Four reasons for a revision
of the Transitivity Hypothesis

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Abstract. Since the Transitivity Hypothesis was introduced thirty four years ago, it has become one of the most influential approaches to the functioning of transitivity in natural language. Despite the huge impact of the approach, at least within functional linguistics, some fundamental theoretical and methodological problems still remain unsolved; this seriously undermines the entire approach. The aim of this study is to analyze the four most crucial shortcomings of the approach and to propose solutions. Specifically, the study focuses on (1) the consequences of the absence of a sound theoretical foundation, (2) the ambiguity of the Hypothesis, (3) methodological deficiencies, and (4) the dubious validity of the Transitivity Hypothesis with regard to its universality. This study also takes into account later modifications of the Transitivity Hypothesis, particularly the frequency-based approach which has been advanced by the authors of the Transitivity Hypothesis.

1. Introduction

The Transitivity Hypothesis (hereinafter TH) was proposed thirty four years ago by P. Hopper and S. Thompson (1980). Since its publication, Hopper and Thompson's paper has been considered a seminal contribution to the research into the functioning of transitivity in language, and it has been cited in the majority of studies focusing on transitivity – at least those taking a functional linguistic approach. By way of illustration, the Web of Science database reflects the huge impact of Hopper and Thompson's paper – it is the second most cited article (with 756 citations; an average 32.9 citations per year) which has ever been published in *Language*, the Journal of the Linguistic Society of America. The impact of Hopper and Thompson's approach to transitivity is indisputable. Moreover, the authors formulated their view on the functioning of transitivity in the form of an empirically testable hypothesis; this has significantly increased their ideas' attraction to researchers. In summary, the TH represents a highly heuristic view of the one of the most fundamental properties of language, and the form of the TH enables us to characterize it as an empirical scientific approach.

However, closer observation of the TH reveals some fundamental problems, both theoretical and methodological. Surprisingly enough, among the large number of studies referring to the TH, only a tiny minority of them (e.g. Tsunoda 1985, Olsen – MacFarland 1996, LaPolla et al. 2011) have focused on critical analysis of the theoretical and methodological foundations of the TH. The majority of studies take the TH for granted, or merely propose slight modifications to it. The aim of this article is to show that fundamental problems seriously undermine the TH and that if the heuristic value of the TH is not to be lost, these fundamental problems must be solved. The present article offers a critique of the TH while also proposing some solutions to the

challenges identified.

2.   The main characteristics of the Transitivity Hypothesis

According to Hopper and Thompson (1980), transitivity represents a crucial relationship in language which has a number of universally predictable consequences in grammar. Importantly, transitivity is not viewed in a traditional sense – according to which the presence (or absence) of the object in the sentence is the only parameter distinguishing between transitive (or intransitive) clauses. Instead, Transitivity[1] is regarded as a continuum: it is a matter of the grammar (and semantics) of the entire clause and it "can be broken into its component parts (...), they allow clauses to be characterized as MORE or LESS Transitive: the more features a clause has in the 'high' column 1A–J, the more Transitive it is" (p. 253); see Table 1.

Table 1
Transitivity parameters (Hopper – Thmopson 1980, p. 252)

	Parameter	High Transitivity feature	Low Transitivity feature
A	PARTICIPANTS	2 or more	1
B	KINESIS	action	non-action
C	ASPECT	telic	atelic
D	PUNCTUALITY	punctual	non-punctual
E	VOLITIONALITY	volitional	non-volitional
F	AFFIRMATION	affirmative	negative
G	MODE	realis	irrealis
H	AGENCY	Agent high in potency	Agent low in potency
I	AFFECTEDNESS of Object	Object totally affected	Object not affected
J	INDIVIDUATION of Object	Object highly individuated	Object non-individuated

The value of Transitivity in a sentence is determined by the presence of high Transitivity features, so the sentence

(1)   *Susan left*

is more Transitive than the sentence

(2)   *Jerry likes beer*

because sentence (1) has more high-Transitivity features (Kinesis: action; Aspect: telic;

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1   The authors use the term Transitivity (or Transitive) with a capital T to designate this specific understanding of the notion.

Punctuality: punctual; Volitionality: volitional) than sentence (2) (Participants: two) (ibid. p. 254).

The most important aspect of the TH, in my opinion, lies in its prediction hypothesizing the relationships between the components: "If two clauses (a) and (b) in a language differ in that (a) is higher in Transitivity according to any features 1A-J, then, if concomitant grammatical or semantic difference appears elsewhere in the clause, that difference will also show (a) to be higher in Transitivity" (ibid, p. 255). Component features should co-vary extensively and systematically, so "whenever two values of the transitivity components are necessarily present (...) they will agree in being either both high or both low in value" (ibid., p. 254). In summary, Transitivity causes a very wide range of correlations in the grammar of language.

3.   Reasons for the revision of the Transitivity Hypothesis

3.1   The origin of Transitivity – a proper theory is needed

Let us try to examine Transitivity from a more global point of view. It has been shown in Section 2 that according to the TH, Transitivity controls relationships among very different grammatical and semantic facets of language. Consequently, Transitivity should be viewed as a kind of linguistic 'supra-category', and it is necessary to answer the question of the origin of this important property of language.

Hopper and Thompson, at the beginning of their study, promise to present a "broad theory of Transitivity" (1980, p. 251). First, they state that Transitivity "involves a different facet of the effectiveness or intensity with which the action is transferred from the participant to another" (p. 252). The article then gives plenty of examples which are intended to corroborate the TH. Next, the authors articulate the need to find some underlying unitary principle which enables the TH to be explained; however, the authors admit that a superordinate semantic principle including all Transitivity components has not been discovered, and turn their focus to pragmatics.

Generally, the authors assume that a "linguistic universal originates in a general pragmatic function, and that the universal is not explained until this function has been isolated and related to this universal" (p. 280). Consequently, since Transitivity is viewed as being a universal property of language, it should be connected to some communicative function.

In particular, the authors relate Transitivity to text properties. Accorrding to them, any text consists of both a more relevant part, referred to as the *foreground*, and a less relevant part, the *background*. The foreground supplies the main points of the discourse and crucially contributes to the speaker's communicative goal, while the background merely assists, amplifies, or comments on it (cf. ibid p. 280). In languages like English, which do not express foregrounding by a single morphosyntactic feature, the foreground manifests itself by a cluster of properties. According to the authors, this cluster is precisely that set of properties which characterize high Transitivity (cf. ibid p. 284). Further, foregrounding is marked on a probabilistic basis, so "the likelihood that a clause will receive a foregrounded interpretation is proportional to the height of the scale of Transitivity. From the performer's point of view, the decision to foreground a clause will be reflected in the decision to encode more (rather than fewer) Transitivity features in the clause" (ibid. p. 284). In summary, Transitivity can be viewed as a

discourse-motivated mechanism which governs the behaviour of particular Transitivity features.

However, does this kind of explanation really represent the promised "broad theory of Transitivity"? Even if one sets aside the methodological problems (see Section 3.3, 3.4), some fundamental questions arise: Is the TH proposed in relationship to other hypotheses? Why were the particular parameters chosen? What is the relationship between particular parameters and discourse characteristics (foreground vs. background)? Why should some features manifest foregrounding (or backgrounding) and others not? For example, why should an affirmation be more effective at achieving the speaker's communicative goals than a negation? What are the relationships among particular Transitivity parameters? Are they uniform? Or do they constitute a hierarchy?

Without answers to questions of this kind, the TH is not much more than a statement concerning some correlative relationships within language. However, one shoud bear in mind that "[i]n any data, some correlations can be found if all you are looking for is correlations!" (Fraassen 2002, p. 159). To summarize, a description of correlations is no theory; moreover, the mere presence of correlation does not guarantee that the correlation is a manifestation of the theory (or better, the manifestation of a law which is derived from the theory).

3.2 Ambiguity of the hypothesis

At first sight, the TH is set forth with crystal clarity: "If two clauses (a) and (b) in a language differ in that (a) is higher in Transitivity according to any features 1A-J, then, if concomitant grammatical or semantic difference appears elsewhere in the clause, that difference will also show (a) to be higher in Transitivity.

The converse of this hypothesis, that there is a similar correlation among low-Transitivity features, is implicit. (…) The Transitivity Hypothesis also predicts that the opposite type of correlation will not be found, where a high-Transitivity feature systematically co-varies with low-Transitivity feature in the same clause" (p. 255).

However, even a cursory glance at Table 1 reveals unsustainable consequences of the TH. Specifically, if no co-variation between particular low-Transitivity and high-Transitivity features is predicted, it should not be possible, for example, to use an atelic verb predicate in a two-participant sentence or a punctual verb in a negative sentence. The prediction given by the TH evidently contradicts the user's common language experience. For example, the sentence

(3)   *Peter did not kick the ball*,

containing the negative punctual verb, is undoubtedly well-formed and commonly used in English.[2]

In order for the TH to remain meaningful, it is necessary to view the correlative relationships between particular parameters not in the strict sense, but probabilistically. In fact, this approach is implicitly adopted by the authors of the TH; besides the examples which fit the original strict formulation of the TH, some examples formulated as tendencies are also used for corroboration of the hypothesis. For example, it is stated

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2   The Google search engine finds approximately 66 000 instances of the string "did not kick the ball" [25th February 2014].

that "an animate O [object] is *more conducive* to the selection of the accusative than an inanimate O [object]; a singular O [object] is *more likely* to be (and is *more acceptable*) in the accusative than a plural O [object]" (Hopper – Thompson 1980, p. 279) [my italics]. Moreover, if the authors claim that Transitivity should be higher in the foreground than in the background, the probabilistic approach is anticipated; particularly, in the foreground *more* high Transitivity features should appear in the sentence than in the background, which means that in the foreground there should be a *higher* correlation between high Transitivity features than in the background.

In the light of these facts, it is hard to comprehend why the authors did not originally formulate the TH probabilistically. The original 'strict' form of the hypothesis is ambiguous, which seriously confuses the whole approach.

3.3 A frequency-based approach to the Transitivity Hypothesis – a proper methodology is needed

A frequency-based approach to the TH is explicitly adopted in Thompson and Hopper's later work (2001) focusing on the relationship between language form, namely conversation, and Transitivity. However, Čech and Pajas (2009) revealed some fundamental deficiencies of their approach; first, the prediction concerning the relationship between language form and Transitivity presented in Thompson and Hopper's (2001) paper lacks the form of an empirically testable hypothesis. For example, it is stated that Transitivity is low in conversation, and consequently the majority of clauses turn out to have one participant. The presented results seem to confirm the prediction: 73% of one-participant clauses and 27% of two or more-participant clauses were detected in the observed dataset. Nevertheless, what does it actually mean when one says that something is 'low' or 'high' without an explicit scale factor? In other words, what percentage of one-participant clauses is 'enough' to say that Transitivity is low? Moreover, the authors did not explicitly formulate the claim that Transitivity is low *in comparison* to written language (or a particular genre), although this is probably assumed implicitly. However, without a clearly formulated hypothesis, e.g. *the ratio of one-participant clauses, in comparison to two or more-participant clauses, is higher in conversation than in written language*, neither the statement concerning the relationship between conversation and Transitivity, nor the presented empirical findings, have any scientific validity.

Next, the differences among distributions are interpreted without any statistical test. As Altmann and Lehfeldt (2004) pointed out, this represents "a disease of the frequentism that could be called a children's illness if it had not have lasted already for such a long time" (p. 278).

Last but not least, one of the most important deficiencies of the TH lies in the vagueness of its definition of particular Parameters. In the majority of cases, it is assumed that notions such as *negation, punctuality, affectedness* etc. are not problematic; consequently, these notions are defined superficially, despite the fact that it is well-known in linguistics that even relatively well-established notions are not unequivocal (cf. Brown, 2005). However, without clear definitions, at least operational ones, the analyses are obscure, and obviously a different comprehension of the notions will bring different results.

3.4 (Non-)universality of the Transitivity Hypothesis

The crucial importance of the TH is dependent on its universal validity. To emphasize this aspect of the TH, Hopper and Thompson claim at the very beginning of their article that Transitivity has "a number of universally predictable consequences in grammar" (p. 251). However, although the TH is indeed originally formulated universally, without any restrictions – cf. "whenever two values of the Transitivity components are necessarily present (...) they will agree in being either both high or both low in value" (p. 254) – the first constraint on its universal validity is posited by the authors. Transitivity is viewed by them as a discourse property, which means that it should reflect a distinction between foregrounded and backgrounded discourse. Consequently, if one thinks of a language which obligatorily expresses for example both an object and aspect, the higher correlation between these two parameters should appear in the foreground rather than in the background. So the prediction can be viewed as universal, but only in the case of the foreground. Not surprisingly, Hopper and Thompson emphasize this aspect of the approach in the conclusion of their article: "Semantic and grammatical properties which are irrelevant to foregrounding are also irrelevant to Transitivity" (p. 294). However, it is unclear why this constraint was not incorporated into the original hypothesis and why the authors have not predicted that 'whenever two values of the Transitivity components are necessarily present *in the foreground* they will agree in being either both high or both low in value'. In my view, such a formulation would significantly clarify the approach.[3]

Another restriction of the TH is presented by the authors in their study focusing on the relationship between Transitivity and conversation (Thompson – Hopper 2001). It is stated that conversation is low in Transitivity; this is illustrated by the character of two-participant clauses. More concretely, the observation of conversation has revealed strong correlation between two-participant clauses (which manifest a high-Transitivity feature) and low-Transitivity features, such as Non-action, Atelic, Non-punctual and so on (see Table 2).

Table 2
The ratio of low Transitivity features in two-participant clauses in conversation
(based on Thompson & Hopper 2001, p. 37).

Kinesis: Non-action	86%
Aspect: Atelic	86%
Punctuality: Non-punctual	98%
Affectedness: Non-affected Object	84%
Mode: Non-irrealis	70%
Individuation: Non-individuated Object	55%

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3 The relationship between the universal status of Transitivity and discourse properties is emphasized in Hopper and Thompson's later works, cf. "a cross-linguistic function of 'Transitivity' is of a central importance in universal grammar, and at the same time is derived from discourse salience of prototypically transitive clauses" (Hopper – Thompson 1984, p. 707).

Volitionality: Non-volitional Agent	50%
Agency: Potent Agent	97%

However, the results in Table 2 indicate co-variation of opposite features, which is in direct contradiction with the prediction of the TH (see Section 2). This means that the TH is not valid for conversation, and its universality is radically restricted to just one part of discourse – the foreground – in one form, i.e. written, of language. Moreover, no clear criteria for distinguishing the foreground and background are put forth.

In summary, the TH is presented as a language universal 1) with highly restricted validity and 2) without a methodology enabling researchers to test its validity empirically, because of the absence of interpersonally observable criteria for the delimitation of the foreground.

4. Conclusion and proposals

Although Hopper – Thompson's approach to Transitivity has opened up an interesting way of viewing a very important aspect of the functioning of language, fundamental theoretical and methodological deficiencies undermine the entire approach. However, in my opinion these deficiencies are solvable. The proposals for solutions are as follows:

1. The TH should be implemented into a theory of language. This would clarify both the general status of Transitivity and the character of predicted relationships between particular parameters. In other words, both Transitivity, as a property of language, and the TH should be derived from more general principles which rule linguistic behaviour.
2. The TH should be formulated probabilistically. A probabilistically formulated hypothesis reflects the true intention of the authors, and – more importantly – it enables results to be tested empirically by using common statistical methods.
3. The features of parameters should be quantified.
4. The vagueness should be removed from the definitions of particular parameters. This would make it possible to quantify unambiguously the features of parameters, and consequently would provide a high level of validity (and comparability) of results. In practice, it means that the definitions must be unequivocal.
5. The majority of parameters are defined dichotomically, despite being far more complex in nature. For example, parameter A (number of participants) only distinguishes between one-participant and two or more-participant sentences, although there are obvious differences in the linguistic behaviour of participants which are represented by a direct object, indirect object, prepositional object, and adverbial. It therefore seems more reasonable to define, if possible, the features of parameters as a scale. Dichotomy of properties is a heredity having its origin in structuralism.
6. The results should be interpreted using common statistical methods. The first step would be the translations of conjectures into the language of statistics.
7. The relationship between Transitivity and discourse should be reconsidered; either a clear definition of the foreground must be given (with a method for distinguishing between the foreground and background), or Transitivity has to be redefined in genuinely universal terms, i.e. without restrictions as to discourse type (or language form).

If implemented, these proposals would bring Hopper and Thompson's approach into the field of empirical/experimental science – which seems to be in accordance with the linguistic stance taken by the authors themselves (cf. Hopper 1987, Bybee & Hopper 2001).

Acknowledgement

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