 (Hengeveld et al. in prep)

At the Representational Level, Hengeveld (1996, 1998) and Hengeveld and Mackenzie (2008: 363) classify subordinate clauses on the basis of the highest layer that they instantiate. Each layer comes with a certain set of modifiers and operators, providing a heuristic for testing the clause layer: a clause can take operators or modifiers at its highest layer and all those below (Hengeveld and Mackenzie 2008: 363). The clause is classified in terms of its highest layer: Property, State-of-Affairs, Episode, Propositional Content, Communicated Content, Discourse Act or Move (Hengeveld and Mackenzie 2008: 363-365).

Purpose adverbials have been analyzed as a State-of-Affairs (e) or an Episode (ep) with a Purp(ose) function, modifying another State-of-Affairs or Episode, as demonstrated in (15a) and (15b) respectively (see Hengeveld and Mackenzie 2008: 171; ten Wolde and Schwaiger 2022: 709-712). The Function at the Representational Level triggers the subordinator in Morphosyntactic encoding.

- (15) a. $(ep_1: [(e_1: (f_1: [...] (f_1) (e_1): (e_2)_{\text{Purp}}(e_1))) (ep_1))$
 b. $(p_1: (ep_1: [(e_1: [...] (e_1) (ep_1): (ep_2)_{\text{Purp}}(ep_1))) (p_1))$

Result clauses are part of a configurational head, as they consist of two States-of-Affairs at the Episode layer (16a) (Hengeveld and Mackenzie 2008: 161-162) or two Episodes at the Propositional Content layer (16b) (Giomi 2020: 167-168). They are explicitly linked by a Cons(quence) function which also triggers the subordinator *so* (*that*) in the Morphosyntactic encoding. This Consequence function is analogous to result as being defined as indicating a completed, unintended event in the subordinate clause which follows as the logical consequence from the event denoted in the main clause.

- (16) a. $(ep_1: [(e_1) (e_2)_{\text{Cons}}] (ep_1))$
 b. $(p_1: [(ep_1) (ep_2)_{\text{Cons}}] (p_1))$

In the following sections, I argue that the purpose and result clauses are more diverse categories than has been previously discussed in the literature and show how FDG can classify and model the varying relationships between main and dependent clauses.

4. Purpose clauses

In sentences containing a purpose clause, the dependent clause is profiled against the main one. This means that the purpose clause is conceptually linked to the main clause since it provides the purpose for the action or event in the main clause. As such the purpose clause is both semantically and syntactically integrated into the main clause (see Section 2). The following sections present an FDG analysis for the prototypical purpose clauses at the Interpersonal (4.1) and Representational (4.2) Levels.

4.1 Purpose Clauses at the Interpersonal Level

Prototypical purpose adverbial clauses have a 3rd person main clause agent who instigates the event in the main clause with the intention of bringing about the event or intended result in the subordinate clause:

- (17) *...smart alecks soon posted the answers online **so that** they could be easily found by cheaters.* (COHA:NEWS:2005)

At the Interpersonal Level, this example would involve one Move and one Discourse Act⁴ with a Declarative or Interrogative Illocution, and a speaker (P_I)_S and an addressee (P_I)_A, see (18). As for the configuration of the Communicated Content, application of attitudinal or reportative adverbs show that they can scope over the subordinate clause (19a) and the whole sentence (19b), but they cannot modify the main clause only (19c): attitudinal modifiers placed in the main clause scope over the whole sentence. Therefore, the tests indicate that the purpose clause is realized as a separate Communicated Content (C_J) embedded in the Comment Layer (C_{m1}) of a higher Communicated Content frame (C_i), as represented in (18).

- (18) *...smart alecks soon posted the answers online **so that** they could be easily found by cheaters.*

IL: (A_i): [(F_i: DECL (F_i)) (P_I)_S (P_J)_A (C_i: (R_i) (C_{m1}: [(T_i) (R_j) (R_k) (C_j)] (C_{m1}))] (C_i))_{Mess} (A_i)

- (19) a. *the studio wanted the movie to be “ethnic” and more “mainstream” **so it allegedly would appeal to a wider audience.*** (COHA:NEWS:1995)
b. ***[Unsurprisingly]** she ran back **so the wave wouldn't get her.*** (COCA:FIC:1991)
c. ***one movie star reportedly built a ramp to a bed so her pig could climb in*** (COCA:NEWS:1990)

However, these tests are not applicable to all purpose clauses. When the subject of the main clause shifts to a first-person pronoun, the standard diagnostic tests for Communicated Content structure become unreliable because they semantically clash with the inherently

⁴ This study looks exclusively at purpose clauses following their main clause. Preposed purpose clauses have a different discourse function and is a separate Discourse Act.

non-factive nature of purpose clauses, as demonstrated in examples (20a) and (20b). In general, the issue is that the speaker cannot evaluate the outcome of an event that they themselves intend but has not yet occurred. However, attitudinal adverbs such as *hopefully* can scope over the dependent clause as example (20c) demonstrates (although this was the only example found in COCA), indicating that the subordinate clause should be a separate Communicated Content frame.

- (20) a. [**reportedly/*allegedly*] *I'm learning Chinese **so that** I can speak it for the rest of my life.* (COCA:WEB:2012)
 b. *I'm learning Chinese **so that** [**reportedly/*allegedly*] I can speak it for the rest of my life.* (COCA:WEB:2012)
 c. *I have a degree in computer science and now working on a new degree in Education and Public Policy, **so that** I can **hopefully** get involved with The Department of Education and reform this broken system.* (COCA:BLOG:2012)

Focus particle scope, as demonstrated in example (21), also supports this analysis in that *only* can mark contrast for the main clause subject (21a), or scope over the whole Comment Layer (21b), and the purpose clause (21c). It does not seem to be able to take the whole main clause in its scope. Therefore, the Interpersonal Level representation for sentences containing purpose clauses is shown in the representation in (22).

- (21) a. [**only**] *I tell you this **so that** I can remain guilty free.*
 b. *I **only** tell you this **so that** I can remain guilty free...* (COHA:TV/MOV:2010)
 c. *They change everything **only so that** everything will remain unchanged.* (COCA:MAG:2014)

- (22) (A₁: [(F₁) (P₁)_S (P₂)_A (C₁: [(R₁/T₁) (Foc) (Cm₁: [(R₂/T₂) (C₂) (Foc)] (Cm₁))_(Foc) (C₁))_{Mess}] (A₁))

The frame in (22), proposed by Hengeveld et al. (in prep.), differs from Mackenzie's (2019) account, raising the question of why purpose clauses adopt this Communicated Content frame and the respective implications. To address this issue, it is necessary to examine the information-structural properties of sentences containing purpose clauses.

Verstraete (2007), basing his work on McGregor (1997), Van Valin and LaPolla (1997), and others, argues that the modality and illocution features found in some subordinate clauses, to which *so that* purpose is included, impose a presupposed-focus information structure on its propositional content (Verstraete 2007: 80), ⁵ where the main clause is presupposed and the subordinate clause in focus. What Verstraete calls presupposition would seem to usually fall under what Krifka (2008) calls Common Ground (CG) management. Krifka (2008: 246, 249-250) frames information exchange in communication

⁵ See Van Valin and LaPolla (1997: 199-236) for a discussion of the link between information structure and focus-presupposition. Furthermore, presupposition can be something explicit or implicit, what Krifka (2008: 246) calls accommodation of presupposition. Krifka refers to the pragmatic process where a listener adjusts the common ground to accept a proposition that has not been explicitly established but is required for the utterance to make sense.

with the notion of CG, which is “a way to model the information that is mutually known to be shared and that is continuously modified in communication” (Krifka 2008: 245) and can include both propositions and entities (Krifka 2008: 246). He then makes the distinction between Common Ground content (semantics), which is truth conditional, and CG management (pragmatics) as “the way the CG content should develop”. In most purpose clauses the speaker assumes (and expects their interlocutor to assume) the event in the main clause is factual and part of their shared common ground; the informational focus of the utterance is the purpose clause. Other, more recent approaches to clause-level pragmatic meaning similarly distinguish between ‘at-issue’ content and the ‘not-at-issue’ content (Simons et al (2010); for an overview of the discussion see Beaver et al. (2024)). In FDG, this information structural organization is represented in the Conceptual Component.

For Krifka (2008), the function of pragmatic focus (as opposed to semantic focus) is that it “helps in guiding the direction into which communication should develop, and it also aids in building the cognitive representations that are to be constructed by the interlocutors”; it is the answer to the *wh*-part of a constituent question (Krifka 2008: 250).⁶ Such question-answer tests, what is more formally called Questions Under Discussion, are used as a heuristic to capture the speaker’s implicit or explicit communicative goals (van Kuppevelt 1995, see also Büring 2003; Onea and Zimmermann 2019). In the case of purpose clauses, this would be a *why* question:

- (23) A: *Why are you telling me this?*
 B: *I **only** tell you this **so that** I can remain guilty free...*

In example (23), the answer to the *wh*- question is the purpose clause; the main clause (the fact that speaker B has told speaker A something) is taken as given. In general, purpose clauses answer the question *why*, e.g. why the event in the main clause happened, will happen or is taking place. Making the main clause the answer to the implied question would be awkward: ‘Why can you remain guilty free? Because I am telling you this.’ In general, questioning the main clause requires the State-of-Affairs described in the dependent clause to be completed and no longer intentional, essentially making a purpose clause into a result clause.

Additional support for this analysis can be found in examples involving interrogatives, such as (24). Here, the interrogative scopes over the purpose clause: *so that I could win the race* is the element that the speaker is questioning, not the main clause. The framing event in the main clause is presented as given information.

- (24) *Jerry, did you frame it **so that** I could win that race?* (COHA:TV/MOV:1947)

In FDG, the Interpersonal Level represents the speaker’s communicative intention, including the structuring of information within a Discourse Act. Information structure is

⁶ In the same article, Krifka (2008: 253-255) classifies the focus particles as potentially indicating semantic focus, not pragmatic, as would be entailed in the heuristic in (19). As Krifka himself admits, distinguishing between the two uses is not always so easy. At the moment, FDG models them at the Interpersonal Level.

modeled through the organization of the Communicated Content, where a Comment layer encodes the topic–comment division. Within this layer, the focal information usually appears in the Comment and is formally marked by the function Focus (Hengeveld et al. in prep). Thus, when a secondary Communicated Content is embedded within a higher-level structure, this embedded content can be interpreted as what Verstraete calls the focus structure of the sentence.

4.2 Purpose clauses at the Representational Level

An analysis of the Representational Level shows that purpose clauses are not as homogeneous as is usually assumed. Previous research has analyzed the purpose clause as either an Episode or State-of-Affairs, structured in a modification relationship with another Episode or State-of-Affairs that corresponds with the main clause on the Morphosyntactic Level. Together they form a single Propositional Content (p_i), as demonstrated in (25).

- (25) *...I gritted my teeth so I wouldn't cry out.* (COHA:FIC:2009)
 IL: $(A_i: [(F_i: DECL (F_i)) (P_i)_S (P_j)_A (C_i: (R_i) (Cm_i: [(T_i) (R_j) (C_j)] (Cm_i))] (C_i))_{Mess} (A_i))$
 RL: $(p_i: (past\ ep_i: (e_i: -I\ gritted\ my\ teeth- (e_i): (sim\ e_j: -I\ wouldn't\ cry\ out-)_{Purp} (e_i)) (ep_i)) (p_i))$

However, this is not always the case. Epistemic modification can scope over the dependent clause (26a) and (26b), and the whole sentence (26c), but not the main clause (26d). This indicates that the dependent clause can actually be a separate Propositional Content (p_j) modifying an Episode or a State-of-Affairs, embedded in a higher Propositional Content frame (p_i), as in (27). To some extent this formulation mirrors the Communicated Content layer, but Propositional Contents do not have a one-to-one correspondence with the Communicated Contents: the Communicated Content is speaker bound, and the Propositional Content can be attributed to other persons (Hengeveld and Mackenzie 2008: 144), as in the case of example (27).

- (26) a. *Both intend to return to their respective regiments **so that presumably they can engage in further battles.*** (COCA:ACAD:1993)
 b. *...the flutes became more standardized in pitch, **presumably so that compositions could be played in a more consistent musical scale...*** (COCA:MAG:2005)
 c. ***Presumably** Chan ordered the system **so that he could watch American television.*** (COCA:FIC:2001)
 d. *? **President Obama presumably waited so long, so that President Assad could scurry away and hide assets.***
- (27) *she ran back **so** the wave wouldn't get her*
 IL: $(A_i: [(F_i: DECL (F_i)) (P_i)_S (P_j)_A (C_i: (R_i) (Cm_i: [(T_i) (C_j)] (Cm_i))] (C_i))_{Mess} (A_i))$
 RL: $(p_i: (past\ ep_i: -\ she\ ran\ back - (ep_i)): (p_j: (past\ ep_j: -\ the\ wave\ wouldn't\ get\ her- (ep_j)) (p_j))_{Purp} (p_i))$

The difference between the two purpose examples in (25) and (27) is that of what Cognitive Grammar calls perspective. Langacker (1987) defines perspective as the position from which a scene is viewed, and in this case, perspective includes the source of the intention.⁷ Both examples in (28) are what would be considered prototypical purpose clauses, but (28a) is from a 3rd person perspective: the speaker stands outside the scene, describing the events from the position of an observer and ascribes the intention to the main clause agent. Example (28b) is told from a 1st person perspective, uniting speaker, intender and main clause agent; the event is told from the perspective of someone who actively partakes in the events described. This leads to a slightly different semantic representation of the events.

- (28) a. *she ran back **so** the wave wouldn't get her* (COHA:FIC:1991)
 b. *I'm learning Chinese **so that** I can speak it for the rest of my life.* (COCA:WEB:2012)

In sum, on the Interpersonal Level purpose clauses share the same Communicated Content frame, with the dependent clause normally being the information focus. It is only at the Representational Level that we see the heterogeneity of purpose clauses. The result clauses function syntactically differently (see Section 2.3) and thus require a different Content frame, as will be shown in the next section.

5. Result clauses

Whereas purpose clauses indicate intended outcomes, sentences with result clauses represent the speaker's perception of a causal link between two events. The nature of this relationship can vary in different ways. Consider the following examples:

- (29) a. *He touched his cheek in confusion, **so that** dabs of wet clay rubbed off.*
 (COHA:FIC:1963)
 b. *The disorder varies, however, and many children go undiagnosed, **so** advocates and school officials disagree on the exact toll the disorder takes on education.*
 (COHA:NEWS:2007)
 c. *Real wolves didn't get this far south, **so** I only have to worry about intruding on any local werewolves...* (COHA:FIC:2006)

Temporal distance between the two events allows for a reconceptualization of the cause-result link, motivating different underlying representations. Example (29a), as a simultaneous event, has a clear cause-result relationship: touching the cheek results in the clay rubbing off. In (29b), the result is inferred by the speaker who links the two separate events as cause and result. In (29c), the dependent clause expresses a conclusion the speaker draws from the fact presented in the main clause. The first two categories are not

⁷ By adopting Langacker's (2008; 2014) definition of perspective, this analysis is taking a slightly different approach to perspective than is usually taken in FDG literature.

clearly delineated categories but rather distinctions along a cline. All three types of result clauses will be discussed in Sections 5.1-5.3 below.

5.1 Immediate cause-result events

A prototypical result clause is where the events in the main and dependent clause occur in close succession, both clauses depict completed events, and the main clause event causes the dependent clause event, as in (29a) and (30a). Although the *so*-result conjunction has often been compared to coordinators, unlike coordination we are not dealing with two Discourse Acts. Modifiers of the Discourse Act layer, such as *sadly*, cannot scope over the dependent clause. The dependent clause does not have a separate illocution: it does not allow the insertion of performative verbs such as *assert*, *state* or *conclude* (30b; see Lyons 1977: e.g. 750-751 for discussion) but an eventive verb like *result* (30c). The result clause, furthermore, falls under the scope of a main clause interrogative as in (30d), although the information in question is the main clause proposition (unlike with purpose clauses, where the dependent clause is being questioned, see Section 4).

- (30) a. *The Bangladesh Bank's messaging system was reportedly broken, so*
 ?*[sadly/frankly] employees tried to reach the Fed by fax and email.*
 b. *The Bangladesh Bank's messaging system was reportedly broken, so* *[*this concludes/ states/ asserts*] *employees tried to reach the Fed by fax and email.*
 c. *The Bangladesh Bank's messaging system was reportedly broken, so* [*this resulted in*] *employees tried to reach the Fed by fax and email.*
 d. *Did the Bangladesh Bank messaging system break so employees tried to reach the Fed by fax and email?*

Modifiers of the Communicated Content layer can scope over the main (31a), dependent clause (31b), and the whole sentence (31c), indicating that the structure of the Communicated Content is different from that of purpose clauses. The Communicated Content frame is similar to the one proposed by Mackenzie (2019) with two equipollent Communicated Content frames embedded in a higher (C) layer (Hengeveld et al. in prep) represented in (32).

- (31) a. *Surprisingly there aren't many people* *so we can see the decorated ceilings and arches more easily.* (COCA:WEB:2012)
 b. *The man says he asked the whippersnappers to clam up but they only laughed at him, so he allegedly lashed out physically at one of them...* (COCA:BLOG:2012)
 c. [**Reportedly**] *they [...]laughed at him, so he lashed out physically at one of them...*

- (32) IL: (A_i: [(F_i: DECL (F_i)) (P_i)_S (P_j)_A (C_i: [(C_j)(C_k))(C_i)]_{Mess} (A_i))

However, unlike purpose clauses, the focus marker heuristic proposed in Section 4 does not work here. *Only* can scope over different elements in the respective main or dependent clauses, see (33a) and (33b). However, when the focus marker is placed in main

clause initial position, *only* tends to function as a discourse marker, not a focus marker, as in (33c) (for discussion of the discourse marker use of *only* see Brinton 1998, 2017). It also cannot scope over the result subordinator without implying intention not included in the original (33d).

- (33) a. *But his back pain **only worsened**, **so that** he could hardly stand.* (COHA:MAG:2007)
 b. *The mist became heavier **so that** I **only could see a few feet in front of me**.* (COHA:MAG:2015)
 c. *You looked scrawny. **Only** everyone else did, **so** I didn't notice it.* (COHA:FIC:1971).
 d. *He touched his cheek in confusion, [**#only**] **so that** dabs of wet clay rubbed off.*

While these findings appear, at first glance, to challenge the proposed Communicated Content structure, they may in fact result from limitations in the application of *only*. Previous research has noted that main clauses modified by purpose clauses usually have dynamic verbs (see Section 2.1), whereas main clauses modified by result adverbial clauses does not. These verbs in purpose main clauses should not only be dynamic but also what Dik (1997: 106-116) classifies as control verbs. Verbs that encode control entail that the subject in the main clause “has the power to determine whether or not the State of Affairs will obtain” (Dik 1997: 112); this is demonstrated most clearly in example (24), repeated here as (34), whereas in result the main clause agent does not have control over the State-of-Affairs in the main clause, as is clear from (29a) and (29b).⁸ *Only* appears to require main clause control verbs.

- (34) *Jerry, did you frame it **so that** I could win that race?* (COHA:TV/MOV:1947)

This means that, at the Interpersonal Level, the modification heuristic indicates sentences with *so*-result clauses consisting of two Communicated Contents in a non-hierarchical relationship and embedded in a higher Communicated Content frame (see example (35)). Unlike the purpose clauses discussed above, these constructions do not form a presupposition-focus structure, either clause may function as the information focus of the utterance, as demonstrated by the example in (36). In this example, the main clause addresses an implicit question in the preceding discourse: ‘what did the character do in response to the narrator’s question?’, or the subordinate clause answers the question: ‘what happened when he touched his cheek?’ Either clause can be marked for information focus as shown in (35).

- (35) *He touched his cheek in confusion, **so that** dabs of wet clay rubbed off.*
 IL: (A_I: [(F_I: DECL (F_I)) (P_I)_S (P_I)_A (C_I: [(C_J)_(Foc) (C_K)_(Foc)] (C_I))_{Mess} (A_I))

⁸ In the case of (29e), *touch* would normally be both dynamic and entail control, but prepositional phrase *in confusion* negates this reading and implies that the touching is involuntary.

- (36) *Now the town came to visit me, daubed with Indian paint and vague-faced from idle weeping. "You remember us," I said. "How we used to walk up the pike beside the trolley cars, me always hurrying a little to keep up?" "Remember?" He touched his cheek in confusion, **so that** dabs of wet clay rubbed off on his fingertips. "There were so many..." "Caldwell," I said. "George and Peter..."* (COHA:FIC:1963)

At the Representational Level, following Hengeveld and Mackenzie (see Section 3.2), the two clauses would correspond to two separate States-of-Affairs in an equipollent relation and linked by a Cons(equence) function.⁹ However, one of the problems with the underlying representation proposed in Hengeveld and Mackenzie, is that the second Episode or, in this case, State-of-Affairs is given a semantic function, meaning the subordinate clause must function either as an argument or a modifier.¹⁰ However, it is not an argument, and does not function as a modifier, since it is not restrictive. As demonstrated in (36), the dependent clause does not restrict the proposition of the main clause as would an adverbial clause of time, e.g. *after walking for hours, we reached the ocean* (Hengeveld and Mackenzie 2008: 162-163, 171).¹¹ If anything, semantically speaking, the main clause restricts the subordinate clause: the main clause narrows down the potential causes of the event in the subordinate clause (see Meier 2000; Sæbø 2012: 1428-1429), which would entail a semantic underlying representation like (37). However, the problem with this representation is that this would result in the main clause being encoded, at the Morphosyntactic Level, as a causal subordinate clause: *dabs of wet clay rubbed off **because** he touched his cheek in confusion*, not as the main clause.

- (37) $(ep_i: (e_j: \text{--dabs of wet clay rubbed off--}) (e_j: (e_i: \text{--he touched his cheek in confusion--}) (e_i))_{\text{cause}} (e_j)) (ep_i))$

The result relation between main and subordinate clause, nevertheless, is part of the sentence semantics and part of the sentence's truth conditional criteria. Sæbø (2012: 1428) points out that the truth conditional criteria of a sentence with a result clause are not fulfilled if both events (encoded by the individual clauses) are true, but also the causal relationship has to be true. This means that the truth conditions that form sentence (35) are then:

- (38) p: *He touched his cheek.*
 q: *Dabs of wet clay rubbed off.*
 p caused q.

⁹ The dependent clause cannot be a separate Propositional Content since it cannot take modifiers of this layer, e.g. *?He touched his cheek in confusion, so that presumably dabs of wet rubbed off*. These epistemic modifiers all entail an intentional reading that is not found in result clauses.

¹⁰ This theoretical issue is generally known.

¹¹ Theoretically, the result clause could be analyzed as functioning similarly to a non-restrictive modifier (see Keizer 2019). However, she analyzes non-restrictive modifiers as co-indexed with the main phrase they modify (Keizer 2019: 379–380), a property which does not hold for the result clause considered here. Consequently, a non-restrictive analysis does not seem appropriate in this case.

A simplistic formal representation might be CAUSE(*e*, *e'*), where *e* is the event in the main clause and *e'* is the event in the dependent clause. The problem that FDG faces is how to represent the CAUSE that links the two events together. There seem to be a few potential solutions. One is to adopt a broader definition of modification that would include non-restrictive modification as well and consider the result clause as an event modifier along the lines of Davidson (1967). This offers a simple solution to this problem but might lead to wider theoretical implications that would be problematic (e.g. losing the distinction between restrictive and non-restrictive modification). Another solution would be, instead of a consequence semantic function, the result clause takes a result operator (>), similar to the additive coordinator operator (Λ) suggested by Goreti Pezatti and Mackenzie (2022) for Portuguese coordinators. If we take the operator solution, then the underlying representation would be the following:

- (39) *He touched his cheek in confusion, so that dabs of wet clay rubbed off.*
 IL: (A_I: [(F_I: DECL (F_I)) (P_I)_S (P_J)_A (C_I: [(C_J)_(Foc) (C_k)_(Foc)](C_I))_{Mess} (A_I))
 RL: (p_i: (ep_i: [(e_i: –He touched his cheek in confusion– (e_i)) > (e_j: –dabs of wet clay rubbed off– (e_j))] (ep_i)) (p_i))

Here, at the Representational Level, we have a single Propositional Content (p_i) consisting of an Episode (ep_i) with a configurational head made up of two States-of-Affairs. The second State of Affairs is given the result operator (>) linking it to the first.

The sentences with result clauses then differ from those with purpose, at the Interpersonal Level, where two separate Communicated Content frames are in an equipollent relationship and embedded in a higher layer Content Frame, and on the Representational Level where two States-of-Affairs (or Episodes) are the configurational head of an Episode (or Propositional Content) and linked by a result operator.

5.2 Cause-Result between separate events

As was the case with purpose clauses, result clauses are more heterogeneous than expected. In some constructions, the events are not clearly connected, making the causal link conceptual, as represented by the following examples:

- (40) *The disorder varies, however, and many children go undiagnosed, so advocates and school officials disagree on the exact toll the disorder takes on education.* (COHA:NEWS:2007)
 b. *between 2000 and 2010, the Filipino population in Nevada reportedly grew by 142 percent, so that there are now more Filipinos than members of any other Asian nation in the state...* (COCA:MAG:2015)
 c. *this was all around 2:00 in the afternoon, so ...there are a lot of people on that plane who have been stuck out on the Tarmac for the past six hours, because they couldn't get to a jet way to debark the plane.* (COCA:SPOK:2017)
 d. *Presumably, her clientele died soon after acceptance, so a long-term stage was not required.* (COCA:ACAD:2011)

In this case, we are looking at two separate nuclear Discourse Acts in a single Move, similar to coordination (Hengeveld and Mackenzie 2008: 309). Modifiers of the Discourse Act and Illocution can scope over the main clause (see examples (40a) and (40c)) and the dependent clause (see (41b) and (41d) respectively).¹²

- (41) a. ***sadly**, many children go undiagnosed, **so** advocates and school officials disagree on the exact toll the disorder takes on education.*
 b. *...many children go undiagnosed, **so** [**sadly**] advocates and school officials disagree on the exact toll the disorder takes on education.*
 c. ***frankly**, many children go undiagnosed, **so** advocates and school officials disagree on the exact toll the disorder takes on education.*
 d. *many children go undiagnosed, **so** [**frankly**] advocates and school officials disagree on the exact toll the disorder takes on education.*

Further evidence that we are dealing with two Discourse Acts is that, unlike the result clauses in the previous section, these dependent clauses allow the insertion of performative verbs such as *assert* or *conclude* (42).

- (42) *...many children go undiagnosed, so [I assert or I conclude that] advocates and school officials disagree on the exact toll the disorder takes on education.*

As in the case of coordination, the two Discourse Acts are in an equipollent relation; therefore, neither takes a rhetorical function: the link between the two clauses is a semantic, not a pragmatic one. This would explain the coordination like attributes reflected in many result clauses (see Quirk et al. 1985: 930-934). This means that the Interpersonal Level would look like the following:

- (43) IL: (M₁: [(A₁) (A₂)] (M₁))

At the Representational Level, the two Discourse Acts correlate, as would be expected, with two Propositional Contents, as demonstrated by the application of *presumably*:

¹² These are constructed examples because no examples were found in the COHA and COCA corpus; tokens found for the search string [so that sadly] tend to be the third type of result clause (see Section 5.3). However, there are some examples in the TenTen corpus: *She is also a cipher to the audience and to herself, **so that sadly** she loses herself when she comes to believe in her self-created fantasy about a man whom she has not met.*

- (44) a. *this was all around 2:00 in the afternoon, **so presumably**, there are a lot of people on that plane who have been stuck out on the Tarmac for the past six hours*
(COCA:SPOK:2017)
b. *he's **presumably a pre-teen so** the actors should fall within that age group.*
(COCA:MAG:2019)
c. ***Presumably**, her clientele died soon after acceptance, so a long-term stage was not required.* (COCA:ACAD:2011)

As shown in Section 5.1, however, the two propositions are dependent on each other: the Propositional Contents (p_j) and (p_k) are linked via a cause and result relationship. In this case, the Propositional Content of the subordinate clause relies on the factivity of the main clause.¹³ This is most starkly visible in example (44a), where the dependent clause can only be true if the proposition in the first clause is true. If the main clause turns out to be false, then the result clause is also false. This would indicate that, although they are two separate Discourse Acts, the correlating Propositional Contents are embedded in a higher Propositional Content layer (p_i) and linked by a result operator ($>$).

The final FDG analysis is the following:

- (45) *many children go undiagnosed, **so** advocates and school officials disagree on the exact toll the disorder takes on education.*
IL: (M_i : [$(A_i$: [$(F_i$: DECL (F_i)) (P_i)_S (P_j)_A (C_i)_{Mess}] (A_i)) (A_j : [$(F_j$: DECL (F_j)) (P_k)_S (P_l)_A (C_j)_{Mess}] (A_j))]) (M_i))
RL: (p_i : [$(p_j$: (ep_i : – many children go undiagnosed – (ep_i)) (p_j)) $>$
(p_k : (ep_j : – advocates and school officials disagree on the exact toll the disorder takes on education – (ep_j)) (p_k))] (p_i))

The difference between these result clauses and the ones discussed in Section 5.1 is that these are separate Discourse Acts, making them more coordinator-like. Indeed, the ‘and’ insertion test mentioned in Section 2.3 appears to work more fluidly with these sorts of result clauses (see the examples in (46)). However, they still retain a cause and result relation at the Representational Level, but the relationship is between two separate Propositional Contents. It is only in the case of the final group of result clauses that the semantic link becomes a pragmatic one.

- (46) a. *many children go undiagnosed, [and] **so** advocates and school officials disagree on the exact toll the disorder takes on education.*
b. *?He touched his cheek in confusion, [and] **so** dabs of wet clay rubbed off.*

¹³ Thanks are due to Ozan Mustafa (pc) for pointing this alternative out.

5.3 Result as a conclusion

In this final group, the result clause expresses a speaker's conclusion rather than an observable result. These constructions are strongly marked for speaker perspective and often feature a first-person pronoun:

- (47) *Real wolves didn't get this far south, so I only have to worry about intruding on any local werewolves...* (COHA:FIC:2006)

Here, the dependent clause expresses the new information, and the main clause is factive, providing background information. The link between the two is best paraphrased as 'I conclude that' rather than 'as a result'. As shown by the interpersonal modifier heuristic in (48a)-(48d), this sentence also consists of two Discourse Acts, and further evidence is provided by examples where the dependent clause has a separate Illocution from the main clause as in (49).

- (48) a. *No birth metaphors here, folks! I am sadly literal, so this is a story about an actual birth.* (COCA:WEB:2012)
 b. *Being ill has led me to leaving my humanitarian position, so sadly I am on a shoestring budget.* (COCA:WEB:2012)
 c. *It's frankly not any good, so I don't see it as a reason to recommend the later model.* (COCA:WEB:2012)
 d. *now that they've seen the video, no way Judge Karl's getting nominated for the Supreme Court, so frankly, it's a win-win.* (COCA:MOV:2018)
- (49) *I'm white, so how can I possibly relate?* (COCA:WEB:2012)

The two clauses are not two autonomous assertions as in Hengeveld and Mackenzie's coordination example: *Celtic won. And Rangers lost* (2008: 53), because the result clause is contingent on the information in the main clause. Therefore, at the Interpersonal Level, the dependent clause is realized as a Subsidiary Discourse Act with a Concl(usion) function. The FDG analysis of the Interpersonal Level is the following:

- (50) *Real wolves didn't get this far south, so (I conclude that) I only have to worry about intruding on any local werewolves...* (COHA:FIC:2006)
 IL: (M_I: [(A_I – real wolves didn't get this far south- (A_I)) (A_J: – I only have to worry about intruding on any local werewolves – (A_J))_{Concl}]) (M_I)

In these cases, the functions of the separate clauses conflict with the formal encoding. The main message is usually represented by the Nuclear Discourse Act while the Subsidiary Discourse Act is dependent on the Nuclear Act and takes a rhetorical function to mark its relation with the Nuclear Act (Keizer 2015: 53-54). In (50), the main clause is the background information and the subordinate clause is the main message of the sentence. Nevertheless, as a form to function model, FDG represents the formal encoding: the result

clause is formally marked as subsidiary with the subordinator, despite being the information focus, and therefore, is the Subsidiary Discourse Act.

In these examples we see again the in-between status of *so*-result as neither a subordinator nor a coordinator (see Section 2.3 for discussion). On the one hand, *so* introduces the clause with the information in communication focus, but the information in the subordinate clause is still dependent on the information in the main clause. This means that *so* in these cases does not function as a classic subordinator nor as a prototypical coordinator.

In sum, this section has identified three types of result clause relations: (i) immediate events linked through causal-resultative relations, (ii) separate events connected via conceptual causality, and (iii) event pairs constituting a fact–conclusion relation. At the Interpersonal Level, these distinctions correspond to three interpersonal frames: one in which the clauses are modeled as separate Communicated Content frames, the second as two nuclear Discourse Acts, and the third as a Nuclear and Subsidiary Discourse Act. Furthermore, I have suggested using a result operator to represent the cause-result relationship between the two clauses.

6. Purpose and result with directives

This section addresses those purpose and result clauses that structurally appear to have two separate Illocutions, but do not necessarily consist of two separate Discourse Acts. Imperatives with *so* (*that*) clauses are common in the dataset, e.g., the examples in (51) but underrepresented in the literature (exceptions include Palmer 1987: 106–107 and Nykiel 2020: 358). The following sections will discuss three different types.

- (51) a. *Conflict management is very difficult and has many unanticipated consequences, so practice first before acting*. (COHA:NF:1981)
b. ***let stand** at least 10 minutes before carving so juices will retreat into the tissues*. (COHA:NEWS:1993)
c. *Scroll down to row 2000, and tab across so that WC is the active column. Hold down "Shift"...* (COHA:MAG:2002)

6.1 Dependent clause as directive

Variations of example (51a), an imperative functioning as the result of the preceding assertion, has been discussed in the FDG literature. In these examples, the *so*-clause is the element in focus and has an Imperative Illocution; the main clause, with a Declarative Illocution, provides the background information. The proposed FDG analysis would be similar to the analysis proposed by Hengeveld and Wanders (2007: 221–222; see also Hengeveld and Mackenzie 2008: 54; Hannay and Hengeveld 2022: 607–608): at the Interpersonal Level, there are two Discourse Acts: the main clause relates to the Subsidiary Discourse Act with a Pre- macro-function and Motiv(ation) micro-function, the *so*-clause encodes the Nuclear Discourse Act.

(52) *Conflict management is very difficult and has many unanticipated consequences, so practice first before acting.* (COHA:NF:1981)

IL: (M_I: [(A_I: - conflict management is very difficult and has many unanticipated consequences –(A_I))_{Pre-Motiv} (A_J: - practice first before acting-(A_J))] (M_I))

As was the case with the conclusion constructions in Section 5.3, however, the underlying representation proposed above represents the function of the sentence but does not account for the formal encoding. To account for the subordinate clause, we would have to adopt an interpersonal frame similar to the conclusion constructions discussed in Section 5.3. Therefore, the analysis of example (51a) is demonstrated in (53). At the Interpersonal Level, the main clause is the Nuclear Discourse Act, and the *so*-clause functions as the Subsidiary Discourse Act with a Conclusion function. In this case the conclusion is not a statement but an order or suggestion.

(53) *Conflict management is very difficult and has many unanticipated consequences, so practice first before acting.* (COHA:NF:1981)

IL: (M_I: [(A_I: - conflict management is very difficult and has many unanticipated consequences –(A_I)) (A_J: - practice first before acting-(A_J))_{Concl}] (M_I))

RL: (p_i: [(pres ep_i: (e_i –conflict management is very difficult– (e_i)) (e_j: – conflict management has many unanticipated consequences – (e_j))] (ep_i)) (p_i)) (ep_j: –practice first before acting– (ep_j))

At the Representational Level, the main clause consists of a separate Propositional Content consisting of two simultaneous State-of-Affairs. The imperative is a separate Episode (Hengeveld et al. in prep), since imperatives do not have a proposition (Hengeveld and Mackenzie 2008: 279). *So* is triggered in the Morphosyntactic encoding by the Conclusion function. The remaining two examples (51b) and (51c) have directives in the main clause and therefore, have a different representation in FDG.

6.2 Directive and a dependent purpose clause

Palmer (1987: 106–107) argues that imperatives with *so* adverbial clauses inherently express purpose: ‘do X with the intended result Y’, with the dependent clause expressing an intended outcome often shared by the speaker and the listener (54a) or the speaker's intended outcome from the directive (54b-c). Therefore, Palmer argues, there is no actual result option because this clause must be non-factive. Corpus data to some extent support this claim. As demonstrated in (54), there are a number of examples from different genres where the subordinate clause expresses the speaker's purpose for the directive in the main clause.

- (54) a. **let stand** at least 10 minutes before carving **so** juices will retreat into the tissues. (COHA:NEWS:1993)
 b. Disturb the surroundings, **so** things on the ground around you don't look natural (COHA:MAG:2005)
 c. "Make sure you move them **so** the children don't see," she said. (COHA:2009:FIC).
 d. Keep quiet **so** the neighbors don't call the cops again (COHA:2003:FIC)

Similar to other purpose clauses (see Section 2.3), the syntactic tests (clefting and fronting) apply in this case (see (55)), confirming that this is indeed purpose.

- (55) a. It is so juices will retreat into the tissues that [you should] let stand at least 10 minutes before carving.
 b. so juices will retreat into the tissues, let stand at least 10 minutes before carving

Unlike the imperative example in (53), repeated in (56a), these subordinate clauses are not autonomous and cannot stand alone, as shown in (56b) and (56c), and therefore, do not appear to be separate Discourse Acts (see Kaltenböck and Keizer 2022 for discussion).

- (56) a. Conflict management is very difficult and has many unanticipated consequences. Practice first before acting.
 b. ?Be quiet. The neighbors don't call the cops.
 c. ?Make sure you move them. The children don't see.

Other evidence against analyzing these examples as single Discourse Acts are that i) *frankly* and *sadly* cannot scope over the dependent clause (57b); ii) the dependent clause also does not function as an assertion or statement or even prediction, resisting the insertion of performative verbs in the dependent clause (57c), and iii) the dependent clause must be declarative and does not allow for an alternative illocution (57d).

- (57) a. Frankly I am ordering you to keep quiet, **so** the neighbors don't call the cops.
 b. ?Keep quiet, **so** [frankly, sadly] the neighbors don't call the cops.¹⁴
 c. *Keep question, **so** [I assert, conclude, state] the neighbours don't call the cops.
 d. *Keep quiet, **so** will the neighbors call the cops?

Looking at previous research, this is not surprising. Verstraete (2007: 240-241) argues that these types of clauses cannot be separate Speech Acts because their function is to support the Speech Act presented in the main clause. Foley and van Valin (1984: 249) have also pointed out that adverbial clauses "may not be independently specified for illocutionary force". In a general discussion of subordination, Foley and van Valin (1984: 240) explain this distinction by comparing subordinate clauses and the illocutionary force of the sentence to that of a core noun phrase (NP) and the tense of its main verb. Just as tense determines the

¹⁴ There is one example of *frankly* used in such constructions in COCA, but in that case *frankly* is an adverb of manner: *let me speak frankly so that no one's time is unnecessarily wasted* (COCA:ACAD:2017).

temporal reference of the main verb without inherently altering the referential content of its core NP arguments, illocutionary force originates at the level of the superordinate clause and scopes over the subordinate clause. In such subordinate constructions, the illocutionary force renders the subordinate clause incapable of standing alone as a full utterance. Consequently, the subordinate clause is structurally dependent on the superordinate clause, as demonstrated in example (56b-c) above.

The structure of the Communicated Content frames remains in question. As with speaker-oriented purpose clauses, reportative and attitudinal modifiers conflict with the pragmatic force of the imperative as shown in (58a). Modifiers such as *hopefully* can scope over the subordinate clause (58b), although not over the subordinator. Formal constraints also prevent the use of *only* in the main clause (58c), although it can scope over the purpose clause (58d).

- (58) a. **[allegedly, reportedly, hopefully] keep quiet so the neighbors don't call the cops.*
 b. *Keep quiet so [hopefully] the neighbors don't call the cops.*
 c. ?*Only keep quiet so the neighbors don't call the cops.*
 d. *Keep quiet only so the neighbors don't call the cops.*

Furthermore, either the first or second clause can serve as the focus structure. In example (59a), for instance, either *keep quiet* or *so the neighbors don't call the cops* can constitute the at-issue information. However, the directive often provides the primary message, as shown in (59b). This example is drawn from a survival to-do list where the imperative responds to the implicit question: 'What should I do when lost in the wilderness?' Therefore, the Communicated Content frame appears to be similar to that of result clauses.

- (59) a. *I want a clean fight, fellas. No rabbit punches no clinches. Keep quiet so the neighbors don't call the cops.*
 b. (A list of what to do if lost in the wilderness): 3. *Position yourself in a clearing so you can be spotted from a distance.* 4. *Disturb the surroundings, so things on the ground around you don't look natural.* (COHA:MAG:2005)

The FDG analysis would be the following:

- (60) *Keep quiet so the neighbors don't call the cops.*
 IL: (M_i: (A_i: [(F_i: IMPER (F_i)) (P_i)_S (P_j)_A (C_i: [(C_j)_(Foc) (C_k))] (C_i))_{Mess} (A_i) (M_j))
 RL: (e_i: (ep_i: (e_j – keep quiet– (e_j) (ep_i): (p_i: (ep_j: (e_k: – the neighbors don't call the cops– (e_k)) (ep_j)) (p_i))_{Purp} (e_i))

At the Interpersonal Level, the structure consists of a single Move containing one Discourse Act, marked with an Imperative Illocution. The Communicated Content frame includes two embedded Content frames, situated within a higher-level content layer. At the Representational Level, the imperative is encoded as a separate Episode. The accompanying purpose clause is assigned an independent truth value, and is therefore modeled as a

distinct Propositional Content (p) that modifies the main Episode and takes on a Purpose (Purp) semantic function. This entire configuration is embedded within a higher-level SoA.

The presence of a separate Propositional Content for the purpose clause leads to a mismatch between the Interpersonal and Representational Levels: the imperative illocution does not directly align with the embedded propositional structure. As a result, at the Morphosyntactic Level, the subordinate clause is realized with declarative illocution, which functions as the default illocutionary form for clauses lacking independent speech-functional status (see Verstraete 2007: 107; Foley and Van Valin 1984: 239–240). The Purp function at the Representational Level triggers the use of the subordinator *so* in the morphosyntactic encoding. The next directive is a slight variation of this form.

6.3 Directive and a dependent result clause

Contrary to Palmer's claim that only purpose clauses can be used with directives, there are examples where the dependent clauses do not encode purpose. The syntactic tests for purpose (fronting and clefting) yield awkward results (61b) or entail an intentional meaning not in the original (61c).

- (61) a. **Scroll down** to row 2000, and **tab across** *so that WC is the active column*. Hold down "Shift"... (COHA:MAG:2002)
 b. ?**So that WC is the active column**, tab across.
 c. #It is *so that WC is the active column* that [you should] tab across.

The purpose of tabbing across is not to activate the WC column, but it is the expected result of the action (if the imperative is performed correctly) or the goal (do the activity in the main clause until this point). This use of *so(that)* clauses are usually found in instruction manuals, as demonstrated by the following examples:

- (62) a. Scroll down to row 2000, and tab across **so that WC is the active column**. Hold down "Shift"... (COHA:MAG:2002)
 b. Squat low enough **so** shoulders are under water. Keep arms out to sides for balance. (COHA:2005:MAG)
 c. Contract abs and lean back from hips **so** bar [sic] is positioned over breastbone... (COHA:2004:MAG)

As was the case with the purpose examples in the previous section, superficially, there appear to be two separate Illocutions and therefore, one would surmise two separate Discourse Acts. As was the case with the purpose directive above, however, the modification tests show that the dependent clause does not have a separate Illocution and is not a separate Discourse Act:

- (63) a. ... tab across **so that** [**briefly, *frankly,*] *WC is the active column*.
 b. ... tab across **so that** [*hopefully*] *WC is the active column*.

Similarly to the regular purpose clauses (see Section 4.2), the application of reportative and attitudinal modification in the dependent clause is awkward at best (63a), but *hopefully* can scope over the dependent clause (63b). Considering the larger context (see example (64)), it appears that *tab across* is the focused information: it answers the implicit question: ‘what should I do?’. Nonetheless, given an alternative context, elements of the dependent clause can also be the communicative focus: e.g. *WC* answers the question ‘how far should I tab across?’ Thus, the formulation of the Communicated Content appears to be similar to a prototypical result clause (see Section 5.1).

(64) *Scroll down to row 2000, and tab across **so that** WC is the active column. Hold down “Shift”...*

IL: (M_I: (A_I: [(F_I: IMP (F_I)) (P_I)_S (P_J)_A (C_I: [(C_I) (C_J))] (C_I))_{Mess} (A_J)) (M_J))

RL: (e_i: –tab across– (e_i: (p_i: (ep_j: (e_k: –WC is the active column– (e_k))_{Cons} (ep_j) (p_i)) (e_i))

At the Representational Level, see (64), the event as a whole is analyzed as a State-of-Affairs (e_i), with the main clause as the head and modified by a Propositional Content, which itself contains a second State-of-Affairs as its head. With this construction, the modifier is assigned a Consequence (*Cons*) function, rather than the Purpose (*Purp*) function observed in the previous construction. Similar to the purpose directive, the mismatch between the Interpersonal and Representational Levels gives rise to a declarative form at the Morphosyntactic Level.

Although the dependent clause functions analogously to an allative, indicating the endpoint of the action denoted by the main clause, and can be readily replaced by a prepositional phrase (e.g., *tab across to the WC column*), the clause is formally encoded as a result or purpose clause. In English, allatives are typically prepositional phrases. Since the allative interpretation is not explicitly marked in the clause structure, it does not form part of the underlying representation.

In sum, this use of the directive is an infrequent variation of the more general use of the purpose clause with a directive. Like the directive with a purpose clause discussed in Section 6.2, these result clauses do not represent a separate Discourse Act but a separate Communicated Content. The differences between the directive with purpose and the directive with result subordinate clauses are distinguished at the Representational Level.

7. Discussion and Conclusion

This analysis highlights the fundamental distinction between the integration of purpose-*so* clauses and the relative independence of result-*so* clauses. In the traditional sense, adverbial clauses typically provide optional or background information, functioning similarly to adverbs. However, purpose clauses conceptually differ from many adverbial clauses in that the subordinate clause becomes the focus of the communicative attention, resulting in an embedded Communicated Content frame at the Comment layer at the Interpersonal Level. Differences between the types of purpose clauses are reflected at the Representational Level.

Unlike purpose clauses, result clauses are syntactically and pragmatically, and in some cases semantically, more detached. Three types of result clauses are identified here: immediate events with clear cause-result links, separate events with conceptual causal links, and speaker conclusions as result. Immediate events depict completed actions, while temporally distant events rely on inferred connections. Speaker-internal conclusions, often marked by first-person pronouns, express subjective inferences rather than observable outcomes. At the Interpersonal Level, these distinctions correspond to three Communicated Content frames: one in which the clauses are modeled as separate Content frames, the second where the two clauses correlate with two Nuclear Discourse Acts, and another in which they function as two Discourse Acts, one Nuclear and the second Subsidiary. Although result clauses are inherently anchored in the speaker's perspective, the degree of speaker salience varies across categories. In cases involving immediate events, the speaker adopts a more neutral, reportative stance, merely conveying a sequence of events. As temporal distance increases, the causal link becomes more abstract, thereby amplifying the speaker's interpretive role. In the final category of result clauses, the result is no longer an external event but a cognitive act with an inference usually explicitly marked for speaker involvement.

At the Communicated Content layer, the distinction between purpose and result is evident: purpose clauses are embedded within the Comment layer, while result clauses form a separate, non-hierarchically organized Communicated Content frame or a separate Discourse Act. This representation reflects why *so*-result conjunction functions similarly to coordinators (e.g. Quirk et al. 1985: 930-934).

This FDG analysis also shows that *so* (*that*) clauses with directives are not simply a variant of the purpose clause, but share similarities with result clauses as well. *So* (*that*) clauses used with directives represent an intermediary category, where the dependent clause retains its function as a purpose clause but shifts its information focus, resulting in a different Content frame.

This paper also demonstrates the strengths and limitations of FDG and the heuristic tests provided by the model. One of the strengths of FDG is that it only accounts for linguistic phenomena that are systematically encoded in the data, thereby forcing the analysis to find attested evidence for changes. However, as shown in this study, this then means that formal encoding takes priority over functional readings. In many cases, the failure of heuristic tests was primarily due to pragmatic and semantic clashes and alternative evidence provided evidence for one reading over another. However, the heuristics did capture the gradience in the interpretation of result clauses, ranging from semantically grounded causal relations between two States-of-Affairs to result clauses linking two separate propositions or expressing a conclusion or inference derived from the main clause although this is not clearly represented on the Interpersonal Level. While these uses have been represented as distinct categories, analysis of the data shows numerous ambiguous cases, particularly in contexts involving temporally discrete events. The boundary between causally interpreted results and inferential conclusions is not always sharply defined.

This paper concludes with a disclaimer. Chafe (1984) suggests that adverbial clauses vary in function along two factors: the degree of their syntactic bond with the main clause and their position relative to the main clause. The first factor, addressed in this paper,

concerns the tightness of the bond between the adverbial clause and its main clause. The second factor, discussed in other works, pertains to the position of the adverbial clause in relation to the main clause. This parameter is particularly relevant for purpose clauses, which can be preposed. Verstraete (2007: 122–123) observes that fronting purpose clauses negates their illocutionary structure: when placed in the initial position, purpose clauses no longer fall under the illocutionary scope of the main clause and, therefore, cannot serve as the primary focus structure of the sentence. Instead, they may function as backgrounded information or even as part of a separate illocutionary domain. Other researchers (e.g. Thompson 1985; Ramsay 1987; Givón 1990: 844–847) have noted that the clause-initial positioning of dependent clauses affects not only their syntactic role but also their discourse and pragmatic functions. Consequently, the morphosyntactic realization of purpose clauses is highly sensitive to their information structure. Therefore, this analysis does not represent a comprehensive discussion of the interpersonal representation of adverbials in FDG: the implications of a change in position and function will need to be addressed in future research.

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