PHILOLOGICAL SCIENCES

HYPER-HYPONYMIC RELATIONSHIPS BETWEEN PARONYMIC TERMS «CAUSAL» AND «CAUSATIVE»: CORPORA-BASED VERIFICATION

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Introduction and research background. «Causality» and «causativity» are important concepts in both philosophy and linguistics, but making an objective judgment of their scope is quite a challenging task. A general conceptualization of causal relations pivots on the distinction between *causality* (a law-like relation between types of events) and *causation* (the actual causal relation that holds between individual events) [5, p. 273]. Such single-root paronyms can easily misguide both native and non-native speakers due to their similar spelling, especially in cases when either speakers' intuition contradicts information in the existing refence works or different researchers tend to use varying terms for naming the same concept [6, p. 139]. Moreover, quite often they may have a hyper-hyponymic relationship based on morpho-semantic properties, where a hypernym refers to more general issue and a hyponym points to more specific one [4, p. 327]. This paper aims at using corpus-guided investigations to reveal semantic changes and provide valuable insight into semantic shift of the terms «causality» and «causativity», as well as their derivatives.

Research methodology. Corpora and associated tools provide new opportunities for an objective empirical analysis of language data. This paper used NOW (News on the Web) and COCA (the Corpus of Contemporary American English) to complete a two-stage semantic verification process [1; 2].

Firstly, the NOW Corpus which contains 17.2 billion words from newspapers and magazines from 2010 till the present time (the most recent update was on April 16, 2023) is used to define whether the single-root adjectives «causal» and «causative» are followed by the different nouns on the right side. The semantic analyses of the nouns with the compared adjectives will shade the light on the nature of set collocations, which tend to describe either the abstract or specific notions.

Secondly, by scouring COCA that contains 1 billion words from different genres covering the texts from 1990 to 2019, one can improve the armchair

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methods of judging the frequency of expressions of philosophical interest, as well as get an unbiased conclusion on the scope of a particular concept by using a unique *BROWSE through the Academic Vocabulary* feature [3, p. 243]. This research tracks the explanation provided by the browse of *causal* and *causativ* basis in order to cover all associated definitions of lemmas.

This paper shares the corpus-based verification methodology that can be latter applied for a rapid scope definition of other single-rooted paronymic terms.

Results and discussion. The first stage of the verification process that used a COMPARE feature of NOW Corpus with the set parameters (Word1 *causal*; Word2 *causative*; collocates with *NOUN*; right-side *1*, *2*, *3*, *4*) in order to find the collocations has the following results (Figure 1). The comparison indicates that term *causal* is generally associated with such abstract nouns as «links», «relationships», «connections» etc., while *causative* is associated with specific entities and phenomena, such as «agent», «organism», «virus», «pathogen», «factor» etc. As such, the data proves that «causality» and its derivatives (here «causal») refer to a wider more abstract notion, while single-rooted word «causativity» and its derivatives (here «causative») address a more specific narrow notion.

WORD 1 (W1): CAUSAL (4.82)

#	WORD	W1	W2	W1/W2	SCORE
1	LINK	3672	238	15.4	3.2
2	RELATIONSHIP	3277	65	50.4	10.5
3	FACTORS	1097	812	1.4	0.3
4	FACTOR	874	551	1.6	0.3
5	EFFECT	823	57	14.4	3.0
6	CONNECTION	768	10	76.8	15.9
7	RELATIONSHIPS	727	10	72.7	15.1
8	ROLE	563	152	3.7	0.8
9	INFERENCE	492	2	246.0	51.1
10	EFFECTS	459	11	41.7	8.7
11	ASSOCIATION	443	17	26.1	5.4
12	VARIANTS	365	39	9.4	1.9
13	LINKS	344	17	20.2	4.2
14	MECHANISMS	269	16	16.8	3.5
15	RELATION	254	1	254.0	52.7
16	VACCINE	253	4	63.3	13.1
17	CHAIN	243	4	60.8	12.6
18	AGENT	214	990	0.2	0.0
19	EVIDENCE	210	4	52.5	10.9
20	IMPACT	195	8	24.4	5.1

WORD 2 (W2): CAUSATIVE (0.21)

#	WORD	W2	W1	W2/W1	SCORE
1	AGENT	990	214	4.6	22.3
2	FACTORS	812	1097	0.7	3.6
3	FACTOR	551	874	0.6	3.0
4	AGENTS	300	91	3.3	15.9
5	LINK	238	3672	0.1	0.3
6	DISEASE	155	126	1.2	5.9
7	ROLE	152	563	0.3	1.3
8	ORGANISM	101	25	4.0	19.5
9	VIRUS	100	34	2.9	14.2
10	PATHOGEN	98	14	7.0	33.7
11	GENE	73	116	0.6	3.0
12	DEATH	71	121	0.6	2.8
13	RELATIONSHIP	65	3277	0.0	0.1
14	GENES	62	185	0.3	1.6
15	MUTATIONS	59	54	1.1	5.3
16	EFFECT	57	823	0.1	0.3
17	CORONAVIRUS	55	19	2.9	13.9
18	DISEASES	43	39	1.1	5.3
19	ORGANISMS	41	5	8.2	39.5
20	CANCER	39	58	0.7	3.2

**Figure 1. Noun collocations of paronyms «causal»
and «causative» in NOW Corpus**

The search results with BROWSE feature of COCA Corpus for *causal* indicate that this adjective indeed relates to a broad philosophical category that encompasses both «cause» and «effect» (Figure 2), as opposed to *causativ*, which truly pertains to a narrower linguistic category that focuses on the specific outcome («effect») within a causative construction (Figure 3). Thus, the outcomes illustrate that the «causality» and its derivatives (here «causal»,

«causality» and «causally») should be regarded as hyperonyms to «causativity» and its derivatives (here «causative») that, in turns, act like hyponyms.

Conclusion. Overall, corpora provide new opportunities for an objective empirical analysis of language data, especially for tracing the semantic relationships between paronymic pairs. A two-stage corpus-based approach has been successfully used to verify hyper-hyponymic relationships between single-rooted terms, namely «causality» and «causativity». In future, this approach can be applied to improve the accuracy of natural language processing systems.
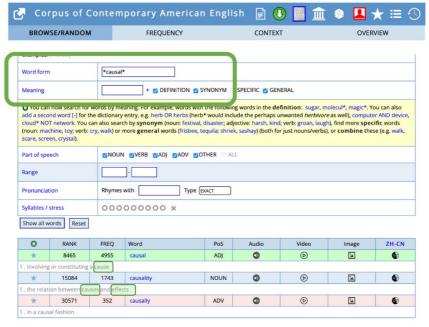

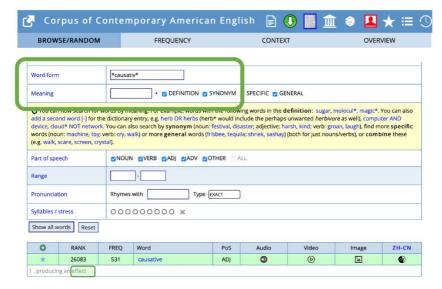**Figure 2. Word meanings of «causal» in COCA Corpus**

Figure 3. Word meanings of «causative» in COCA Corpus

References:

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