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A study of young Norwegians in English Idiom Processing

Master thesis in English linguistics

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Abstract

A quantitative study was conducted with a group of twenty-six Nowegian upper secondary students and a group of twenty-six Norwegian university students. Both groups were tested for English proficiency and idiom comprehension. A third group of English native speakers was also given the idiom tests, to judge whether the tasks and idioms were appropriate. The idiom comprehension tests were divided into two part. In one they would respond to written alternatives, in the other they would respond to image alternatives. The upper secondary group was measured for their mouse-movements with MouseTracker software when performing the image idiom test. The study aimed to compare the two groups, and analyse the processing of idioms particularly for the upper secondary group. The results showed that the university students outperformed the upper secondary significantly in both the proficiency tests and the idiom tests. The university students also outperformed the English native speakers. The results of the mouse-movement tracking showed that the upper secondary students processed various idioms in different ways, and that they were often uncertain in the process of selecting a correct response. The reason why some idioms proved more problematic than others was discussed, but no definite reason was concluded.

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The work put into this thesis has been as challenging and, at times, frustrating as it has been rewarding. The process of creating the entire work that makes this thesis has given me an experience of fulfilment. I had never imagined in my earlier life that I would ever complete something so demanding and so challenging.

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Bergh, Vegard Nygaard
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Preface

Relevance for my future job as a teacher

This thesis is relevant to my teaching career mainly in two ways. The first reason is based on the experience of having researched something and analysed the results. Throughout the five years on this program, the university has consistently urged us as teacher to bring our research to the class. In pedagogics, researching in the classroom is a hot topic. Teachers can use this in practice more than anyone else. They meet the same students consistently, and are the ones to see the students' progress best. To research your practice in teaching is to adjust to the students, and thus you can improve your teaching for the next generations of students.

The second reason is grounded in my knowledge and study of the English language and Second Language Acquisition. The Norwegian school takes teaching of English very seriously, and in an ever globalizing world with English language as a key connecting factor, I see this as more important than ever. Having researched how idioms are processed, I investigated and scrutinized the fields of Second Language Acquisition, Cross-linguistic influence, Metalinguistic awareness and abilities, and much more. This study sparked my curiosity towards the entire field, and made me aware of the importance of outside factors' influence on L2 acquisition. Metalinguistic awareness, a mix-up of knowledge from all kinds of different fields and not language itself, is incredibly interesting. That a student can read a figurative expression never before seen, with words and phrase-structure that makes no sense, but still be able to make sense of it is remarkable.

I will take the information I gained from this study very seriously, and apply methods of teaching that can improve metalinguistic awareness in the students, as a complementing method to my general English teaching.

Table of Contents

Tables and Figures

1. Introduction

Idioms represent a bulk of everyday language, and they represent a group of figurative expressions which benefit from a knowledge that exceeds linguistic skills. Idioms can come in very many sizes and forms. Some of them are so transparent in composition, that one can read them and understand from the words what the meaning is. Other idioms seem to be completely arbitrary, carrying cultural etymologies in them with meanings from a bygone age. These idioms can be close to impossible to derive a meaning from unless you have acquired a certain knowledge. But what is this knowledge exactly? What divides a good idiom comprehender from a bad one? These questions are recurring throughout this thesis, and will be addressed along with many other factors for idiom processing.

The Norwegian Directorate for Education and Training emphasizes the addition of idiom teaching in their English subject curriculum. However, the directorate allows for each and every teacher to carry the responsibility for what they choose to teach and how. Normally they allow for everything to be part of the classes, but not always do all items from these lists get the same attention. Knowledge of idiomatic expressions could boost the comprehenders' metalinguistic awareness, which in turn could grant access to understanding a series of other types of expressions with interlingual features. This is a crucial part of acquiring a second language. Norwegians are usually known to be relatively skilled in English as an L2. Does this mean that they are equally good with metalinguistic skills? Do they perform well in English proficiency as well as with idioms? Such questions sparked the curiosity of the experimenters performing this study, and hopefully we could grant a small insight into the topic.

In the following, I will present a theoretical framework of the nature of idioms, a background for the field and the most important studies and findings surrounding the processing of idioms. Next, I will describe the methods and procedures as a foundation for this study, before I present the results with descriptive statistics. Lastly, a discussion of the findings with possible explanations for the results will be presented before going to a conclusion. The literature presented in the theoretical framework will be used to back up the discussion of the results and the methods used. The execution of the study was carefully planned, and all the tests were constructed by us thoroughly.

2. Theoretical Framework

2.1 Representation and Processing of idioms

2.1.1 The nature of idioms

Although it is widely accepted that idioms must be stored in the long-term memory and that they are stored similar to word-like lexical items, it is discussed how they are processed differently from normal constructions. They have often been classified as figurative or non-literal language together with expressions like irony, clichés, metonymy, sarcasm and other constructions that require the comprehender to look beyond the literal meaning of the utterance and look for a meaning (Titone & Connine, 1999*).* Levorato & Cacciari (2002) argued that expressions of figurative nature are very frequent in daily language and Jackendoff (2002) suggested that idioms alone amount to thousands, possibly in proximity to the amount of adjectives, despite a tendency among traditional grammarians to marginalize idiom frequency. Pollo, Barlow, Fine and Pollio (1977) analysed political debates, novels, psychology texts and more, and found that most English speakers utter around 10 million novel metaphors and 20 million idioms in their lifetime. Idioms are defined in the *Collins Cobuild Dictionary of Idioms* (1995) as "a special kind of phrase. It is a group of words which have a different meaning when used together from the one it would have if the meaning of each word were taken individually" (p. v). This reflects the double nature of idioms: On one hand they are part of the lexicon as large items and are stored similar to other lexical items like words and morphemes. On the other hand they are complex structures and may be processed as grammatical structures above the level of lexical items (Vulchanova, Vulchanov, & Stankova, 2011). This is what makes comprehension of idioms for children difficult, as well as analysing and classifying them is a problem for linguists. The idioms mostly come in a "pre-packaged form" where parts usually cannot be replaced or moved. Jackendoff (2002), discusses the flexibility of various idioms well in his paper *What's in the Lexicon?*. The famous idiom "kick the bucket", for example, has a syntax which seems to be completely deviant from meaning. It cannot be passivized nor its constituents removed or modified in any way and still hold the idiomatic meaning. He also lists some idioms that can, in various degrees, be subjected to syntactic analysis, like "give NP the boot" and "V NP's head off". By this reasoning the idioms move across degrees of fossilization, frozenness and semantic transparency (Vulchanova et al., 2011). A typology of idioms, then, will have to account for the fixed/non-transparent and flexible/semi-transparent expressions as suggested in

Jackendoff (2002). Vulchanova et al. point to an interesting trend here, that "it should be kept in mind that there is an interesting correlation between the degree of flexibility in form and semantic interpretation – the more fixed the surface form of the expression is (i.e. the more frozen), the more de-semanticised its component parts become." (p.143).
It is necessary to have a model to predict how idioms are represented and processed, and in fact there are several ways of understanding idioms for this purpose. The theories on how idioms are represented and processed converge on two main approaches; namely the Non-compositional and the Compositional theories.

2.1.2 The mental lexicon

This topic is deeply embedded into the field of psycholinguistics as a root from the idea of the language faculty as a biological result of evolution. The scope of the biological account is based on the idea that we minimize the amount of energy expended for the most efficient communication process. We know much about how words are structured and what words and their respective morphemes compose in terms of meaning. The questions are how the brain acquires rules of how the prefix "un-" results in a meaning that opposes the original word, where and how knowledge is stored or how it decides to break word components down (Altmann, 1997). From the 1970's research on how humans perceive and comprehend language grew. For instance, Marslen-Wilson demonstrated that we can recognize words even before they are fully heard and that the reaction times for hearing them was around 200 milliseconds (Marslen-Wilson, 1987). They found that words would be distinguishable only when the listener reached a certain point of the utterance. So when a word becomes distinguishable, it would have reached its uniqueness point (Altmann, 1997). In following sections on processing and representation of idioms, a hypothesis that suggests such a mental trigger point also for the comprehension of idioms, namely the "Idiomatic key" will be presented.

The mental lexicon discussion in Jackendoff's paper (2002) builds on the research of ordinary linguistics going back to Chomsky's *Aspects*, in which Chomsky lays the foundation for the structure of grammar as containing a phonological, semantic and a syntactic component. The syntactic base generates deep structures, which accounts for grammatical rules and phrase-structures, and together with lexical items like words and morphological units they map with the semantic and phonological components to be comprehended by the human brain (Chomsky, 1965). His generative grammar was explained with a basis in evolution as a

cognitive capacity, and set a standard for how linguistic theory was supposed to proceed. Yet methods and years of research has taken the field much further. It was in *Aspects* he introduced the word "lexicon" as a storage for all the words the speaker knows. He argued further that the lexicon must contain all exceptions and variants of the words, and that there exists no redundancy in terms of lexical variations. The most relevant part of his theory, also the most relevant for this theoretical framework, is Chomsky's treatment of the creative or generative power of language as part of the syntactic component that combines lexical items into phrase-structure. In his article, Jackendoff (2002) further explains Chomsky's treatment best:

> By contrast, the phonological and semantic components of language is taken to arise by means of a derivation from syntactic structure. Moreover, lexical items (words) are taken to be inserted in their entirety into syntactic structures; their phonological and semantic aspects are carried over into phonological and semantic structures respectively through the process of "interpretation." (p. 25).

Jackendoff argues for a different view explaining the lexicon, showing evidence for issues with the grammarian tradition, interestingly by showing the complication of idioms, and proposes his own approach in the following section.

2.1.3 What is stored and what is computed on-line?

Jackendoff argues that evidence coming after *Aspects* shows that phonology and semantics both seem to be incompatible with Chomsky's lexical representation (Jackendoff, 2002). His conditions for questioning the traditional model were the questions 1) What aspects of a spoken utterance must be stored in long-term memory, and 2) what aspects can be constructed on-line. He goes on to argue a redefinition of the lexical items, suggesting that a lexical item can be very different from transformed words. By comparing Turkish language, for instance, where word stems are combined with a series of inflections, with English, he argues that the variations a word can have with morphemes attached logically should be processed by a different mechanism than the syntactic lexical one. It simply seems very inefficient for the brain to store all possible combinations of morphemes and words in the long-term memory (Jackendoff, 2002). The most interesting part of his arguments in that paper, and for my thesis, is the problem of idioms for traditional grammar. He criticised Chomsky and others for treating idioms as lexical categories so that they can fall in under syntactic trees like everything else. The most famous idiom example throughout linguistic research, and

repeatedly mentioned in papers on figurative language is the non-compositional idiom "Kick the bucket". This, as well as other examples of idioms of various degrees of compositionality, Jackendoff presents as counter-evidence to the grammarian view on lexical items and storage. He argues further that this has consequences for the theories of language acquisition, that besides the problem of learning word meanings with the inherent grammatical structure knowledge, there is reason to believe that the lexical knowledge is formed to unify pieces from a common format as a rule. He goes on to say that:

> The meanings of constructional idioms are about as complex as the meanings of words. Consider for instance the *time-away* construction, which means roughly "spend time wastefully or frivolously doing something". This meaning is comparable in complexity and subtlety to, say, *procrastinate*, "spend time wastefully in order to avoid doing something", and so it should not be more difficult to learn (p. 53).

The importance of a good approach to idioms in linguistics is crucial, and in the following section I will present the various hypotheses and conditions for idiom comprehension.

2.1.4 Compositional and Non-compositional approaches

The tendency for non-compositional theories is that idiom comprehension mainly comes from memory retrieval, but they differ concerning how the idiom meaning is accessed (Titone & Connine, 1999). Bobrow and Bell (1973) proposed a literal processing model, known as the Literal First Hypothesis, in which a mental list of idiomatic expressions is accessed by a special idiomatic mode of processing. Upon reading an idiomatic expression, the comprehender first attempts a literal interpretation, and if this fails, the figurative meaning activates by this idiomatic list. The method of research used to back the Literal First Hypothesis, however, was criticised by Swinney and Cutler (1979) for relying on self-report measures of comprehension. Swinney and Cutler proposed their own model, the Lexical representation model, or Simultaneous Processing Hypothesis, which was based on idiomatic expressions being stored and retrieved similar to long words. The model suggested that a figurative meaning would follow from computing already the initial word of an idiomatic expression. This process involves two parallel processes: the retrieval process and the literal compositional computation. The literal computation activates immediately upon reading a string, and the comprehender attempts to compute a meaning from the constituents, but as this takes longer in the case of idioms, the retrieval process wins because the meaning is already stored in the long-term memory in the mental lexicon (Vulchanova et al., 2011). The Direct

Access model, proposed by Gibbs (1980), takes the figurative processing a step further and holds that only an idiomatic meaning of the phrase is available during the comprehension. Thus it gives the idiomatic meaning priority over the literal computation, based on the argument again that the figurative meaning is retrieved much faster than the literal can be computed. The common ground for these non-compositional hypotheses are that they share the assumption that the idiomatic meanings of certain configurations are semantically different from the literal meaning of the components (Titone & Connine, 1999). These hypotheses do however have some issues. They are commonly criticised on the scope of their typology, and their failure to account for idiom flexibility. They apply well to frozen, non-transparent idioms such as "kick the bucket", but fail to encompass flexible idioms like "spill the beans" and transparent idioms whose literal meaning sometimes may be more easily interpreted than the figurative meaning. As explained from the reasoning of Jackendoff (2002) on the storing of idiomatic expressions, it is problematic to assume that idioms with modifications can be stored for all their variations, on the account of efficiency. Vega-Moreno (2001) suggests that it is problematic to assume that frozen idioms can be literally paraphrased. She argues that to view "kick the bucket" as meaning the same as the verb "die" has problems. It is not true that "kick the bucket" would be used for all situations where "die" would. For example, one would not use the idiom in a phrase like "A man kicked the bucket in a car accident today".

Cacciari and Tabossi (1988) conducted experiments with cross-modal priming, using a more accurate methodology for testing on-line meaning activation. They concluded that the final word of the idiom showed high predictability and determined activation of comprehension. It was also found that the idiom meaning comprehension occurred not at the offset, but 300 milliseconds after. They thus suggested that the idiom meaning is a distributed representation rather than a lexical entry. Later this was termed the Configuration hypothesis, claiming that the idiom meaning is retrieved only upon hearing a certain amount of the string. This point was called the Idiomatic Key (Cacciari & Glucksberg, 1991). Building on this, Glucksberg later proposed the Phrase-Induced Polysemy (PIP) hypothesis of idiom comprehension, suggesting that idiom strings are processed literally until a configuration realizes some time after the offset and an idiomatic meaning is activated (Glucksberg, Brown, & McGlone, 1993). This, together with the Configuration hypothesis form one of the most compelling accounts of idiom processing.

The compositional approach accounts for the compositionality idioms can have. The idea is that the literal word meanings and the context play a role in representation and processing of an idiom string. These idioms have been categorized into three groups by Geoffrey Nunberg (1978), which he described as a continuum of compositionality. The normally decomposable idioms in which a part is used literally, like for example "pop" in "pop the question" or "save" in "save your skin". The abnormally decomposable idioms in which a referent of an idiom's parts can be interpreted metaphorically, like "maker" in "meet your maker". The third category is the semantically nondecomposable idioms which fits the traditional view because the meaning cannot be compositionally derived from the words of the string, like "chew the fat". Interestingly, Gibbs et al. (1989) who researched idiom processing based on these three categories, found that subjects read sentences containing decomposable idioms faster than sentences with nondecomposable idioms, indicating that a compositional analysis is initially attempted. The compositional approach seems to treat idiom representation and processing much like literal language. It acknowledges and accounts for semantic and syntactic flexible idioms, and assumes that we interpret idioms literally as well as figuratively during comprehension. However, the fact that the component words aid the comprehender in interpreting idioms does not rule out the possibility of a pre-packaged meaning for certain configurations of words (Titone & Connine, 1999). Furthermore, the fact that idiomatic sentences are processed faster than non-idiomatic sentences, and the manner in which familiarity plays a role in the process must be accounted for (R. Gibbs, 1980; Swinney & Cutler, 1979). It is clear that the comprehender's familiarity towards the given idiom plays an important role, one that will be explained in the following.

2.1.5 The influence of familiarity on processing and representation

The major idiom processing theories have been too rigid for good methodology and preceding research has been inconsistent in testing across the various idioms, according to Titone and Connine (1994). They discuss four dimensions along which idioms can vary and their relevance to idiom processing. One of them is compositionality and the others are predictability, literality and familiarity. Familiarity in this context can be defined as the frequency in which comprehenders encounter a given idiom, and the degree to which it is known or easily understood (Gernsbacher & Glucksberg, 1984). Gernsbacher and Glucksberg found that familiarity influences word recognition. It is, in few words, one of the factors for which idiom comprehension tests should be controlled. In her paper *Representing and Processing idiom*s (2001), Vega-Moreno makes a great account on processing and

representation of idiomatic expressions. Her arguments divide processing for whether the idiom is familiar or unfamiliar. She suggests a relevance-theoretic account of idioms, proposing a hypothesis:

> that idioms are mentally represented and processed as structured phrasal concepts and understood following considerations of relevance. As the idiom is heard, both the concepts underlying the individual constituents in the string and the concept underlying the idiom as a holistic unit are activated. Precisely which of this activated information is accessed and processed on-line follows from considerations of relevance. On the one hand, idioms are seen as conceptual units. They encode conceptual representations that have no equivalent in any non-idiomatic linguistic string and thus cannot be paraphrased without loss. On the other hand, since the concepts underlying idioms have internal structure, they are processed in much the same way as other non-idiomatic sequences of words. (p. 83).

She holds that although the word meaning in idiom comprehension does play a role, it might be accessed on-line, highly constrained by pragmatic considerations and only at certain points of the processing. On acquiring unfamiliar idioms, she stated that the processing is a blend between some of the encoded material in the string used together with background knowledge as a starting point for pragmatic inference. Her discussion of how unfamiliar, completely opaque idioms are acquired is most interesting. In this case the compositional reading should be of no help in reaching a meaning, and current compositional approaches give no explanation for this (Vega-Moreno, 2001). She argues that the only possibility for the comprehender is to access assumptions and implications based on the immediate context and background knowledge. If there is insufficient context, however, the comprehender will likely not be able to create the meaning on-line. The case for unfamiliar idioms is thus a relation between two conceptual representations, the computational processing and the intended idiomatic meaning. For familiar idioms the string is decoded and retrieved as an idiomatic meaning without having to compute the entire string literally. She suggests that the familiar idioms are stored as complex structured concepts consisting of three entries. A logical entry which links with other logic concepts, an encyclopaedic entry which works as a sort of schema with internal structure, and a linguistic entry which converges much with the above-mentioned constructional idiom representation in Jackendoff (2002).

This framework agrees with the tendency towards a synthesis theory of non-compositional and compositional approaches. Idiomatic expressions and especially highly familiar idioms are processed faster than non-idiomatic ones. Whether or not an idiom's component words

explicitly contribute to idiomatic meaning, the idiomatic expressions are highly overlearned constructions of words consistently tied with specific phrasal meanings (Titone & Connine, 1999). As for the compositional part, we know that word meanings are always activated during idiom processing (Cacciari & Tabossi, 1988), and that the word components substantially contributes to the on-line construction of idiomatic meanings. Thus it is believed that both the literal analysis of the phrase occurs simultaneously with the figurative retrieval which occurs upon encountering the idiomatic key (Titone & Connine, 1999). The human ability to create ad hoc concepts nearly instantly allows for communication of un-encoded meanings without trouble, and this is what Vega-Moreno (2001) claims in her Relevance Theory, that our pragmatic inferential abilities can decrypt the encoded conceptual material that makes idiomatic expressions. These theories of processing and representing idiomatic expressions must be complemented by a factor of age, which has been covered by much research. Differences in idiom comprehension across age will be the topic for the following section.

2.2 Age, development and context

Studies of idiom comprehension and acquisition have underlined three strong factors to determine the ease of idiom understanding: the familiarity of the idiom string (Levorato & Cacciari, 1992), the semantic analysability an idiom's constituents and the context on which the idiom is encountered (Levorato & Cacciari, 1995). Note that these factors have been touched in the theories on processing and representing of idiomatic expressions already, for instance by Jackendoff (2002) and Vega-Moreno (2001). An interesting model for the acquisition of figurative language was proposed by Levorato and Cacciari (1995) called the Global Elaboration Model (henceforth GEM). The GEM emphasizes that no special procedure or pre-knowledge should be presupposed with respect to how children normally process language. Particularly, the GEM considers the context for the idiom and how it helps the comprehender understand that a literal interpretation is inappropriate, and also how it helps by semantically providing a possible figurative meaning (Oakhill, Cain, & Nesi, 2016). The main questions the GEM concerns are (a) How and when the child exceeds this local interpretation and processes figuratively, and (b) What cognitive and linguistic abilities the child needs in term of figurative language, in order to process non-literally. These abilities are defined by Levorato and Cacciari (2002) thus:

> 1. The ability to comprehend the dominant as well as the peripheral meanings of a word, and its position in a given semantic domain; 2. The ability to go beyond a literal strategy of language interpretation. This is a prerequisite necessary to cope with most of the linguistic repertoire not only with figurative language; 3. The ability to use contextual information to construct a coherent semantic representation of a text by integrating different sources of information; 4. The awareness that what is said and what is meant does not always coincide. (p. 129)

The GEM goes on to identify five developmental phases. The first of which is a primitive processing where the child interprets language literally in all cases. The second phase, approximately at the age of eight to nine, the child realises that there is a discrepancy between what is said and what is actually communicated on the basis of context. In phase three children recognize that the same communicative intention can be reached through different sentence form (literally, metaphorically, idiomatically, and so forth). Ten to twelve year olds take into consideration the intentions of the speaker and their own knowledge. By phase 4 they can often use and comprehend a conventional repertoire of expressions normative for fifteen-year-olds. The final phase is the adult-like figurative competence, generally connected with the ability to use figurative expressions in a creative way, based on metalinguistic and metasemantic awareness (Levorato & Cacciari, 2002). The hypothesis of such a stretched development is supported by Nippold and Taylor (1995) who found that adolescents struggle with idiomatic expressions without sufficient context.

In a study on Bulgarian children with Bulgarian as L1, Vulchanova et al. (2011) found that comprehension of figurative language correlates with age and years of schooling. They also confirmed that it was linked to metalinguistic awareness and the ability to infer from context. In line with the GEM, they found that age 10 was a turning point in idiomatic knowledge for Bulgarian L1 speakers. Of interest, Vulchanova et al. equipped a typology for idioms not much used in previous studies of similar scope, in order to address the absence of a standard idiom typology for Bulgarian. The typology is rooted in human experience, assuming that idioms either have a biological or cultural source, and a novel category which they dubbed *instructive idioms*. Biological idioms, scoring highest for ten-year-olds and adults, build on analogies involving parts of the human body (for example “get on NP’s nerves”, “save NP’s skin”). The success of this category, they say, is that they lexicalize the basis of human experience, and that they are shared across cultures and across the Indo-European languages. They further found that, measuring these idiom categories against each other, while the

biological idioms scored highest in competence, the instructive idioms placed second and the cultural last. The instructive idioms, however, are typically very compositional, looking very much like sayings and proverbs. What Vulchanova et al. concluded on this was that their interpretation allows for the ability to infer from minimal context. This falls in line with Vega-Moreno's view on processing unfamiliar and novel idioms. Some idioms proved more difficult than others in their results, obsolete lexicalisation, and especially idioms based on obsolete grammar or syntax proved difficult to process for the Bulgarian children. As for that particular study's results, there was no clear indications for parallel processing, because incorrect answers primarily occurred with literal interpretations, and they had no measure for processing speed.

Oakhill et al. (2016) studied skilled and less skilled comprehenders from two age groups, 8- and 10-year-olds, for understanding of idiomatic expressions in context. They evaluated on-line processing and interpretation by measuring reading times and competence with short texts containing English idioms and novel, translated Italian idioms. As expected the older children and better comprehenders were more likely to interpret idiomatic phrases correctly than the younger children. The reading time results did turn up with some interesting results, however. The less skilled comprehenders spent less time when reading the novel idioms than did the more skilled comprehenders. This indicated that the good comprehenders were more likely to attempt an idiomatic processing, which takes longer time than a literal one. The study found that longer reading times correlated with a better comprehension of idiomatic expressions, particularly unfamiliar ones. The context in the stories allowed for equipping inferential skills and metaphorical mappings, clearly separating the good from the bad comprehenders, as well as showing the difference between the age groups in line with the GEM.

Levorato and Cacciari (2002) conducted two parallel experiments on metalinguistic awareness and its influence on the ability to comprehend and produce figurative expressions, founding on the GEM. The first study targeted development of metalinguistic awareness through an elicitation task, while the other tested the newly created expressions for appropriateness, comprehensibility and novelty with adult judges. Interestingly, in the first experiment they found that the ability to create new expressions with figurative language increased from childhood to adolescence but *not* from adolescence to adulthood. In the second study they found that adults' creation of novel expressions were judged as more appropriate

than those of the adolescents. This supports the prediction in the GEM that metalinguistic abilities continue to develop through and after adolescence.

Another interesting study investigated mental imagery in relation to the comprehension of transparent versus opaque idioms. Many previous studies mentioned here have an approach and scope towards the compositionality of idioms, but this particular study by Nippold and Duthie (2003) suggested that the comprehender's mental imagery also undergoes a developmental process. Building on an approach that idioms are partly learned by analysing the words composing them, the Metasemantical hypothesis, favors transparent expressions. They hypothesised that the mental imagery is key for understanding idiomatic expressions and mention two idioms to explain this; upon hearing "paddle my own canoe" in a context, the comprehender might picture someone maneuvering a large canoe without assistance, giving him clues which together with the contextual clues lead to an understanding. However, with opaque idioms like "paint the town red" the mental imagery of someone actually painting buildings might not serve the understanding of the intended meaning very well. Contrary, the mental image might mislead him if he has never before encountered the particular idiom. The results of this study suggested that as adults had more mental imagery related to idioms than younger subjects, it could mean that the mental imagery relates to a pre-learned knowledge helping those who know the expressions already. The children had less idiomatic imagery because it tends to mislead and does not help them acquire new transparent idioms. On this basis, Nippold and Duthie (2003) concluded that the mental imagery of idioms might serve as a barometer for their depth of understanding idiomatic expressions.

2.2.1 Idioms in Second Language Acquisition

Second language learners meet figurative expressions in all forms of discourse, and it is a part of the Norwegian English L2 curriculum. Yet L2 learners are at a disadvantage in understanding figurative expressions in their L2, much because they are at a lower level of competence in the L2 compared to their L1.Research on L1 idiom comprehension is extensive and mainly focuses on English native speakers. Most of the research on L2 idiom comprehension is influenced by the notion of *cross-linguistic influence*, also known as *transfer*, which Odlin (2003) characterises as "the influence resulting from the similarities and differences between the target language and any other language that has been previously (and perhaps imperfectly) acquired" (p. 436). Transfer is influenced by social setting, as all

language acquisition take place in a social matrix. Thus there are certain important factors to consider concerning L2 speakers' comprehension of figurative expressions in the target language. Studies have shown that the heterogeneity of speakers, for instance culture, social class and geography matters in what influence languages have on each other (Odlin, 2003). The linguistic relativity between languages leads to a *conceptual transfer*, the travel of previously unfamiliar concepts from one language to another. An interesting example on this travel is the study by Pavlenko (1999) which subjected different groups of Russians with English as their L2, as well as Russian monolinguals, to a film with the aim to make them talk about the concept of privacy. Russian language has no equivalent concept or word for privacy. The study showed that the Russian immigrants living in America described an equivalent with more accuracy than did those who lived in Russia. The resulting Russian phrase for privacy turned out to be a hybrid between English and Russian.

Studies on the role of L1 on L2 idiom processing shows that the L1 influences processing, even though L2 learners are less likely to transfer L1 knowledge when encountering figurative language. This indicates that although L1 is influential, there must be other factors in play for L2 idiom processing (Cooper, 1999). The critical difference in idiom processing between the L1 and L2 speaker of a target language, is the time they spend processing it. As native speakers usually react in a split second to what is usually a familiar idiom, the situation is different for the L2 speaker who will usually take time to screen different processing strategies. The latter has to take into consideration many possible answers and solutions through trial and error. In a qualitative study, Cooper found that L2 speakers used a heuristic approach, attempting various strategies to find an idiomatic meaning for what Cooper call a linguistic problem. He argues that the models for idiom comprehension, most of which are already mentioned in this framework; The idiom list hypothesis, the lexical representation hypothesis, the direct access model and the composition model are all too limited in scope to account for the variety of strategies equipped by L2 speakers in Cooper's study. He sums the strategies used into two groups: One which was guessing from context, using the literal meaning to understand the figurative meaning and discussing analysing the idiom in order to gain necessary knowledge of it. The other group, employed significantly less than the first, was requesting information, using background knowledge, referring to an L1 idiom and other strategies (Cooper, 1999, p. 255).

The reasons for the small amount of research into L2 idiom acquisition could stem from the belief that idioms are more like an auxiliary part of language, that it "comes with exposure",

or from the notion that English is especially idiomatic. The latter is wrong, studies comparing English, for instance with Spanish, show that they are equally idiomatic (Stoyanova, 2013). Few studies consider two of the consequences of transfer, avoidance and hypercorrection, and even fewer considers the importance of culture in studies on L2 idiom processing (Stoyanova, 2013). It seems a connection between second language acquisition and figurative competence is a difficult matter, and it lacks research. There are factors, besides the transfer phenomenon, that can provide meaningful information in this connection, and they are 1) Degree of exposure to the idiomatic expressions, and 2) Metalinguistic awareness.

2.2.2 Degree of Exposure

Studies investigating this are usually experimental, testing different strategies on students in order to see which is more effective in teaching L2 idioms. As with all second language acquisition, idiom acquisition relies on familiarity either with the expression itself or with the system for the expressions in general (much discussed in the section on representation and processing of idioms). According to Ellis (2002), the frequency of a phrase or word in the input determines the growth of this lexical item or phrase. Lexical items and phrases that occur more frequently have a higher probability of being recognized and processed in general. This is in line with the hypotheses holding that familiar idioms are easier to process. Nippold and Rudzinski also emphasize practice for optimal processing (1993).An interesting example is the study by Eve Zyzik (2010). She holds that although idioms are best acquired through interaction with native speakers, explicit teaching with idioms in L2 acts as a good stepping stone for building awareness of their existence and how they are used in discourse. Zyzik studied 65 English native speakers for their Spanish L2 idioms. The experiment was divided into groups, one group was taught idioms grouped thematically. The other group was taught idioms without thematic focus, but was told to focus on the main verb. The results for this experiment was that the students, regardless of strategy, improved in terms of production and recognition of idioms. Of note, the students improved much more in terms of recognition than of production.

The importance of exposure to idioms in second language acquisition is well documented. Since idioms vary in transparency, explicit teaching in terms of etymological elaboration is beneficial when it comes to comprehending and acquiring unfamiliar non-transparent idioms. Non-transparent idioms are problematic because they are unique to their native language and

have underlying origins that may explain their meaning (Stoyanova, 2013). This is also a topic in the coming section on metalinguistic awareness.

2.2.3 Metalinguistic awareness

In this field, Metalinguistic awareness is frequently distinguished from Epilinguistic capacity (also known as "tacit knowledge"). Epilinguistic capacity is the process of monitoring language to correct lexical and phonological errors, while metalinguistic awareness refers, as Gass and Selinker (2001) put it, to "one's ability to consider language not just as a means of expressing ideas or communicating with others, but also as an object of inquiry"(p. 302). Metalinguistic awareness can be analysed by three layers: Word awareness, Syntactic awareness and Pragmatic awareness (Benelli, Belacchi, Gini, & Lucangeli, 2006). Benelli et al. holds that metalinguistic ability correlates with cognitive development, metacognition, literacy and oral language skills, and that it has been found to develop with schooling (2006). This indicates that metalinguistic awareness is closely connected with the exposure factor in terms of idiom acquisition. Nippold (2006) states three metalinguistic strategies for language acquisition: Contextual abstraction, Metalexical analysis and World experience. Using the contextual abstraction strategy, the learner infers meaning from the linguistic context of the expression. In the metalexical strategy the learner infers meaning from the lexical items in the expression, while the world experience refers to the learner's experience and exposure of figurative expressions (Nippold, 2006). The latter can be interpreted as the learner's familiarity of the given expression, but is also a package of metalinguistic abilities like for instance the ability to understand etymological backgrounds and cultural aspects of the target language. As has been shown earlier in this framework, idiomatic comprehension correlates with metalinguistic awareness, which in turn develops with exposure and years of schooling (Nippold, 2006; Vulchanova et al., 2011).

3. Methods and Procedures

The aim of this study was to investigate upper secondary students' comprehension of idioms in their second language, and try to analyse their results using theories for processing idiomatic expressions. Twenty-nine upper secondary students were given tests to measure their comprehension of idioms and their overall English language proficiency. The idiom test was divided into two parts: One part contained 30 idiom questions each presented with a short written context and four alternatives, the other part contained 30 idiom questions also with a short written context and four alternatives, but on a MouseTracker platform. In this latter part we had four drawn images as alternatives for each idiom question, and the platform allowed us to track their reaction times and mouse-movement trajectories. A group of advanced students of English were also measured for idiom comprehension.

3.1 Participants

Three sets of participants were part of this study. As mentioned earlier, twenty-nine Norwegian upper secondary students. 18 of them were females, 11 males, all aged between 16 to 17 years. This group consisted of a single Vg1 class with English as an obligatory subject. All the students of this class were encouraged to participate, however, three students had to be excluded from the study due to not completing all tests. Analysing the background information sheets (Appendix 2), we concluded that the remaining 26 participants were eligible for the study.

The second set of participants consisted of twenty-six students from NTNU, all advanced learners of English picked from English study programs between second and fifth year in progression. Of these were 17 females and 9 males, aged 20 to 28 years with a mean age of 24.

In line with the guidelines of the Norwegian Social Science Data Service (NSD), the participants had to sign a form of consent before participating in the study. The students were informed about the content of this paper and the tests before signing. Eight participants reported to have one or more deficiencies or diagnoses that may affect one's learning ability like Dyslexia, Attention Deficit Disorder, auditory or visual impairments. None of these participants' results deviated from the normal distribution of the tests conducted. We decided not to remove any of these participants based on the results. NSD approved the research project, and in line with their guidelines we never obtained any names. The students from

both groups were given participant numbers, which identified the data collected from the background survey with the idioms and English language tests.

3.1.1 The native speakers

The third group of participants was the English native speakers. This group was used as a way to certify that the idioms we picked and the written context for them were based on known, understandable idioms in the English language, as judged by English L1 speakers. Of these 109 we had to exclude 10 participants on grounds of them either not being native speakers of English or being extreme outliers. Thus they consisted of 99 participants. We did not collect any background information from this group.

3.2 Materials and Procedures

3.2.1 The English Proficiency tests

The upper secondary group was suggested by our supervisor who has had contact with that particular school for other projects. The teachers there were familiar with the type of research coming from our department, and a teacher was willing to give us time with a class. The NTNU student group was gathered from advanced English courses at NTNU Dragvoll campus.

The first thing we would test after filling out background schemas and papers of consent, were the English vocabulary and grammar tests. The results from these helped in establishing a baseline for English proficiency in order to establish a measure for comparison. The vocabulary test consisted of 100 tasks presented as letter sequences (vocabulary.ugent.be, 2015). Some of them were existing English words and some were made up non-words. The participants would respond with a “yes” or a “no” to each sequence, judging whether they thought it was a real word or a non-word. The vocabulary size was estimated after the test and would be displayed on the participant’s screen. The grammar test we used was obtained from Cambridge’s English proficiency tests (examenglish.com). This test presented 50 tasks with 4 alternatives in each. The questions provided a sentence with a missing word. The correct response would be among the 4 alternatives, and if the participants selected a wrong response, they would have to try again until they reached the correct one. Both these tests were advanced and suited for native speakers, so the difficulty was high. We wanted this so that we could easier compare our two groups with each other. Upon completing a test, we would personally check the score and write it down for them before moving further with testing.

3.2.2 The Idiom tests

These tests proved to take very long time, due to a number of reasons. We needed a sufficient

amount of idioms with response alternatives, a context for all the idioms, and suitable pictures for half of the idioms.

The test itself comprised of a total 60 idioms. We selected idioms from various sources, most of them were simply found by googling for idioms. However, we had to be critical and selective when deciding which idioms to use for the tests. We decided against idioms that seemed either too easy or too difficult, as judged by ourselves. Our supervisors helped in this process as well, by selecting idioms from our list. We made a point of including different kinds of idioms, from transparent to opaque, and followed typologies like the compositional variances discussed in Titone and Connine (1994). Thus we included Normally decomposable idioms, like "caught red-handed", in which part of the idiom is used literally. Abnormally decomposable idioms, like "give someone a hand", in which the referents of an idiom's parts can be identified metaphorically. Semantically decomposable idioms, like "Devil's advocate", in which the meaning cannot be derived from the literal processing of the string. Also the typology described in Vulchanova et al. (2011) was equipped. We included instructive idioms, like "don't put all your eggs in one basket", biologically motivated idioms, like "lose your head" and culturally motivated idioms, like "kick the bucket". However, it was never the intention to control the study for typology specifically. It is clear by the typology from Vulchanova et al. that all three of these categories may vary across compositional dimensions as well. The biological and cultural sometimes melt together. The idioms were selected in general because they are used in English language by native speakers. The reason for picking idioms from different categories was grounded in the complex nature of idioms, and the studies directed at mapping the different effects these have on processing them.

The 60 idioms were split in half, one written form and one picture form. The reason for this is is twofold. For one, the context in which the idiomatic expression is given is significant, according to the Global Elaboration Model (GEM), attention to the context allows the comprehender to realise that a literal interpretation of an idiomatic expression is inappropriate. Furthermore, it gives the comprehender necessary semantic information in order to reach an appropriate figurative meaning from the expression (Levorato & Cacciari, 1995). This is also stressed in Vega-Moreno's discussion on acquiring unfamiliar idioms, she suggested that the context together with the encoded material that forms the string is a starting point for pragmatic inference (2001). There is evidence that the more skilled comprehenders gain more advantage from the context than do the less skilled comprehenders, and evidence that context helps older children more than younger children (Levorato & Cacciari, 1995). We

did not consider these factors as problems, because our subjects were adolescents and adults for which there is no such context research. The English proficiency tests would reveal any big deficiencies between skilled and less skilled comprehenders. We assumed that the context would provide a degree of predictability, increasing the probability of comprehending a figurative expression correctly.

The dimension of familiarity was interesting for the topic of this thesis, but due to the limited scope we could not test for this condition specifically. Instead we chose the idioms with a belief that they would represent both familiar and unfamiliar expressions for the upper secondary students. For the advanced English students, it would be likely that not all of the 60 idioms were familiar. Because the participants were Norwegian students with English as L2, it was likely that they had not achieved a native-like proficiency in English. This is especially true for metalinguistic abilities, which according to the GEM develop through and beyond adolescence. Familiarity has, as mentioned in the theoretical framework, been shown to influence comprehension of idioms (Titone & Connine, 1994) and influence processing (Vega-Moreno, 2001). Under this dimension we also considered the concept of cross-linguistic influence. Many of the idioms are used even in Norwegian L1 discourse, like for instance “Blockbuster” and “Broken heart”, either in their original English form or in a Norwegian version.

The first half of the idioms test, containing 30 idioms, was given to both the student groups as well as the native speakers. They were set with a brief story context introducing the idiom inside it. An example of context and alternatives for one of these tasks was:

> They all thought the match would be a piece of cake but they were wrong. The other team was faster.
> What is the meaning of the expression “piece of cake”?
> 1. To be satisfactory
> 2. The reward you get for winning
> 3. Something which is easy
> 4. The best part of the cake to eat

The alternatives are designed so that two alternatives are distractors, and completely wrong, like 1 and 2 above. One is correct, and one is closely related to the idiom in question literally, like 4 above. The two wrong alternatives were in most instances far off from the correct answer, but were in other tasks somewhat related to the context sentence. This was the system

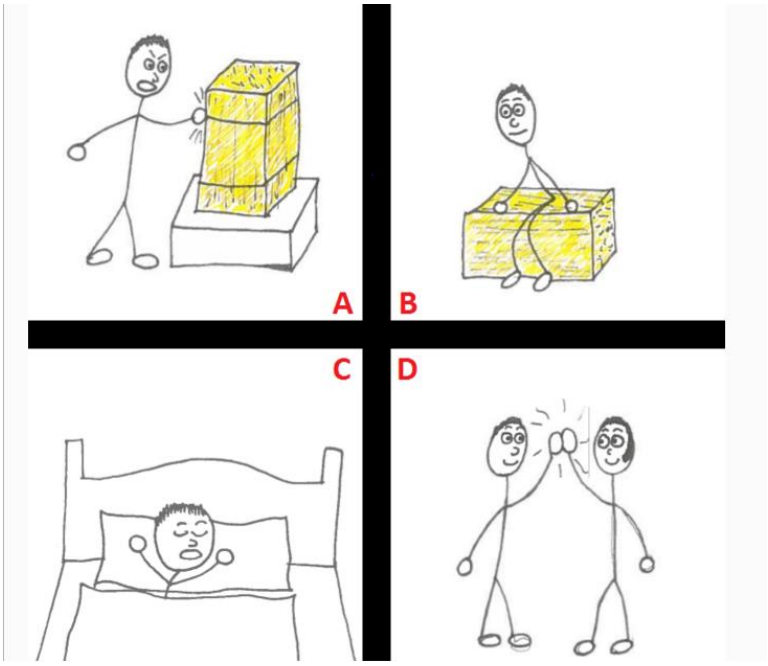
throughout our idiom tasks. The intention with the literal alternative is related to the theories of processing figurative language. Although the participants in this study were from adolescence and above, they could be tempted to rely on a literal interpretation presented to them if they met with an unfamiliar idiom. If they choose the literal answer, it could indicate that they chose a path of literal processing, either avoiding the possibility of figurative interpretations or found them inappropriate. The literal alternative also has a role as an indicator towards the figurative interpretation. Having completed more of the idiom tasks, the participants are likely to realise that the literal alternative is inappropriate, and look for figurative interpretations beyond literal meaning. We found that this system would generate interesting data, and the goal was to make the tests neither too difficult nor too easy for the two groups. The tests were constructed by us, and submitted by the participants on the Google Forms platform. The questions came in randomized order for every participant.

The other half of the idioms had a different design. Instead of the written alternatives mentioned above, we included four images for each task. For this we made drawings which we in turn scanned. An example of such a task looks like Figure 1.

Figure 1. Idiom task with image alternatives.

Tim was feeling tired. He decided to hit the hay.

Choose the picture that shows the meaning of "to hit the hay"



The stimuli in these tasks is different from the other 30 tasks. Not only does the context give a clue, but the images allow the participants to make an inference based on the content of the

image alternatives. Nippold and Rudzinski (1993) accommodates the idea that idioms can be processed by a variety of strategies, and that the availability of context clues is among them. Nippold and Duthie (2003) studied whether mental imagery play a role in acquisition of idioms, and found that it does for both transparent and opaque idioms. The role of mental imagery was in our mind as we made the pictures, thus the focus was to make them as generic and familiar as possible and not leave any room for ambiguity.

The other reason for the use of images was to fit the platform we used to obtain data from the upper secondary group. This platform is the MouseTracker software. It is a free program for studying real-time mental processing using a mouse-tracking computer method (J. Freeman & Ambady, 2010). The design for this test, the 30 idioms chosen for images, was chosen for the upper secondary students. We worked on making codes in the MouseTracker program so that our test would run optimally. The way it worked was that the participants would use one of our three computers, enter their participant code and begin the test. We gave them instructions on how to navigate the test and what they could expect from the tasks. Each task gave the participant first the context sentence and the question of what the idiom meant. They then were presented four images, such as those showed above. The images were put each in one corner, and the mouse would always begin in the exact middle of the screen. As soon as they pressed "start", the program began recording every movement of the mouse, the streaming x- and y- coordinates and the time spent along them. The participants received the tasks in randomized order, and the response alternatives were also randomized for each task. This had one exception, the literal and the correct alternatives would always be located next to each other horizontally. The reason for this is that we needed to be able to analyse the response movement in between the literal and the correct more than the others. According to Freeman, Dale and Farmer, some contexts of language processing leads to a "not so smooth" processing flow, which in turn leads to hand movements that exhibit sharp shifts in direction (2011). If such a disruption between the literal and correct alternatives were to happen, that could tell us something about the participant's processing, particularly whether the participant shifted between a literal and figurative interpretation, in accordance with (Oakhill, Cain, & Nesi, 2016; Vega-Moreno, 2001).

Using the MouseTracker software has a number of benefits. Although it is not as popular as the eye-tracker, it can produce good data in a different manner. Freeman suggests the MouseTracker's perks and usefulness in his article *Hand in motion reveals mind in motion* (2011*)* The dynamics of action do not reside only in the aftermath of cognition, bodily

movements such as traces of hand movements can provide insight to internal cognitive processes. The distinction between eye and hand movements is that the latter offers a continuous stream of motor output whereas the former typically is comprised of discrete saccades (J. B. Freeman et al., 2011). Freeman further suggests several methods of data collection from this type of test, including maximum deviation toward unselected responses, switches in direction and movement complexity.

To sum up this section on preparation for data collection: Two main groups of respectively upper secondary students and university students of English were tested for 60 idioms and English proficiency. The idioms were presented in two conditions, with written context and picture context. The upper secondary students performed the picture context idioms on a MouseTracker platform, while the university students performed them on a Google Forms platform. A third group of native English speakers received the 60 idioms on a Qualtrics questionnaire platform. Their results was not part of the comparative analysis, but was used as a baseline for the quality of our idiom tests.

3.3 Analysis

All the MouseTracker data was retrieved from the MouseTracker Analyser software and then run in SPSS. The participant data and the idiom task data was then run in binomial tables (/binomial (0.50)=error) to detect results that fall outside normality. The accuracy data was collected from this software as well as from the written tests and image tests conducted on online forms. We proceeded to add these results up in Excel which gave us a summary of how many responses both groups made for the three conditions: Correct, Literal and Distractor. This data was then run in R, where we first tested them for normality both within-group and between groups. However, because the university students performed at ceiling, we needed a more robust method to compare these data. To measure the two groups against eachother for three different conditions we chose to run a repeated measures analysis of variance (ANOVA) in R. We added all the data from both groups in a text document, listed as observations. Every participant from both groups would then have two observations each, one from image tests and one from written tests, these made the experimental factors of the ANOVA, which computed a between-subjects variable. The dependent variable in the ANOVA models was either “Correct”, “Distractor” or “Literal”. The two stimulus types were “Image” and “Written”, referring to the type of idiom tasks. It was important to distinguish these two types in the ANOVA, so we could see the difference in performance between the two stimuli.

3.3.1 The English Proficiency tests

The methods of analysis differed across the type of tests conducted in this study. For the English proficiency tests, the results had to be numerically coded for comparison. While the vocabulary test gave a percentage base for how many words it estimated the participant to know, the grammatical test would give a point score between zero and fifty. We adjusted the scales to go between zero and one hundred. We introduced these data into excel sheets and proceeded to run them in R for analysis.

3.3.2 The idiom tests

Having first sent all the idioms in a Qualtrics form to English native speakers, we received data which helped us decide if any items were to be excluded. The native speakers generally answered correctly, but 7 idioms did not work out well. These 7 idioms, marked with asterisks in the [APPENDIX] had only between 40% and 69% success rate. We assumed this meant that the native speakers either did not know them well, or that the formulation of the tasks were bad in some manner. These idioms could be excluded, but in this analysis I decided not to exclude them. The reason for this is that the three groups had different results with them. The university students in general did not have many errors at all, and this was also true for the idiom tasks that the natives failed with. The upper secondary students did in fact have more errors in a few of the idiom tasks that the natives also failed, but it was difficult to see a correlation. Nevertheless, the scope of this study is to investigate the processing of idioms, and the responses made by the upper secondary students would be interesting in any case.

The MouseTracker data provided the most difficult target for analysis. For every task, each participant responded with a mouse movement toward one of four alternatives. The movement was recorded 60-75 times per second, measuring the speed, time spent and coordinates for the mouse pointer. This amounts to very much data with the total of 780 responses we received. So for the results chapter, we have made a strategic decision by remapping the trajectories. Thus all the visual results from the MouseTracker are distinguished and treated as shown in Figures 2 and 3.

Figure 2. Example of raw MouseTracker trajectory data.

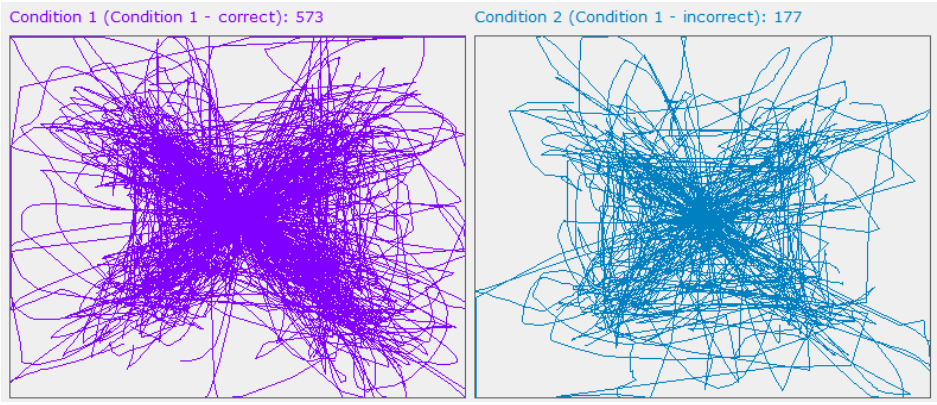
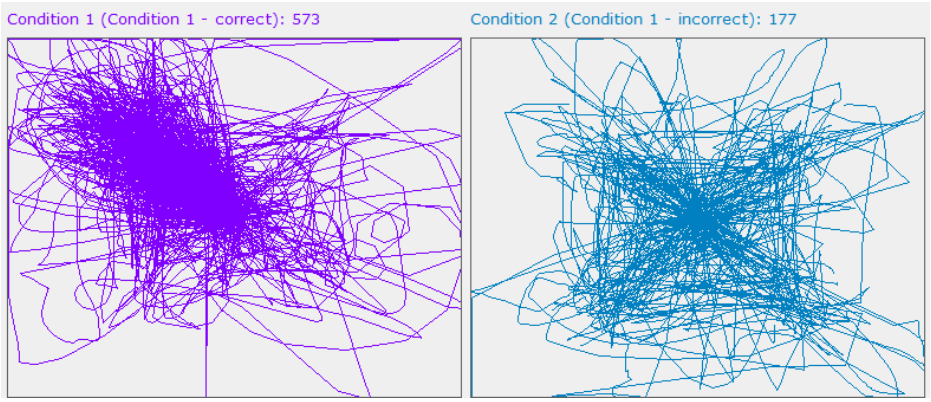


Figure 3. Example of remapped MouseTracker trajectory data.



Note: To the left is correct responses, to the right is incorrect responses. The remapping only applies to correct responses. There was unfortunately no way of remapping incorrect answers to highlight the distinction of literal versus distractor responses. Also note that these figures show a total of 750 responses instead of 780. This is misleading, as one participant's responses could not be projected due to all that participant's responses being correct.

3.4 Potential Sources of Error and Limitations

The selection of idioms for the tests is the greatest limitation for this study. As mentioned earlier, the scope of this study did not allow us to account much for the familiarity of the idioms. It is difficult, however, to make an accurate calculation of an idiom's frequency, and this is probably especially true for the L2 speakers. Second, as Jackendoff (2002) and Vega-Moreno (2001) stressed, the idiom flexibility must be considered. This limits the scope of frequency even more. Which variations do the natives accept, and which do the English L2 speakers know and comprehend. The nature of the flexible idioms and their complex variation is discussed in the theoretical framework, but a few examples of decisions we made will be presented here. For example, in the idiom "speak of the devil", the verb *speak* could be replaced with the verb *talk* without changing the expression's figurative meaning. Another example is the idiom "give someone a hand", which could be changed structurally by adding

a prepositional phrase and moving the noun phrase to the end, creating the expression “give a hand to somebody”.

Second, the idiom tasks judged poorly by the native speakers could in fact mean that those particular tasks were bad. It is uncertain to us why the native speakers failed them so distinctly, while the Norwegian university students did not. This will be thoroughly discussed in a section in the discussion chapter. For the sake of analysis I chose to keep them and this must stand as a factor for potential weakness of the study.

Last, the different data collection from the two main groups was different. For a study comparing two groups, the most valuable data comes from the most identical data collection possible. The upper secondary students omitted the idiom image results through MouseTracker software, while the university students did the google forms survey for all the idioms. However, due to the scope of this study and the limited amount of resources, we agreed with our supervisors that conducting the test in this manner was the best solution. For this paper, looking at the processing of idiomatic expressions with the upper secondary students as main focus, this data shows value. Despite this and other weaknesses, the carefully planned data collection was assumed to provide sufficient data. This will be further included in the discussion of the results.

4. Results

This section will describe the results of the proficiency tests as well as the idiom tests. The most valuable aspects of the data sets will be presented and analysed. Reasons for why those particular aspects of the data were chosen for analysis will also be presented. The data was analysed in MouseTracker analyser, R and SPSS. A repeated measures analysis of variance (ANOVA) was used to compare accuracy in the two groups in the idiom tasks. The MouseTracker data was retrieved from the MouseTracker Analyser and treated in SPSS afterwards.

In the analysis process, three different performance variables were considered. In section 4.2 accuracy is presented. The two groups were both measured for how many correct, incorrect and literal responses they made. In section 4.3 and 4.4 the data from the MouseTracker software is presented. First the reaction times for the image idioms from the upper secondary group. The last data from MouseTracker, in 4.4, will concern the certainty of the mouse movements for the upper secondary group for the same test, the image idioms.

4.1 The English Proficiency Tests

The proficiency tests conducted on both the main groups serves as a baseline for comparison.

Table 1. Grammar and Vocabulary tests by Mean and Standard Deviation

Group		N	Mean	Std. Deviation
University	Vocabulary	26	63.000	10.1272
	Grammar	26	82.462	8.5287
	Valid N (listwise)	26		
Upper Secondary	Vocabulary	26	39.038	15.2931
	Grammar	26	56.385	11.4964
	Valid N (listwise)	26		

Note: University = Norwegian university students. Vocabulary = The estimated size of English words in the vocabulary by percentage, Grammar = Points out of 100 possible calculated from correct answers.

Since a comparison between the two groups is interesting, a test was run between the two groups for significance. A wilcox test between the two groups for the vocabulary data showed an effect value of 68 and $p < .001$. The grammar test also showed significance with an effect value of 26,5 and $p < .001$.

The vocabulary test showed a high score for the university students. It estimated their vocabulary size to be 63% of the English words. The upper secondary students, however,

achieved a much lower score of 39%. In the grammar test we see on Table 1 above, the university students achieved 82,5% of the possible points, while the upper secondary achieved 56,4%. The difference between the two groups in vocabulary = ~24 percentage points, while for grammar = ~26 percentage points. Note that the spread between subjects in the two groups differ. The standard deviation for the upper secondary group is over 15 points on the vocabulary test, contrary to the 10 points for the university students. The high spread for the upper secondary group reflected the clear difference in performance by that group.

4.2 Idiom tests: Accuracy

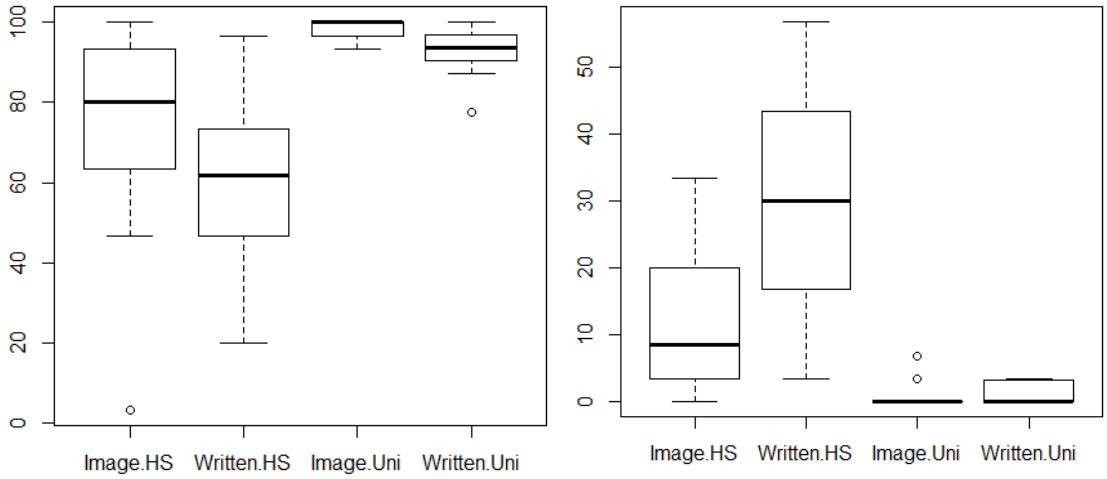
Table 2. Idiom response accuracy

Group			N	Mean	Std. Deviation
University students	Image	Correct	26	98.4308	2.40046
		Literal	26	.9154	1.81388
		Distractor	26	.6538	1.67098
		Valid N (listwise)	26		
	Written	Correct	26	93.2962	5.40107
		Literal	26	5.5981	4.88628
		Distractor	26	1.1096	1.55525
		Valid N (listwise)	26		
Upper secondary students	Image	Correct	26	75.6408	20.92872
		Literal	26	12.1792	13.46358
		Distractor	26	11.0242	8.98179
		Valid N (listwise)	26		
	Written	Correct	26	61.1538	20.30725
		Literal	26	9.4862	7.46548
		Distractor	26	29.3592	15.69271
		Valid N (listwise)	26		

Note: The Mean values are measured in percentage.

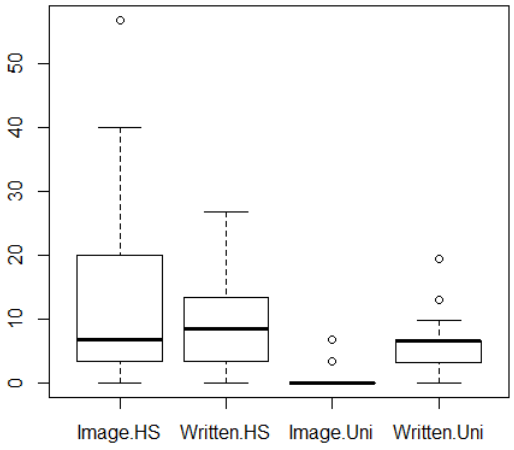
These results show the tendency from the proficiency test in section 4.1 in that the university students outperform the upper secondary students clearly. Remarkably, the standard deviation for correct responses in the upper secondary group is ~20.5. As seen in Figure 4 below, the spread between participants was much bigger in the upper secondary group (denoted as "HS" in the figure) than in the university students.

Figures 4 and 5. Boxplot of Correct responses to the left and Distractor responses to the right, for both groups by both stimuli.



Note: HS = upper secondary group. Uni= university student group. The scale from 0 to 100 denote percentage of correctness..

Figure 6. Boxplot of Literal responses for both groups by both stimuli.



These figures (4, 5 and 6) show that the university group performs at ceiling. Their data are not distributed normally as in the upper secondary group indicated by this ceiling effect. Both conditions, correct and incorrect, show that the written stimuli was more difficult for both groups, particularly the upper secondary group.

The results from the ANOVA illustrated in these boxplots show that there is a difference within-subjects and between groups for the various conditions. This is shown in Table 3 below.

Table 3. ANOVA.

Correctness

	Df	Sum Sq	Sq Mean	F value	Pr(>F) **(*)**
Group	1	19614	19614	61.95	2.63E-10
Residuals	50	15830	317		
Stimulus	1	2503	2502.5	19.85	4.72E-05
Stimulus:Group	1	569	568.5	4.51	0.0387
Residuals	50	6303	126.1		

Literals

	Df	Sum Sq	Sq Mean	F value	Pr(>F) **(*)**
Group	1	1492	1492.3	20.62	3.55E-05
Residuals	50	3618	72.4		
Stimulus	1	25.7	25.7	0.431	0.5146
Stimulus:Group	1	353.6	353.6	5.921	0.0186
Residuals	50	2986.2	59.7		

Distractors

	Df	Sum Sq	Sq Mean	F value	Pr(>F) **(*)**
Group	1	9695	9695	92.73	5.64E-13
Residuals	50	5227	105		
Stimulus	1	2295	2295.1	37.3	1.49E-07
Stimulus:Group	1	2078	2077.8	33.77	4.29E-07
Residuals	50	3076	61.5		

4.3 Idiom test: Reaction Times

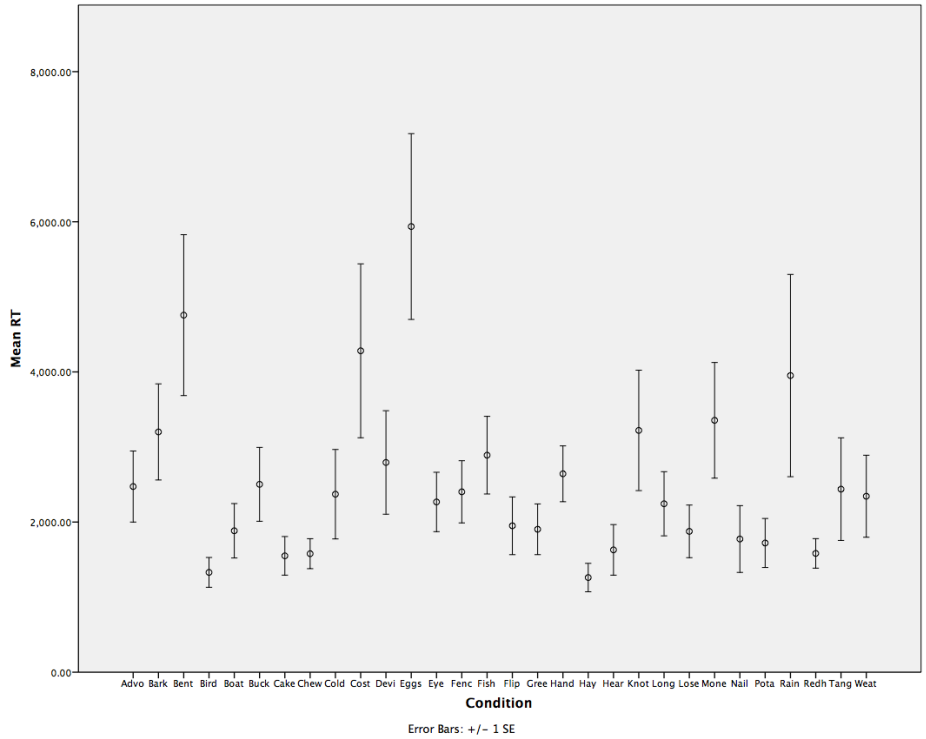
Table 4. Reaction Times by Mean and Standard Deviation

Error		N	Minimum	Maximum	Mean	Std. Deviation
0	RT	599	499.00	27030.00	2068.8715	2539.23006
	Valid N (listwise)	599				
1	RT	181	547.00	33750.00	4086.6630	4707.97586
	Valid N (listwise)	181				

Note: Error 0 = Correct answers, Error 1 = Incorrect and literal answers. RT is measured in milliseconds. Valid = Responses SPSS would consider, in this case all of them.

As illustrated in Table 3, the reaction times are generally higher for the incorrect responses than for the correct responses. In fact, the difference by mean RT is twice the size for incorrect responses. The mean for correct responses is ~2 seconds, while for incorrect responses it is ~4 seconds. The results show a tendency toward shorter RT for more correct idioms, and longer RT for the more incorrect idioms. Idioms like “Bent out of shape” (61,5% correct), “Cost an arm and a leg” (73% correct), “Put all eggs in one basket” (53,8% correct) comprise the three highest mean RT’s. Idioms like “Hit the hay” (92,3% correct), “Piece of cake (100% correct) and “Bite over more than you can chew” (88,5% correct) comprise the three lowest mean RT’s, and are among the most correct idioms found in the image idioms test.

Figure 6. Reaction Times per Item



Note: The conditions listed are listed as abbreviations. See appendix for translation of these. Generally they are easy to decode, for instance "boat" = "to be in the same boat", "rain" = "it's raining cats and dogs", "bird" = "to kill two birds with one stone". The mean RT is measured in milliseconds.

4.4 Idiom test: Response Certainty

The final factor for analysis was the certainty of the decisions made by the upper secondary group in the MouseTracker software. According to Freeman and Ambady (2010), one of the best methods for measuring certainty in MouseTracker is to look at the participant's attraction towards an unselected target in a given task. Two measures for this, Maximum Deviation (MD) and Area Under the Curve (AUC) are used. The software computes an idealized (straight line) response trajectory between the start and endpoints for the responses. The MD of a trajectory is the largest deviation between this idealized (straight line) trajectory and the actual trajectory. A high MD then means a high attraction toward an unselected alternative. The AUC of a trajectory is calculated from the area between the idealized and the actual trajectory, while the area on the opposite side of the idealized trajectory is calculated as negative area. Freeman and Ambady (2010) observed that "the AUC is a better index of the overall attraction toward the unselected alternative (incorporating all time-steps), whereas MD

is a better index for maximum attraction, but this attraction may be limited to fewer time steps" (p.230)

Figure 7. Maximum Deviation in correct responses.

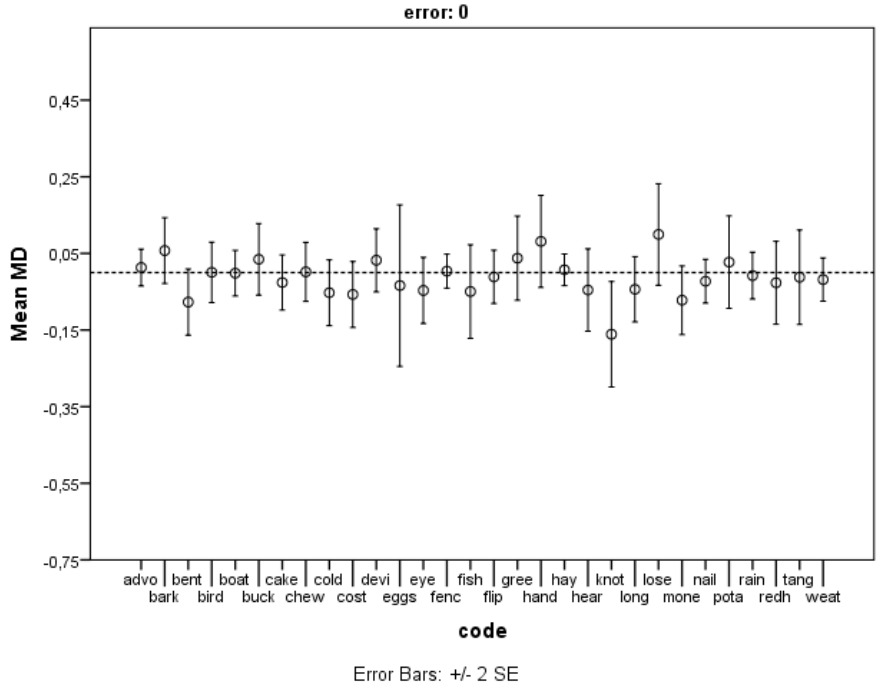
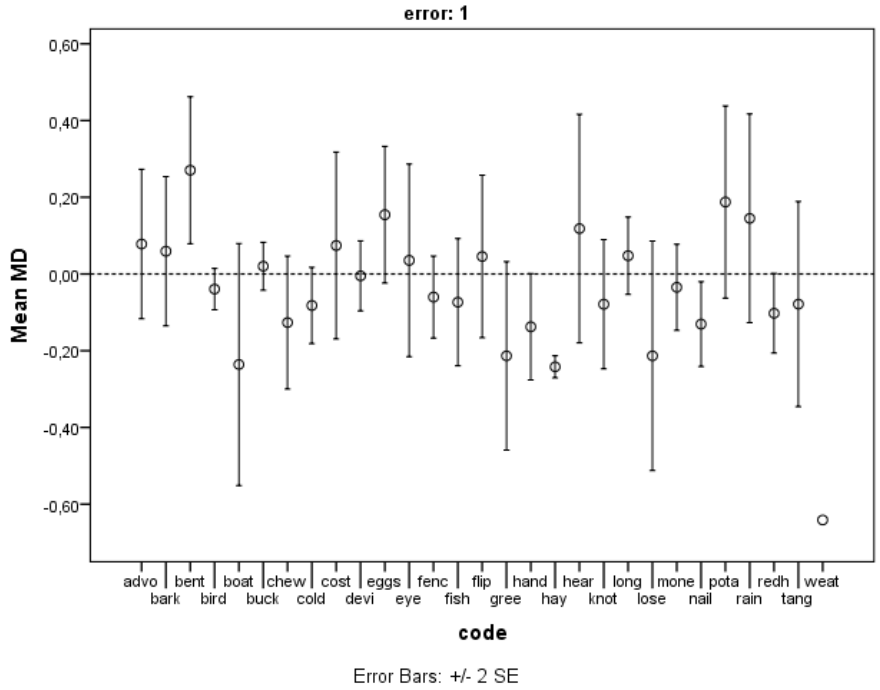


Figure 8. Maximum Deviation in Incorrect responses.



Note: Movement in either direction away from the "0 value" equals deviation. This means that both positive and negative values indicate a deviation. The values are geometric coordinates within the MouseTracker trajectory space.

As these tables illustrates, the responses resulting in correct answers have far smaller MD values. This indicates that the trajectories, the mouse movements, are a great deal more certain towards the target when the participant is answering correctly. A notable idiom in Figure 7 is “tie the knot” (coded as “knot” in Figure 7), for which the correct responses seem to be more uncertain than the incorrect ones in Figure 8. As for the AUC, illustrated in Figures 8 and 9, a similar trend was found.

Figure 9. Area Under the Curve in correct responses.

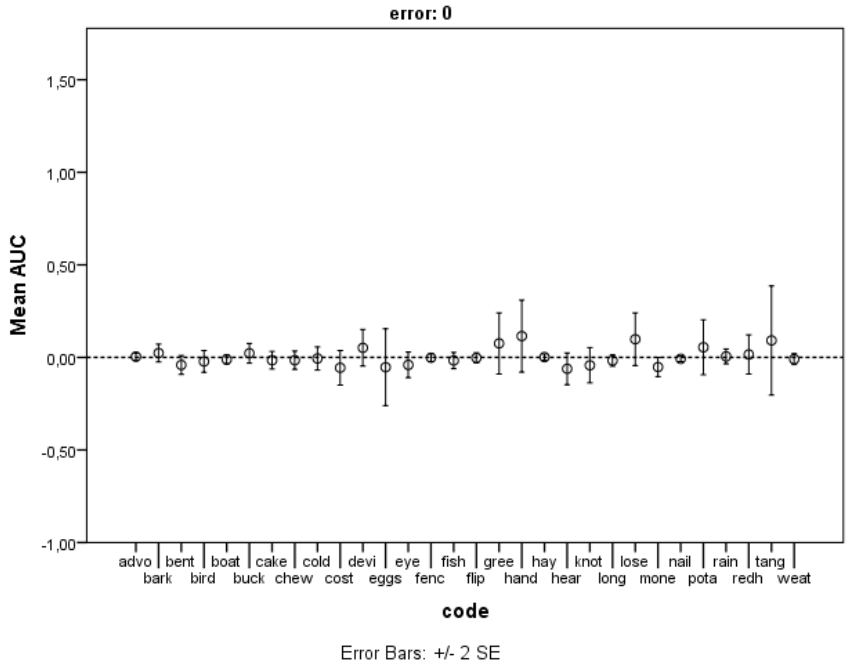
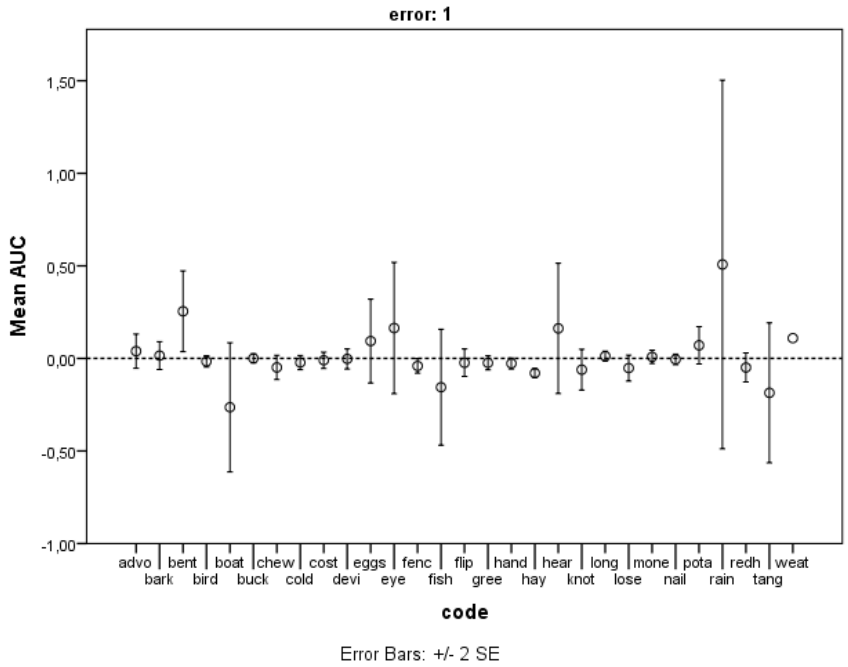


Figure 10. Area Under the Curve in incorrect responses.



Note: Idioms with 0 errors, like “Piece of Cake” (coded as “cake” in these figures) are excluded.

5. Discussion

The aim of this study was to investigate idiom processing in Norwegian L2 speakers of English. The group of interest was a class of 16 to 17 year-old adolescents who learn English in a regular weekly class. To do this, a comparison with the second group, Norwegian university students of English was necessary. In this chapter the results of the study will be discussed and analysed. The English proficiency tests will provide a baseline for comparison, but the main interest for discussion here will be the idiom tests. The two groups' performance with idioms should provide a view to their comprehension of idiomatic expressions. The detailed results from the MouseTracker software should provide an enhanced insight into the processing of idioms for the group of adolescents. First, I will discuss the compared results by looking at the proficiency tests and the idiom accuracy. Second, I will discuss the results from the MouseTracker. I will draw parallels to theories on processing and representation of idioms to attempt an explanation of the results.

5.1 The English Native speakers

The native speakers had a high level of correctness for most of the idioms we presented to them, both for images and written context. However, seven idioms failed to gain success in their test. These idioms were "To not be playing with a full deck", "To cross someone's mind", "A hot potato", "Blockbuster", "To put all eggs in one basket", "It takes two to tango", "Sleep with the fishes" (See Appendix 3 and 4 for their contexts. They are marked with red asterisks). These were initially selected for exclusion from the results, but as we analysed the Norwegian university students, it became clear that these idioms had not been a problem. None of the idioms mentioned above had a lower correct rate than 75% for the Norwegian university students, actually only two of them scored lower than 90%. For this reason, and the fact that the tests the natives and the Norwegians had received were exactly the same, I decided to include these idioms. They turned out to be a bit ambiguous for the upper secondary students, who had problems with some of them, in particular "To put all your eggs in one basket"(54% correct and lowest score for upper secondary, image idioms), but neither of them really stood out from the rest of the idioms.

There are various explanations from theory that can explain this result. One could be that the idiom context was biased for L2 speakers. Since the tests were all made by me and my lab partner who are both Norwegians with English as L2, they could be biased. The natives may

have had a disagreement with the context or the alternatives for responses. In the responses they made for 5 of these idioms, they were mostly responding with the same mistake. Two idioms were exceptions, with a spread in responses. Another explanation could be that the Norwegian university students have a better trained metalinguistic awareness. The group consisted of skilled L2 speakers, and they may have been heavily exposed to idioms in the L2. This in turn sparks the familiarity effect, which would be a natural explanation to good scores. By this reasoning the Norwegian university students outperform English native speakers from first year English university studies. The seven idioms vary in compositionality from normally decomposable and abnormally decomposable to semantically decomposable idioms. Thus the explanation can not be found in theories on the effect of compositionality as referenced by Titone and Connine (1994).

A different explanation could be that the idioms do not represent widely used idioms in the English language, or in that particular population of the group. Looking at some of the idioms, like “potato”, “fishes”, “blockbuster” and “eggs”, we could reasonably see them as less popular idioms. However, why the idiom “to cross someone’s mind” happened on this list was beyond our understanding.

5.1.1 The English Proficiency test and Idiom Accuracy

The results of the proficiency tests were quite as expected. Although these tests alone are not enough to conclude anything on the actual proficiency of the participants, they give a small indication of what results one could expect from the two groups. The difference in scores between the two groups are almost the same for the vocabulary (University: 63%, Upper Secondary: 39%) test as the grammar test (University: 82%, Upper Secondary: 56%). The scores for the university students indicated a high level of English skills and vocabulary, according to the results description end screen. The standard deviation for the upper secondary group was notably higher than for the university students, indicating that the younger group contained a variety of higher and lower-level English comprehenders. This was expected due to the nature of the two groups. The university students were all selected from advanced courses of English, most of them in their third year of English studies or higher. The upper secondary group was a class comprised of young learners of English as L2, not an in-depth course compared to university-level English courses. Most of those participants are likely to elect a different path than English studies later in their lives. The results described here was predicted to be somewhat mirrored in the idiom tests. The spread

of English comprehension level illustrated by the standard deviation in the idiom tests should provide an interesting base for comparison against the results of the idiom tests.

Benelli et al. (2006) argued that metalinguistic ability correlates with cognitive development, metacognition, literacy, oral language skills and years of schooling. These are all features that no doubt should be a great deal more reflected in the university students than in the upper secondary students. The GEM by Levorato and Cacciari (2002) indicates that metalinguistic awareness increases with age. They confirmed this in a study where they had younger and older participants tested by asking them to create novel expressions. The older participants created novel figurative expressions that were judged more appropriate than those of the younger participants (2002). As many studies on idiom processing and comprehension makes a point of dividing skilled comprehenders from less skilled comprehenders, and older from younger, I will make a point of distinguishing the two groups for the same criteria. The upper secondary group, consisting of 16 to 17 year-olds, is by nature a varied group in terms of metalinguistic skills. As discussed earlier here, they are in mandatory classes of English, and may or may not be particularly interested or exposed to much English in their everyday lives. The background schemas collected from them showed that they varied much in questions regarding how much English they wrote, heard and spoke every day. Some of them had visited English-speaking countries, most of them had not. Due to the scope of this study I will not go in debth of data from the background questionnaires.

The results from the idiom tests were on one hand surprising and on the other hand as expected. The university students performed at ceiling effect in the idiom test by both stimuli. They performed so well it would be difficult to conclude anything on them other than the fact that the test could have been too easy for them. Yet there are a few effects there that align with idiom processing theories. Illustrated in Table 2 in the previous chapter, the results indicated that both groups found the written idiom tasks (University students: 93% correct, upper secondary: 61% correct) more difficult than the image tasks (university students: 98% correct, upper secondary: 75% correct). Additionally, the upper secondary group had a much higher tendency towards a spread within the group. Their standard deviation values for correct responses ranged above 20 for both written and image idiom tasks. This is strongly opposed from the university students, who had standard deviation values of 2.4 in image and 5.4 in written idiom tasks. It is likely that the upper secondary group represents a variety of comprehenders between good and bad. Further discussion on this topic will consider why

these tests showed such a huge distinction between the two groups, as well as within the upper secondary group.

Oakhill et al. (2016) found similar effects in their study on skilled and less skilled comprehenders. Evaluating on-line processing and interpretation by measuring reading times and competence they concluded that the good comprehenders spent more time reading the tasks, indicating that they activated figurative interpretations. Their study showed that because of the gap in metalinguistic awareness between the two groups, the stronger group came ahead because of their ability to infer from the given context. Although we were not able to measure time spent for the university group, we could argue the same from the point of competence. The context presented in the idiom tasks was limited to a sentence or two in the written tasks, and additionally four alternative images in the image tasks. It is possible that within the upper secondary group, many participants struggled to form an appropriate figurative interpretation based on this context. With reference to Oakhill (2016) and the GEM, the context given for such idiom tasks often give the older and more skilled comprehenders a bigger benefit than for the younger and less skilled. This could be one of the reasons the university students outperformed the younger group so remarkably. On the other hand, an explanation could be that the context simply was too scarce. Nippold and Taylor (1995) emphasized that adolescents struggle with idiomatic expressions without sufficient context, as could be the case for this study. Context in particular is stressed in many idiom processing accounts. Vega-Moreno (2001) illustrates how processing might function in different situations, and suggested that the information available in the context of an idiom often decides how the on-line processing proceeds. This leads to the dimension of familiarity and the role it may have played in this study.

With reference to Nippold's three metalinguistic strategies for language acquisition, the world experience in particular connects with familiarity. The older group should exceed the younger group not only by their experience with advanced English training, but also by a sheer package of metalinguistic abilities, including cultural and etymological knowledge. To compare the two groups would not only be to assume that the older group holds familiarity towards more idioms than does the younger one. It must be assumed also that the older group could equip a set of metalinguistic abilities, making the tasks much easier. For example, if a university student encountered an unfamiliar idiom in the tasks, the student would be able to (a) infer meaning from the context, (b) rule out alternatives based on knowledge of culture or etymology, (c) infer meaning from lexical items in combination with the former strategies.

The effects of metalinguistic awareness and familiarity were most visible in the results of especially opaque idioms. For example, the idiom “Kick the bucket” in the image test, showed a very polarized result between the two groups. The university students performed a perfect score, 100% correct responses. The upper secondary students achieved 69% correct responses, and interestingly 27% literal responses. The literal image portrayed an angry-looking man kicking a bucket. It is reasonable to assume that this idiom was unfamiliar to many of the upper secondary students. Nevertheless, the literal image should have been the cue for the participants to realize that there is a figurative meaning behind the expression. Because our test was constructed with obvious literal alternatives, the participants were given a kind of a “distress signal” towards the figurative meaning. This example could indicate that the metalinguistic awareness of the upper secondary participants was not activated. In line with idiom representation and processing hypotheses, the younger participants could have been computing the expressions on-line for the literal meaning. Yet, as both the Literal first and Simultaneous hypotheses state, after the literal interpretation has been considered, it should be rejected for a figurative interpretation. It could be the case that the participants who responded with literal images never approached the idiomatic key in these expressions. In that case, they must have found the literal image to be relevant to the intended meaning of the idiom’s context. Oakhill (2016) suggested that context influences idiom comprehension in two ways: (a) the reader constructs a coherent representation of the meaning of the task, text and image and realizes that the literal interpretation must be inappropriate, and (b) the reader attempts to derive a figurative meaning from the context while processing, in line with Configuration hypothesis and Phrase-Induced Polysemy (PIP). This correlates with Levorato, Nesi and Cacciari, who suggested several reasons why less skilled comprehenders would respond with literal alternatives despite idiomatic contexts. The three possible reasons were (a) their inability to suppress the literal interpretation from the words in the expression, (b) reduced ability to infer from context, and (c) limited ability to process and infer an idiomatic meaning (2004).

The last issue to be discussed from the accuracy topic, is the difference between image and written tasks. As illustrated in table 2, it is clear that image tasks were much easier than the written tasks. Especially so for the upper secondary group who sank 14,5 points in correct responses from image to written. Even more remarkable were their tendency to choose distractors. Actually they did so only in 11% of the tasks for the image, but a vast 29% of the time in written tasks. It seems they were easily distracted and attracted by the distractor

images, which we constructed to be somewhat arbitrary and somewhat related to the context. This aligns with Cooper's (1999) study, in which subjects tended to guess from context when faced with unfamiliar idiom tasks.

5.2. MouseTracker data

5.2.1 Reaction Times

The results showed a tendency towards higher RT for incorrect responses than correct responses (see Table 3 in Results). The mean (correct: 2068ms, incorrect: 4086ms) and standard deviation (correct: 2539ms, incorrect: 4707ms) was twice the size in incorrect responses than for the correct responses. The tendency was illustrated in the Results chapter by the 6 most polarized idioms in terms of reaction times. The three idioms with highest RT, "Bent out of shape", "Cost an arm and a leg", "Put all eggs in one basket", are among the idioms with most incorrect responses. The three opposing idioms, "Piece of cake", "Hit the hay" and "Kill two birds with one stone", with very high success rate in the MouseTracker test, had the lowest mean RT's.

The reason for this is likely to reside in the nature of idiom processing and representation. Assuming the tasks and the context of the idioms was good and fair for the upper secondary participants, the high RT may indicate an encounter with fully or partially unfamiliar idioms. Following this case, and Vega-Moreno's account (2001) on processing unfamiliar idioms, the different RT results may be explained. Encountering an unfamiliar idiom, the participants decode the concepts in the constituents of the string, and processes the context information. In the given task, lexical information might give clues to a literal interpretation. At some point the participant realizes the deviation between the literal meaning and the intended meaning, triggering the idiomatic key. This should be easier in biological idioms than cultural and instructive idioms, as referenced from Vulchanova et al. (2011). Regarding the 6 polarized idioms, however, the three highest RT idioms leaned towards biological and cultural typologies (for example, "Get bent out of shape" and "Cost and arm and a leg" should fall into one of the two categories). So were the low RT idioms (for example "It rains cats and dogs" and "Bite over more than you can chew"). Although we did not take measures to provide our tests with secure typologies due to the scope of this study, so this is inconclusive.

Although studies from the chapter on theoretical framework report longer processing times for participants who succeed in interpreting figurative meanings (Gernsbacher & Glucksberg, 1984; Gibbs, 1980; Swinney & Cutler, 1979; Titone & Connine, 1994, 1999), we must assume that the RT's rather show a result of certainty and familiarity. With this reasoning, the

participants with high RT were either familiar with the idiomatic expressions in the test, or equipped with a more developed metalinguistic awareness than the participants with lower RT's. Both the former and the latter ability would of course rely on the assumption that the context and the alternatives of the tasks were representative and understandable for the participants.

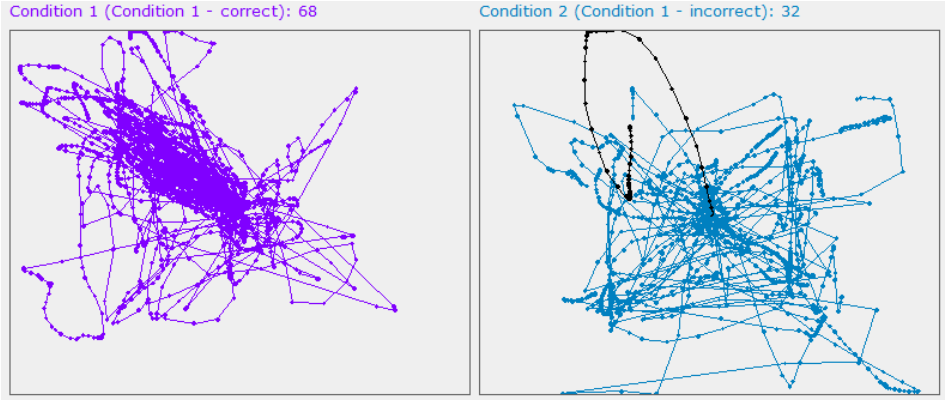
5.2.2 Response Certainty

The response certainty data was the most difficult to collect, and probably the most rewarding in relation to the topic of this study. A quantified measure for the certainty of the participants' hand-movements was needed in order to analyse their trail of thought as they performed the tasks. In other words, this data should reflect their on-line processing as they make a decision based on interpretation of the idiom and its context. First I will point to the general trend of the hand-movements between correct and incorrect responses. After that I will attempt to explain the trend with theory on idiom processing.

As illustrated in Figures 7-10 in the Results chapter, the general tendency for the correct responses is that of a straight line. The AUC (Figure 9) shows a robust mean with little spread. The MD (Figure 7) is a bit more skewed. The tendency is still clearly showing trajectories going with some certainty towards the correct target, but a few of the idioms have deviations from the mean. This indicates that other targets than the correct have been considered in the process. There is a trend that the idioms with most correct responses overall have more certain trajectories, just like with the RT. See for example "hay" ("hit the hay") and "chew" (bite over more than you can chew) in Figure 7. Especially doubtful idioms in correct responses were "Put all eggs in one basket" and "tie the knot". The figures for incorrect responses, Figure 8 and 10, tell a very different story. Again, the AUC figure does not really show very much tendency away from the mean. As can be seen in Figure 10, some of the idioms provide very large spreads, like "rain" ("it's raining cats and dogs"), but this is misleading because there are only 4 incorrect responses for that idioms. One of these responses made, over a 33 second time course, a very erroneous trajectory. The other three responses did in fact have quite normal trajectories, so nothing can be concluded from that result. Idioms that did, however, provide interesting results by AUC were "boat" ("to be in the same boat"), "fish ("sleep with the fishes") and "hear" ("broken heart"). The MD statistics for incorrect responses, as illustrated in Figure 8, show a clear trend of attraction towards unselected targets. As expected from incorrect responses, the degree of certainty should be lower than for correct responses.

Why exactly some idioms create more uncertainty than others, is interesting with regards to processing and representation of idioms. Nevertheless, the items that produce very deviant means and spreads from the straight line pattern, tend to consist of few responses. Take for example the four most deviant idioms for incorrect responses by MD, “boat” (“be in the same boat”), “heart” (“broken heart”), “lose” (“to lose your head”) and “potato” (“couch potato”). The MD figures illustrate a strong deviation, but the responses in sum amount to 22. Most of these idioms generated high scores for correctness, except from “bent”, which generated 10 errors. Looking back at the four highest RT idioms, of which “bent” is a member, is interesting because they have generated 32 errors our of 100. The trajectories for these idioms show great uncertainty, illustrated in Figure 11 below.

Figure 11. Four selected idiom trajectories.



It is clear that the trajectories in the right-hand box are headed anywhere but in a straight line towards a single target. This indicates that the on-line processing could be measuring the different alternatives up against each other, before settling doubtfully upon an incorrect response.

Of interest, the only idioms of the list of unacceptable idioms as judged by English native speakers to appear on these deviations are “eggs” and “potato”. Apparently, the 7 idioms judged as unacceptable and less comprehensible than the rest, turned out to be less unacceptable and incomprehensible for the upper secondary students (this is compared to the rest of the results from the upper secondary group). The results should reflect and show an occurrence of how processing and representation of idioms in adolescents works. It fits Vega-Moreno’s (2001) description of processing well, in particular the processing of unfamiliar idioms since it is assumed in this study that the incorrect results probably highlight the familiarity effect more than anything.

5.3 General Discussion

The results of this study reflect the GEM well. Comparing the two groups for accuracy gives an insight to the discrepancy between metalinguistic skills. The composition of the two groups highlight the factors for metalinguistic awareness well. The university students represent a high level, with their background from advanced English L2. Performing at ceiling in the idiom accuracy tests, and having good scores in English proficiency for L2 speakers, they represent a group of L2 idiom comprehenders which is not much subjected to research in processing and representation. In fact, they are located beyond the GEM, which states that phase 5 and onwards is a phase of growing metalinguistic awareness. The upper secondary group represent a standard VG1 class with much less English L2 background. Theories on idiom comprehension emphasize the importance of L2 exposure, world knowledge, cultural knowledge and general English proficiency in order to build a stronger metalinguistic awareness. In line with the GEM, the upper secondary group reflected an adolescence group somewhere between phase 4 and 5 as described by Levorato and Cacciari (2002).

The certainty of response data illustrated the on-line processing of the upper secondary groups. The tendency of the hand-movements for this group was clear in the direction of uncertainty when they responded incorrectly. This could explain their higher score of incorrectness in two possibilities: (a) the context and alternatives provided were insufficient or misleading for their metalinguistic awareness to trigger and produce a correct response, which in turn resulted in very confused hand-movements. Or (b) many of the idioms were unfamiliar to them, leading to a process in which they attempted to interpret the idioms on-line and for many of them this process lead to either an incorrect response in favour of an image which reflected the context but not the intended meaning, or a literal interpretation. The choice of literal interpretations was a much larger trend for the upper secondary than for the university students, supporting the theory of the GEM and metalinguistic awareness theories.

6. Conclusion

The aim of this study was to test and investigate Norwegian upper secondary students for comprehension and processing of idioms. Twenty-six Norwegian upper secondary students from a VG1-class, plus twenty-six Norwegian university students of English were tested. Both groups completed two sets of English proficiency tests, one for vocabulary and one for grammar. Then they completed two different idiom tests, one with written alternatives and one with image alternatives. The university students completed both by a questionnaire format, while the upper secondary completed the written test by a questionnaire format and the image test by a MouseTracker software format. Furthermore, ninety-nine native speakers of English from a university in England were tested for the same idiom tests by questionnaire, which was used to judge the validity of the tests.

A comparison was made between the two main groups, with the English proficiency tests as a baseline, and the idiom tests. The tests shows that the university student group outperformed the upper secondary group heavily in both proficiency and idiom comprehension. An analysis was made on this based on theory of idiom processing and representation. Several idioms in particular were picked out and analysed in an attempt to explain the results. Furthermore, the upper secondary group's results in the MouseTracker software was analysed in order to explain how they processed the idioms on-line.

In line with theories of idiom processing and metalinguistic awareness, the university students outperformed the upper secondary students due to a background difference and age gap. Metalinguistic abilities were assumed to be instrumental in separating the good from the bad performers in these tests, and this was something the upper secondary students lacked in. Factors like context and familiarity was assumed to be hindrances to the upper secondary students, who tended to respond with literal alternatives and distractors in many cases. This was not the case for the university students, who performed at ceiling in the idiom tests. In fact, the Norwegian students outperformed even the English native speakers, which allowed this study to overrule the idiom tasks judged as unacceptable by the native speakers.

The results shows that metalinguistic abilities in Norwegians with English as L2 has a big gap between upper secondary and university level. Age, years of schooling and exposure to the L2 is important to understand figurative expressions in different situations. Such expressions amount to a significant part of all languages, and come in different sizes and variances, and range from very transparent to completely opaque in compositionality. This makes them a

difficult bulk of language to overcome. Comprehenders have to either acquire the expressions to the long-term memory or train their metalinguistic abilities to a high level in order to understand them.

6.1 Questions for further research

The very limited amount of research conducted on English L2 speakers in Norway leaves the subject open. The findings of this study can only hint at an area of interest. What kind of idioms does this population comprehend or acquire easiest? Tests controlled for typologies could reveal a difference between Norwegians and native speakers of English, or even between good and bad Norwegian comprehenders of L2 English. Furthermore, this study could not control for familiarity. A study controlled for familiarity could, for example, translate idioms from another language into an understandable Norwegian translation, and proceed to have Norwegian speakers of L2 English judge them. Many studies have done this in other languages, because it provides the test with novel idiomatic expressions which is sufficiently controlled for familiarity.

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Appendices

Appendix 1: Consent Form

Forespørsel om deltakelse i forskningsprosjektet

Forskningsprosjekt på Engelsk språk og ordtak

Bakgrunn og formål

Denne studien er en del av et mastergradsprosjekt der vi er interesserte i å avdekke og kartlegge deres evner innen engelsk som andrespråk og da spesielt med fokus på ordtaksforståelsen.
Vi studerer på NTNU ved fremmedspråklig institusjon på Dragvoll, og samarbeider med veiledere Mila Vulchanova og Giouse Baggio om dette prosjektet. Dere er valgt ut fordi vi ønsker en genuin gruppe med norske 16/17-åringer som har engelsk som andrespråk eller eventuelt tredje.

Hva innebærer deltakelse i studien?
Om dere samtykker til å delta vil dere bidra med veldig god informasjon som vil kunne gi oss mer kunnskap om engelsk språk i Norge. Dette kan igjen bidra til å gjøre f. eks. utdanning og opplæring bedre på sikt.
Dette studiet vil ikke ha noe å si for din karakter eller deltakelse i skolen ellers. Det bes om at alle svarer ærlig og ikke prøver å gå gjennom noen av testene mer enn en gang, da dette vil svekke våre resultater.

Selve prosjektet vil trenge deres aktive deltakelse i cirka 1-2 skoletimer. Vi vil begynne med to «tester» der dere får svare på noen spørsmål om engelsk grammatikk og ordtak. I grammatikk-delen vil dere få spørsmål om dere har kjennskap til en rekke ord, mens i ordtak-delen vil dere få presentert 30 ordtak i tur, med fire alternative svar til hvert av dem. Den andre delen har vi med oss egne laptoper, og dere vil få en undersøkelse bestående av 30 ordtak med fire mulige alternative svar som vi har tegnet. Med dette får vi samlet all den informasjonen vi trenger, og det vil bli analysert på et senere tidspunkt, selvfølgelig helt anonymisert.

Hva skjer med informasjonen om deg?

Alle personopplysninger vil bli behandlet konfidensielt. Dere vil få eller har fått utdelt noen koder av lærere som vil bli brukt på testen. Listen med navn og koder har lærer kontroll på under studiet, men etter dette vil det bli låst inne i en skuff av vår veilder i et område på NTNU der man trenger et spesielt nøkkelkort for å få tilgang. Deres personopplysninger blir altså ikke tilgjengelig for noen, og i selve studiet er dere kun en gruppe med koder og derfor anonyme. For folk som leser studiet eller funnene våre vil det ikke være på noen måte mulig å gjenkjenne hvem som har deltatt.

Den 15.12 vil prosjektet slutte, og informasjonen vil forbli innlåst

Frivillig deltakelse
Det er frivillig å delta i studien, og du kan når som helst trekke ditt samtykke uten å oppgi noen grunn. Dersom du trekker deg, vil alle opplysninger om deg bli anonymisert.

Studien er meldt til Personvernombudet for forskning, Norsk samfunnsvitenskapelig datatjeneste AS.

Samtykke til deltakelse i studien

Jeg har mottatt informasjon om studien, og er villig til å delta

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(Signert av prosjektdeltaker, dato)

Appendix 2: Background Questionnaire

Bakgrunnsinformasjon for forskningsprosjekt om andrespråksforståelse

Tusen takk for at du har sagt ja til å delta i vårt forskningsprosjekt om andrespråksforståelse. I dette skjemaet ber vi om bakgrunnsinformasjon som er nødvendig for at resultatene fra undersøkelsen skal kunne brukes.

Informasjonen som du oppgir vil bli behandlet uten direkte gjenkjennende opplysninger. En kode knytter deg til dine opplysninger gjennom en deltakerliste. Det er kun autorisert personell knyttet til prosjektet som har adgang til deltakerlisten og som kan finne tilbake til informasjonen. Del B, C og D av dette skjemaet vil bare oppbevares med koden. All informasjon vil bli anonymisert ved prosjektslutt. Det vil ikke være mulig å identifisere deg i resultatene av studien når disse publiseres.

Vi ber deg legge merke til at skjemaet har totalt 6 sider.

Vegard Bergh & Anders Hauge Aurland

Studenter ved lektorutdanningen, ved Institutt for språk, Engelsk, NTNU

Del A: Personlig informasjon

Studieretning og trinn:_____

Fødselsår_____

Kjønn □ **Kvinne** □ **Mann**

Bostedskommune_____

Deltakerkode:

Del B: Språklig bakgrunn

Morsmål

Er norsk morsmålet ditt?

□ Ja □ Nei

Hvis ja, har du andre morsmål i tillegg?

□ ja □ Nei

Hvis ja, hvilke(t) språk? _____

Hvilket språk bruker dere hjemme?_____

Hvor ofte leser du tekst skrevet på norsk?

□ Hver dag □ Flere ganger i uka □ Et par ganger i uka □ Av og til □ Aldri

Hvor ofte skriver du tekst på norsk?

□ Hver dag □ Flere ganger i uka □ Et par ganger i uka □ Av og til □ Aldri

Engelsk og andre fremmedspråk

I <u>engelsk,</u> hvordan vurderer du ferdighetene dine på hvert av disse områdene?

	Grunnleggende	**Middels**	**Avansert**	**Flytende**
Lesing				
Skriving				
Snakke				
Lytte				

Totalt				

Har du bodd i, eller hatt lengre opphold i, et land hvor engelsk er hovedspråk?

□ Ja □ Nei

Hvis ja, hvor lenge varte oppholdet/oppholdene?_____

Har du vært på kortere (under 14 dager) reise i et land hvor engelsk er hovedspråk?

□ Ja □ Nei

Har du bodd i, eller hatt lengre opphold i, et land hvor annet enn engelsk er hovedspråk?

□ Ja □ Nei

Hvis ja, hvor var det, og hvor lenge varte oppholdet/oppholdene?_____

_____

Hvilke språk kan du utover morsmålet ditt og engelsk?

Språk	**Nivå**			
	Grunnleggende	**Middels**	**Avansert**	**Flytende**
Tysk				
Fransk				
Spansk				
-Angi språk				
-Angi språk				
-Angi språk				

Hvor ofte leser du tekster på engelsk?

□ Hver dag □ Flere ganger i uka □ Et par ganger i uka □ Av og til □ Aldri

Hvor ofte skriver du tekster på engelsk?

□ Hver dag □ Flere ganger i uka □ Et par ganger i uka □ Av og til □ Aldri

Hvor ofte lytter du til/hører du engelsk?

□ Hver dag □ Flere ganger i uka □ Et par ganger i uka □ Av og til □ Aldri

Hvor ofte ser du på engelskspråklige serier/filmer?

□ Hver dag □ Flere ganger i uka □ Et par ganger i uka □ Av og til □ Aldri

Når du ser på engelskspråklige filmer, hvilken av disse alternativene bruker du mest?

□ Undertekst på norsk □ Undertekst på engelsk □ Ingen undertekst

Hvor ofte ser du på engelskspråklige tegneseriefilmer/serier?

□ Hver dag □ Flere ganger i uka □ Et par ganger i uka □ Av og til □ Aldri

Hvor ofte spiller du engelskspråklige data/TV-spill?

□ Hver dag □ Flere ganger i uka □ Et par ganger i uka □ Av og til □ Aldri

Hvilke type spill spiller du? _____

Hvor mange timer cirka per dag? _____

Hvor mye TV ser du på hver dag?

□ 7 timer eller mer □ 5-6 timer □ 3-4 timer □ 1-2 timer □ aldri eller nesten aldri

<u>Del C: Andre faktorer i språklæring</u>

Har du, eller har du hatt, problemer med synet utover normal brillebruk?

□ Ja □ Nei

Har du, eller har du hatt, problemer med hørselen?

□ Ja □ Nei

Har du, eller har du hatt, språkvansker av noe slag (spesifikke språkvansker, lese-/lærevansker eller lignende)?

□ Ja □ Nei

Har du, eller har du hatt, andre diagnoser som kan tenkes å påvirke språklæring (ADHD, autisme eller lignende)?

□ Ja □ Nei

Er du venstrehendt?

□ Ja □ Nei

<u>Del D: Vokabulartest og grammatikktest</u>

Resultat vokabulartest:

Resultat grammatikktest:

Appendix 3: Idiom tasks with written context

English idioms form 1

Choose the correct idiom from the 4 alternatives in each question

What is the meaning of the expression "blessing in disguise"?
I assumed that when my new roommate moved in, all hell would break loose. Turns out she instead was a blessing in disguise.

- Someone who's up to no good
- A bad start means a bad ending
- A roommate who hides his or her qualities
- A misfortune which eventually turns out positive

What is the meaning of the expression "roll up one's sleeves"?
As a nation, it is time for us to roll up our sleeves and give homeless a home and their dignity back. We simply cannot stand back and passively watch this problem grow out of control.

- To prepare for hard work
- To call for the big bucks to roll in
- To use less money on ourselves in order to give some more to the less fortunate
- To be cheap

What is the meaning of the expression "Icing on the cake"?
I knew that my parents would come to the graduation ceremony, but that my grandparents would come was the icing on the cake.

- An extra enhancement
- A surprise
- More than necessary
- An intimidating thought

What is the meaning of the expression "more or less"?
She had more or less decided to get a new job. She needed some new challenges.

- Wholeheartedly
- To dream of bigger things
- Slowly but certainly
- To some extent

What is the meaning of the expression "be game"?
Lauren was posting an invite to an event on Facebook asking: "who is game?".

- To be willing to play a game
- To be excited about an upcoming event
- To be happy
- To be agreeable to participate in something

What is the meaning of the expression “take charge”?
It was complete chaos after the accident. People were either running around creating more panic or just standing there watching. Luckily, a nurse arrived and took charge.

- To be responsible
- To make someone pay for something
- To take control over something
- To reload one's batteries

What is the meaning of the expression “rule of thumb”?
If you receive an e-mail from your bank asking for your password, a good rule of thumb is simply to delete it. Your bank would not ask for such information.

- An answer on how to deal with problems
- A general principle developed by experience
- To act cautiously in order to protect sensitive information and your computer
- To measure something using your thumb as a ruler

What is the meaning of the expression “put wool over people’s eyes”?
After reading George Orwell’s novel “1984” I kept fearing our politicians were putting wool over our eyes. I really hope they’re not playing us around.

- To impose ignorance on people by hiding the truth behind less important matters
- To play games with other politicians
- To pretend to know about novels that one haven't actually read
- To advertise for clothes on TV and radio

What is the meaning of the expression “not playing with a full deck”? *
“That boy is definitely not playing with a full deck”, “He’s desperately trying to lick his elbow although he clearly won’t make it”.

- Someone who is not especially clever
- To miss a few pieces in a puzzle
- To try really hard
- Someone who wants to accomplish something impossible

What is the meaning of the expression “turn the tables”?
“It’s time to turn the tables” she whispered. She had planned this for weeks. This time he would be the victim!

- To change a situation so that someone's position is the opposite of what it was
- To plan revenge
- To turn all the tables you see in order to change a situation
- To redecorate

What is the meaning of the expression “cross someone’s mind”? *
It crossed my mind when I read the article about the fireman who rescued five people – my purpose in life is to be a fireman.

- To suddenly think of something
- To feel a divine inspiration and calling from above

- To wish you were brave
- To think about something for a short time

What is the meaning of the expression "couch potato"? *
Yesterday I found six steps for how to stop being a couch potato on Wikihow. The first step was to unplug the television.

- A person who has to eat chips while watching TV
- A person who is unemployed and has nothing to do
- A person who spends much time sitting or lying down, usually watching TV
- A person who likes to eat dinner while watching TV

What is the meaning of the expression "the ball is in your court"?
The police officer who stopped Greg for speeding in traffic told him that the speed was dangerously high and that it could've had grave consequences. "So what do you have to say in your defence? The ball is entirely in your court, Mr."

- It's your turn to act or speak
- The car was in the wrong court at the wrong time
- You should start apologising
- You will meet me in court

What is the meaning of the expression "back to the drawing board"?
After a disastrous game of football, the couch called in the team and uttered "Well, boys, back to the drawing board it is!"

- To draw football in detail
- To perform an activity exactly as the drawings tell you
- To retire from activity to start drawing
- To step back and make new plans

What is the meaning of the expression "don't quit your day job"?
Paul insisted that his paintings were the best thing he'd ever done. His friends all laughed and said "Don't quit your day job, bro!"

- An indication that you're not very good at what you do besides your profession
- A pleasant compliment given to artists who show promise
- To lose a job because of a horrible mistake
- Something you say when friends laugh together

What is the meaning of the expression "add insult to injury"?
The boss in our company asked everyone to humbly accept a pay cut to make up for the bad economy. We felt that this was only adding insult to injury.

- To find a new solution
- To disrespect someone who is injured and thus cannot respond
- To act in a way that makes a bad situation worse
- To be very rude

What is the meaning of the expression "actions speak louder than words"?

The teacher was pleased when Johanna gave him the money he had been missing for days. “I can’t really explain this”, she says. “Actions speak louder than words” the teacher responded.

- That actions always are better than talking
- To return things without hesitating
- To talk less
- That sometimse the act of doing something can explain more than anything you could say

What is the meaning of the expression “penny for your thoughts”?
Mary seemed very thoughtful one morning. John said “Ha! Penny for your thoughts, Mary!”.

- A trick one can play to get money from unaware friends
- To ask for a quick loan
- A way to have someone ask you a personal question
- To wonder what is on someone's mind

What is the meaning of the expression “hot potato”? *
The political parties seemed to avoid the immigration topic before the election. My friend said that “it certainly is this election’s hot potato”.

- A potato so hot that it will should be put in the refridgerator
- A subject which is considered harmful to oneself and thus gets ignored by everyone
- A subject that causes much fear
- Something that can burn your hands

What is the meaning of the expression “beat about the bush”?
Let’s not beat about the bush –the design was rejected. The employer said it was horrible. We simply have to start all over again.

- To run away into the bush in order to avoid facing challenges
- To avoid talking about a difficult subject because you are worried about upsetting the person you are talking to
- To give up
- To get angry at oneself when one has done something that does not meet the expectation of others

What is the meaning of the expression “fit as a fiddle”?
I was shocked when I got the news. I felt as fit as a fiddle until the doctor showed me the negative results.

- To be in very good health
- To feel secure
- To be positive
- To be strong

What is the meaning of the expression “piece of cake”?
They all thought the match would be a piece of cake but they were wrong. The other team was faster.

- To be satisfactory

- The best part of the cake to eat
- The reward you get for winning
- Something which is easy

What is the meaning of the expression “at one’s fingertips”?
She has the book at her fingertips. If you wonder where to find the information she would be the one to ask.

- To have something in your hand
- A few coins that you grab between your fingertips
- To have quick access
- To be well prepared and in control

What is the meaning of the expression “at the top of one’s lungs”?
I woke up this morning to my neighbour singing “My heart will go on” at the top of his lungs.

- To breathe in a controlled manner
- As loudly as one's voice will allow
- To have a wish to annoy someone
- As out of tune as possible

What is the meaning of the expression “on a roll”?
I had been working for nine hours but I couldn’t stop. I was on a roll.

- To eat spring rolls while working
- To be in the midst of a series of successes
- To be a work-a-holic
- To live up to the expectations in order to stay on the company's payroll

What is the meaning of the expression “take advantage of”?
In today’s newspaper I read an article with the following headline: “Propane company takes advantage of customers”. It turned out that I was one of them. I checked the last month’s bill – they had overcharged me too!

- To improve a situation
- To do what seems best for the company
- To exploit
- To disrespect

What is the meaning of the expression “blockbuster”? *
Mark and steve were fighting about which blockbuster to bring home and watch: “Spectre” or “The Dark Knight Rises”?

- Movies that will blow the viewer's mind
- A new man on the block
- Explosives and gunshots in huge numbers
- Something produced to achieve high popularity and huge sales

What is the meaning of the expression “by the book”?

He was quite certain that he would not be in trouble when the police came. He had done everything by the book.

- When a movie is based on a book
- To do exactly what your employer tells you to do
- To follow the rules exactly
- To do all your work by the book shelf

What is the meaning of the expression “slippery slope”?
The question of assisted death is a slippery slope in terms of moral and legal considerations.

- A path which is likely to lead to failure or serious trouble
- An icy hill
- A personal question
- A question that requires a decision

What is the meaning of the expression "not my cup of tea"?
Some people love skiing, but it's not my cup of tea. I prefer swimming.

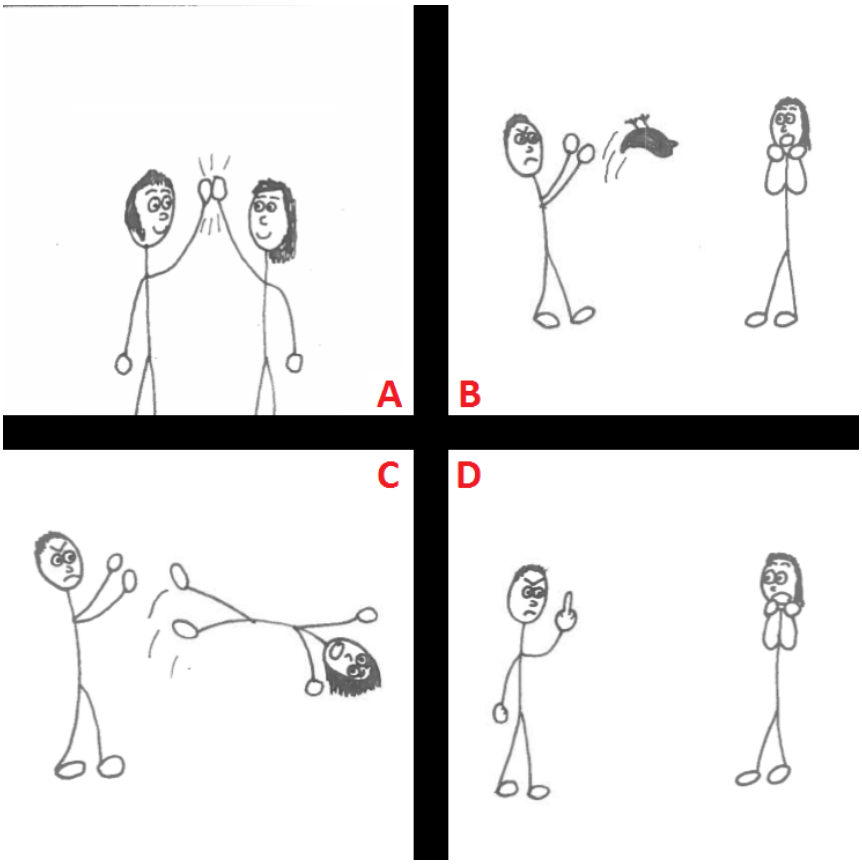
- Something you enjoy or like
- Something you don't like
- A borrowed cup used for drinking tea
- A type of tea you don't like

What is the meaning of the expression "sweet tooth"
Every time we watch a movie with Hans, he has to bring all the candy. I don't understand how he can eat all that sugar?

- To have diabetes
- To have a gold tooth
- To desire to eat sweet foods
- To indicate in a humoristic way that one has a problem with one's health

Appendix 4: Idiom tasks with image alternatives

Choose the picture that shows the meaning of "to flip someone the bird"

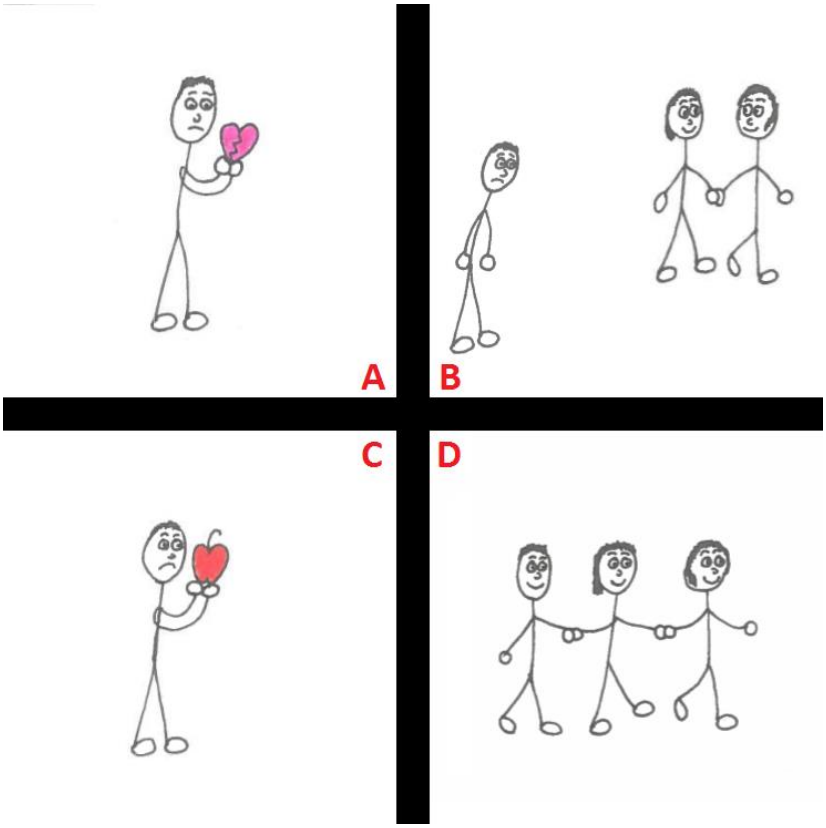


Flip the bird

Tim was angry with Sara. He flipped her the bird.

- A
- B
- C
- D

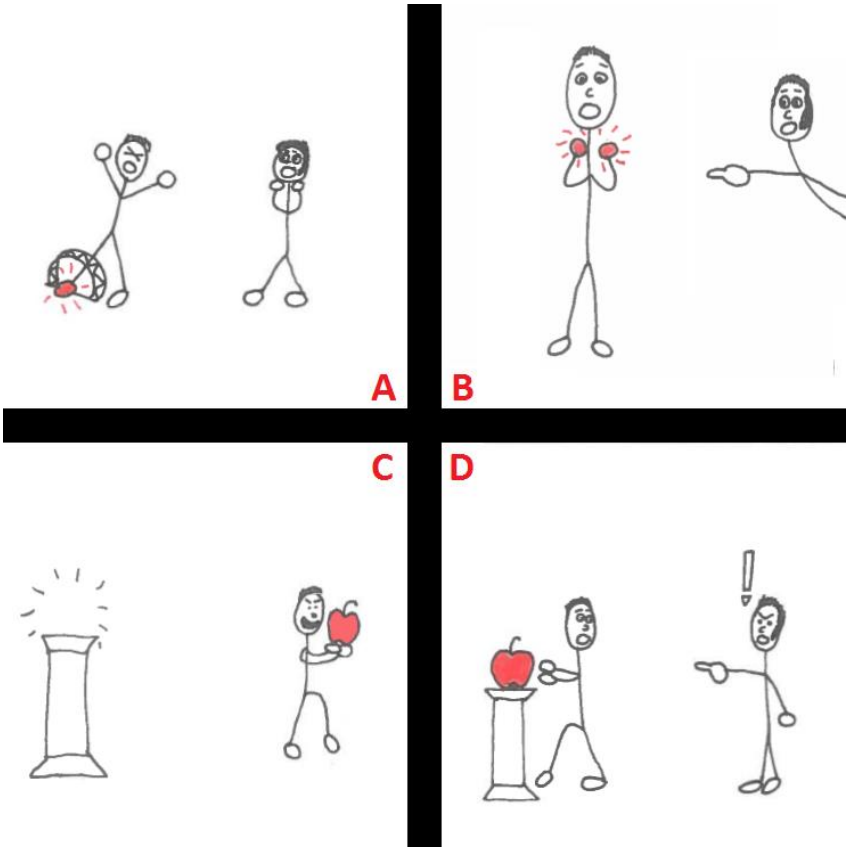
Choose the picture that shows the meaning of "to have a broken heart"



Broken heart
Tim was sad. He had a broken heart.

- A
- B
- C
- D

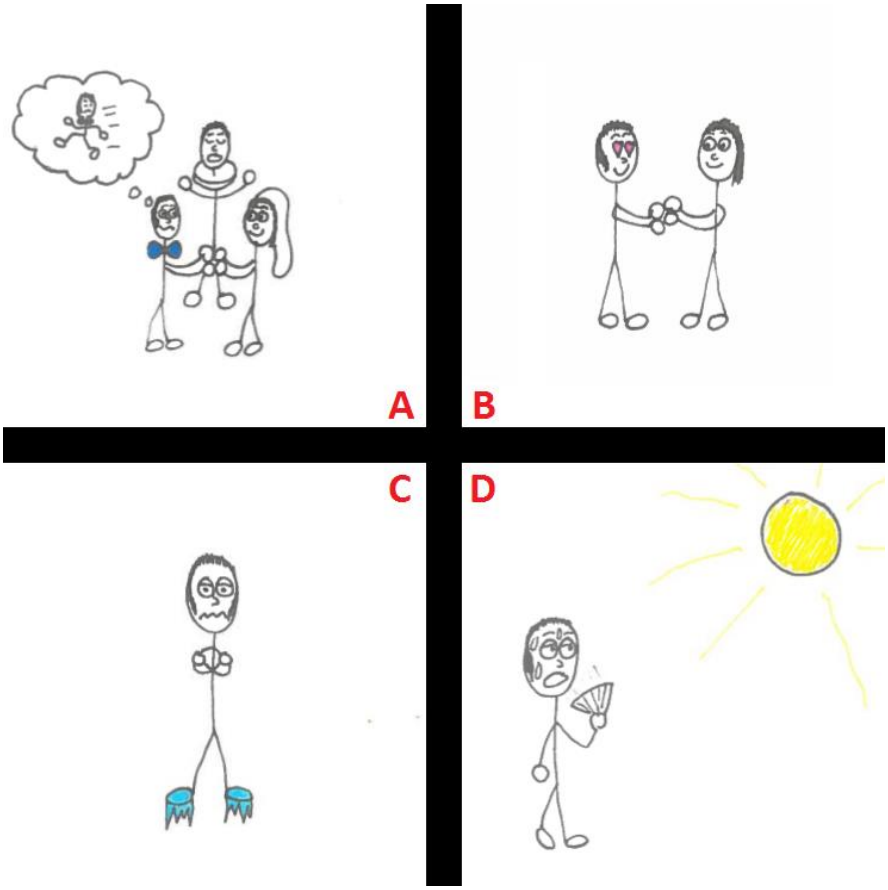
Choose the picture that shows the meaning of "to be caught red handed"



Red handed
Tim was up to no good. Jim caught him red handed.

- A
- B
- C
- D

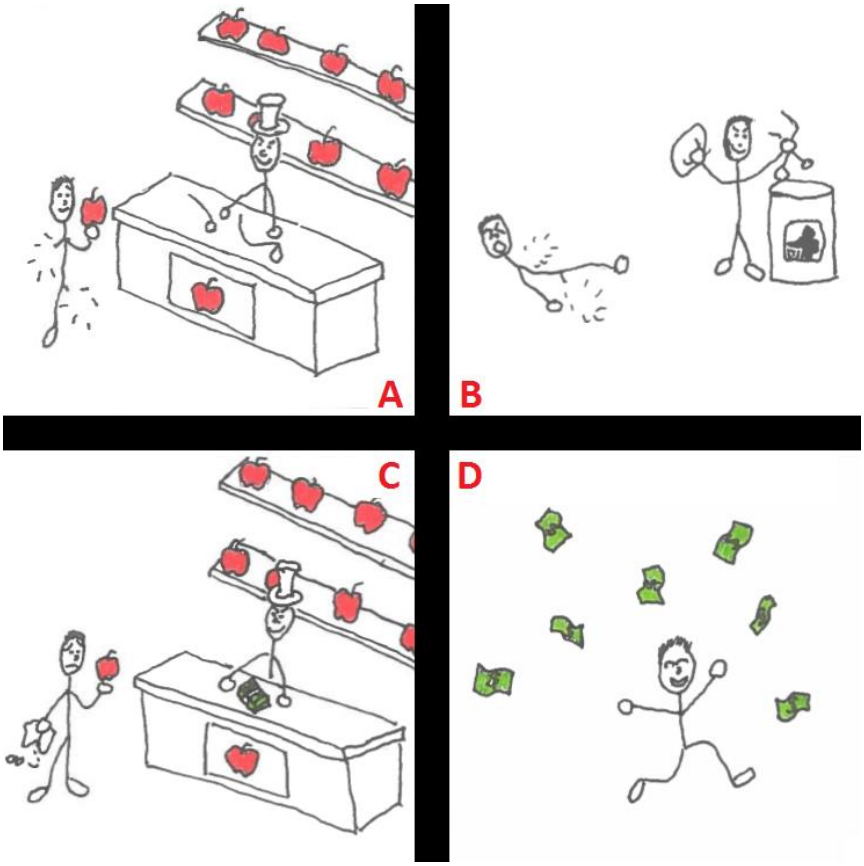
Choose the picture that shows the meaning of "to have cold feet"



Cold feet
Jim was starting to regret his decision. He was having cold feet.

- A
- B
- C
- D

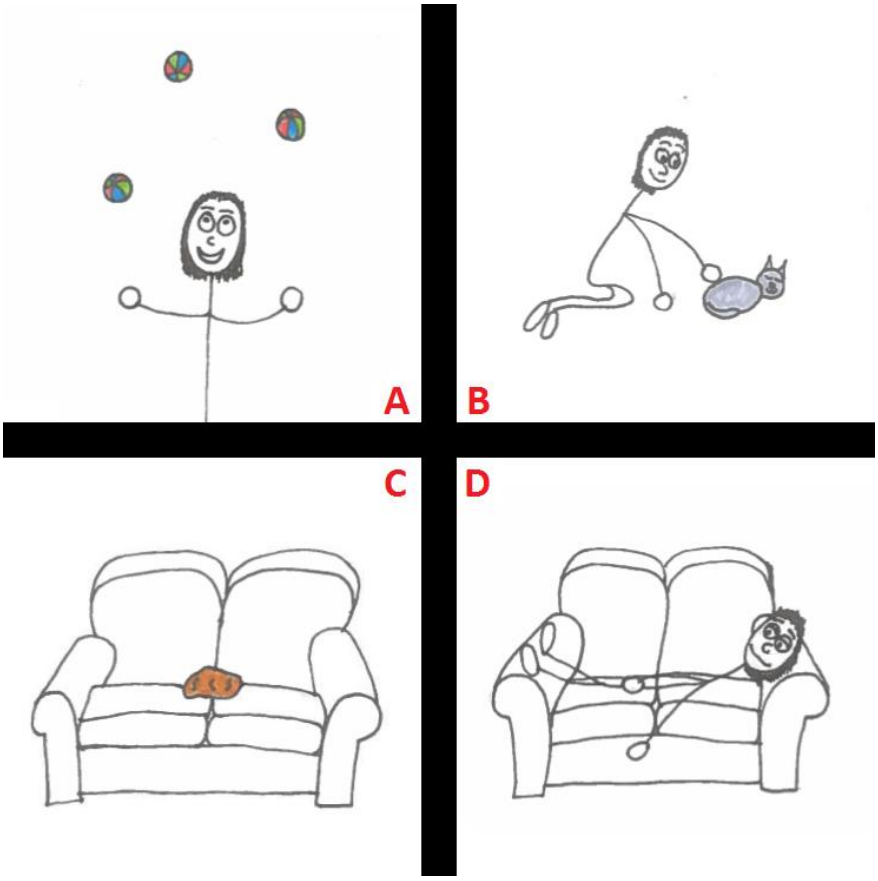
Choose the picture that shows the meaning of "to cost an arm and a leg"



Cost an arm and a leg
Tim really wanted the apple. It cost him an arm and a leg.

- A
- B
- C
- D

Choose the picture that shows the meaning of "to be a couch potato"

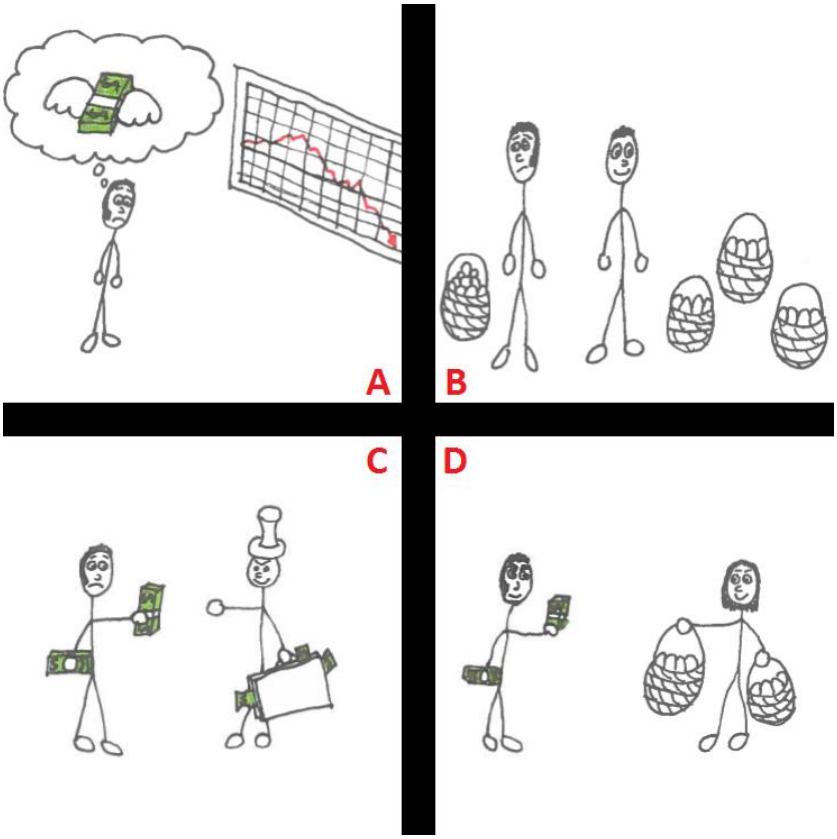


Couch potato *

Sara likes to relax. Some would call her a couch potato.

- A
- B
- C
- D

Choose the picture that shows the meaning of "to put all your eggs in one basket"



Put all your eggs in one basket *

Jim made a poor decision. He souldn't have put all his egs in one basket.

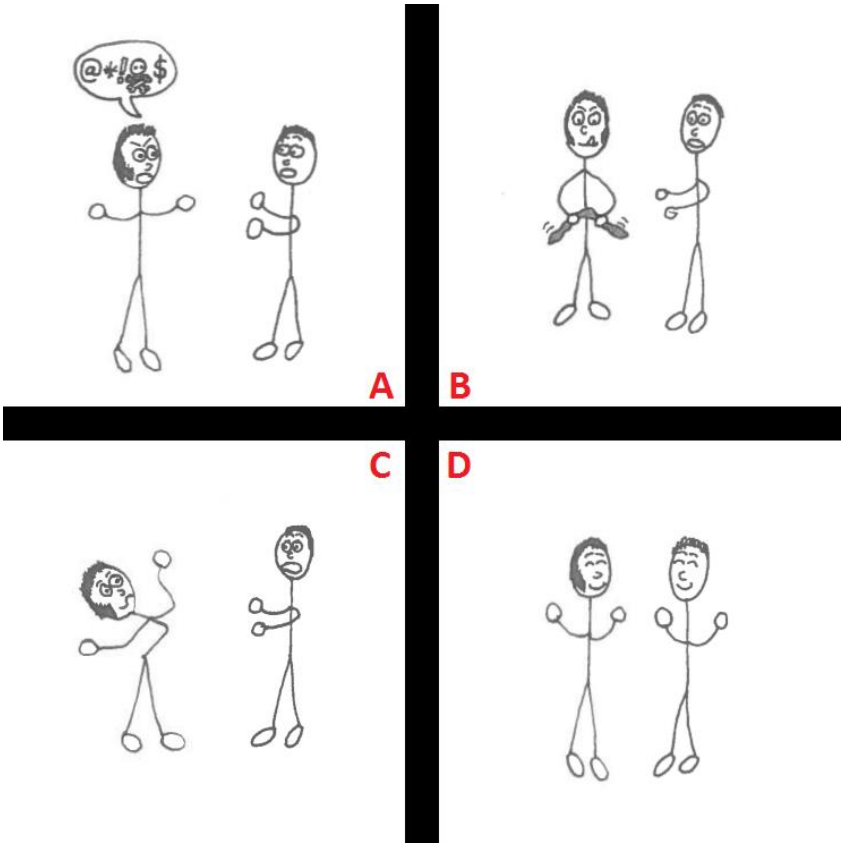
- A
- B
- C
- D

Choose the picture that shows the meaning of "to feel a bit under the weather"

Feeling a bit under the weather
Tim was having a rather poor day. He was feeling a bit under the weather.

- A
- B
- C
- D

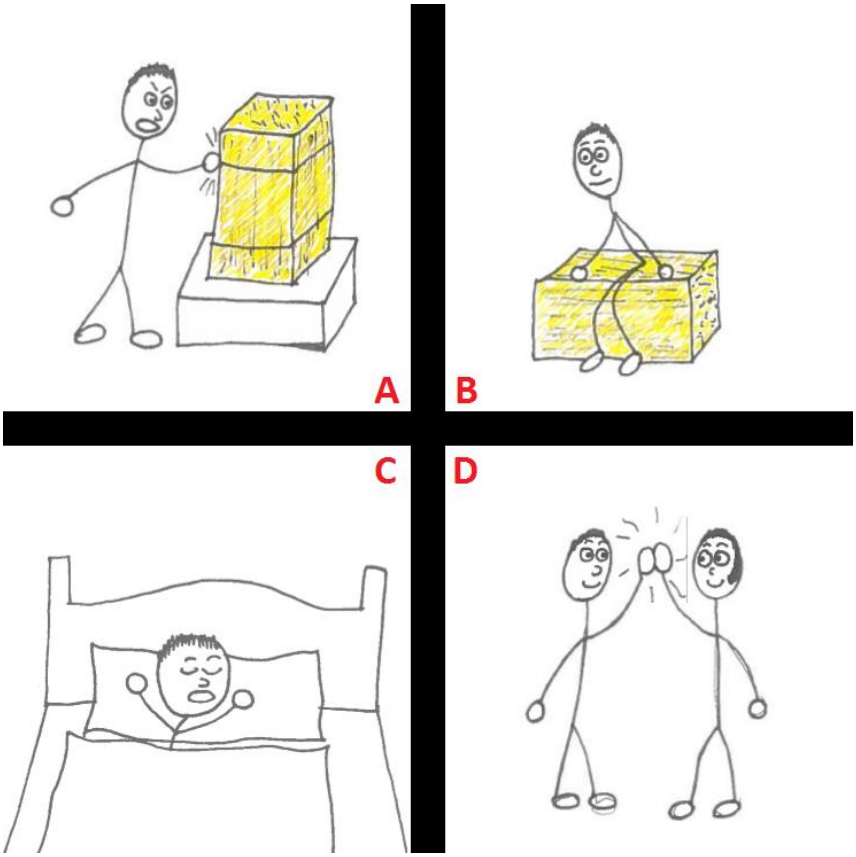
Choose the picture that shows the meaning of "to get bent out of shape"



Get bent out of shape
Jim was in a bad mood. Tim told him to not get bent out of shape.

- A
- B
- C
- D

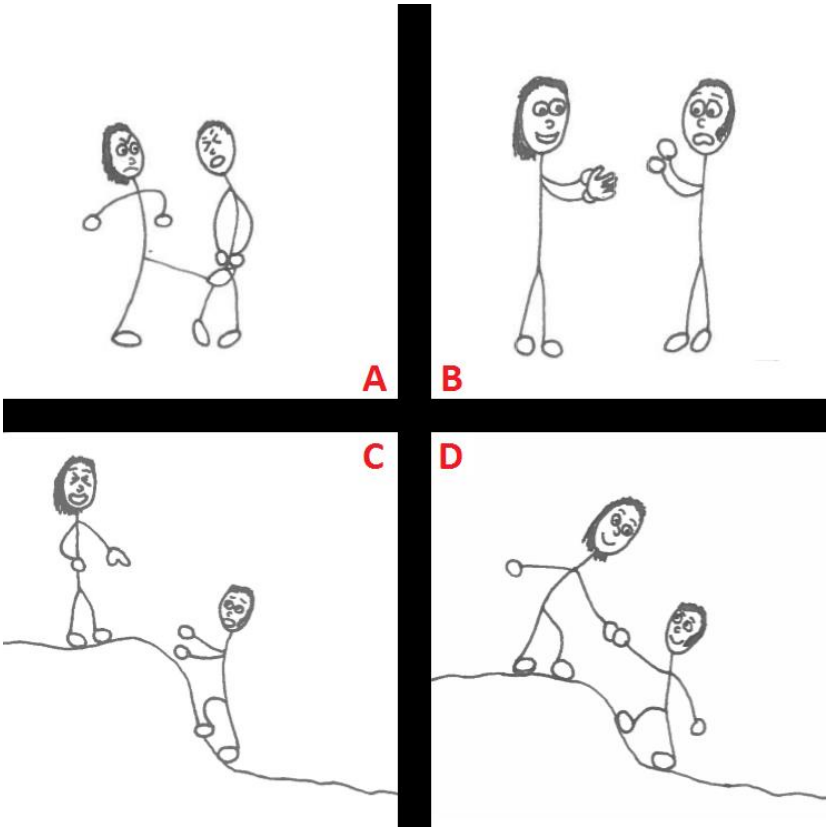
Choose the picture that shows the meaning of "to hit the hay"



Hit the hay
Tim was feeling tired. He decided to hit the hay.

- A
- B
- C
- D

Choose the picture that shows the meaning of "to give someone a hand"

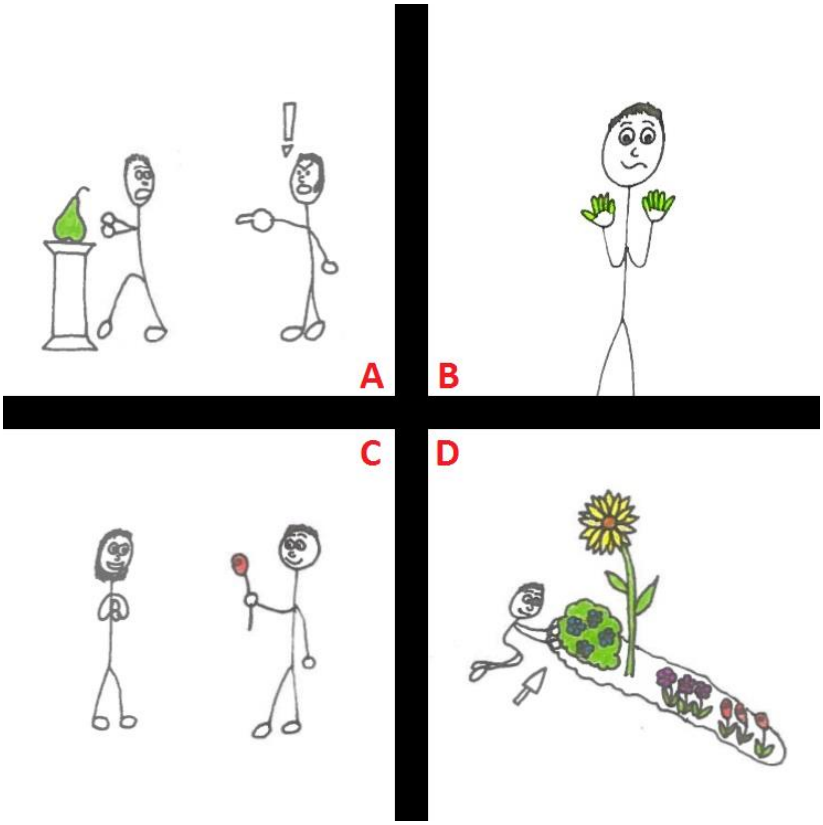


Give someone a hand

Sara saw Jim was in trouble. She decided to give him a hand.

- A
- B
- C
- D

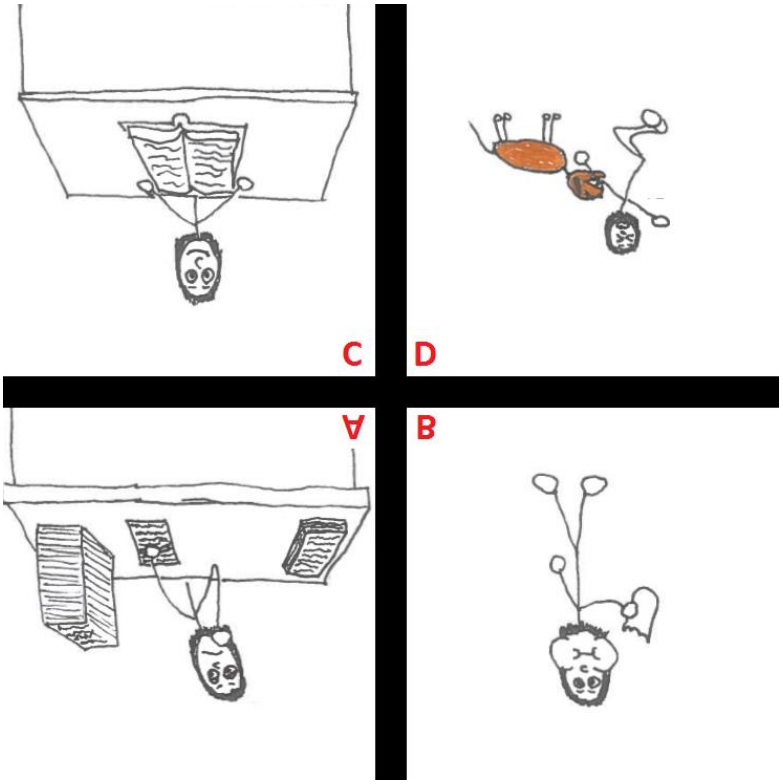
Choose the picture that shows the meaning of "to have green fingers"



Green fingers
Tim is good with plants. He has green fingers.

- A
- B
- C
- D

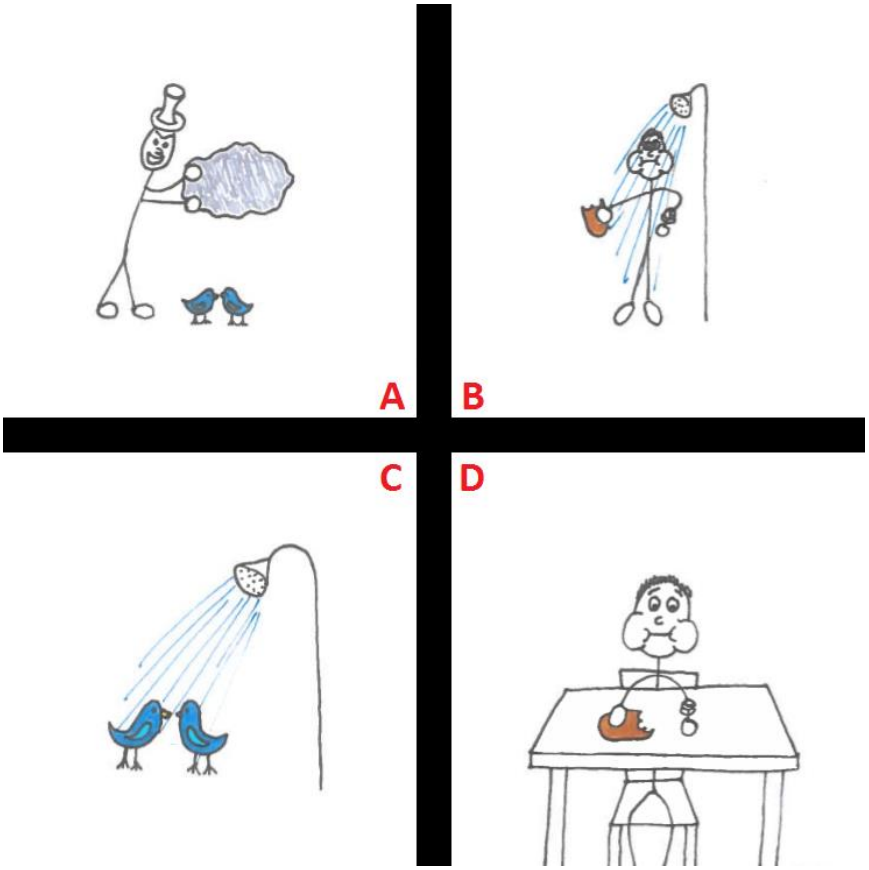
Choose the picture that shows the meaning of "to bite off more than you can chew"



Bite off more than you can chew
Sara had made a mistake. She had bitten off more than she could chew.

- A
- B
- C
- D

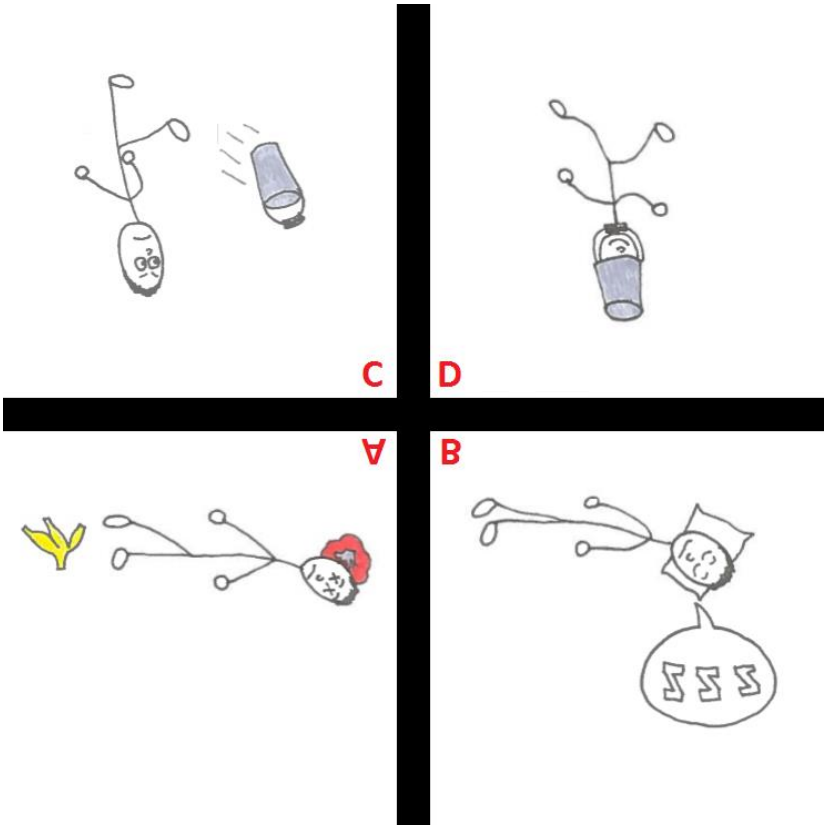
Choose the picture that shows the meaning of "to kill two birds with one stone"



Kill two birds with one stone
Tim was in a hurry. He decided to kill to birds with one stone.

- A
- B
- C
- D

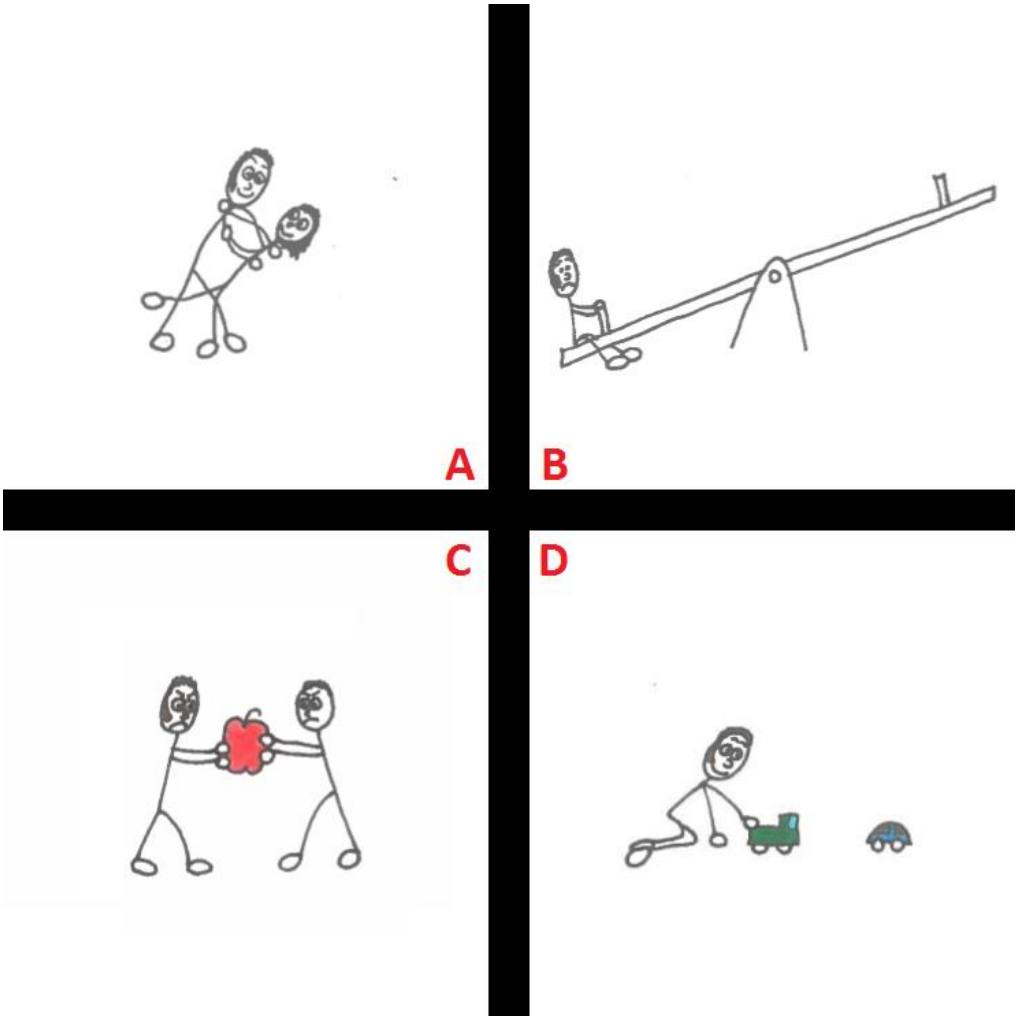
Choose the picture that shows the meaning of "to kick the bucket"



Kick the bucket
Tim had an accident. He kicked the bucket.

- A
- B
- C
- D

Choose the picture that shows the meaning of "it takes two to tango"

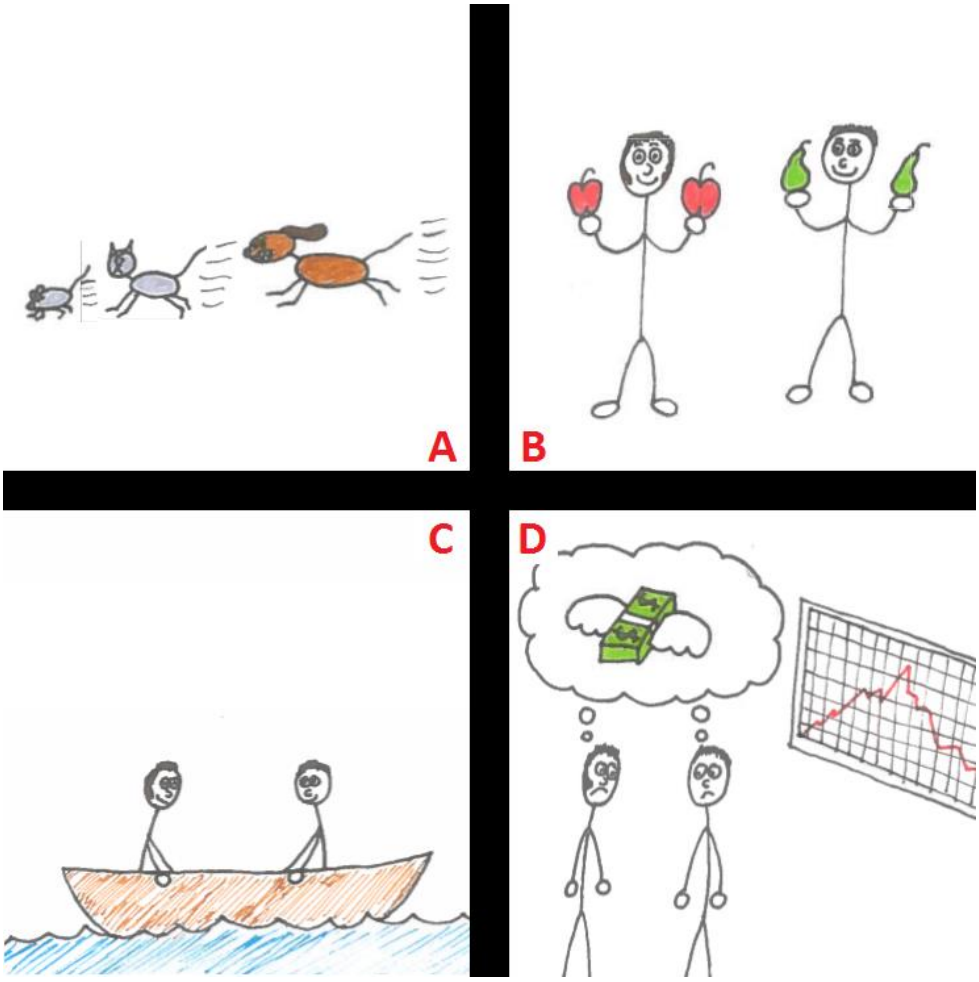


It takes two to tango *

Jim couldn't do it alone. He quickly understood it takes two to tango.

- A
- B
- C
- D

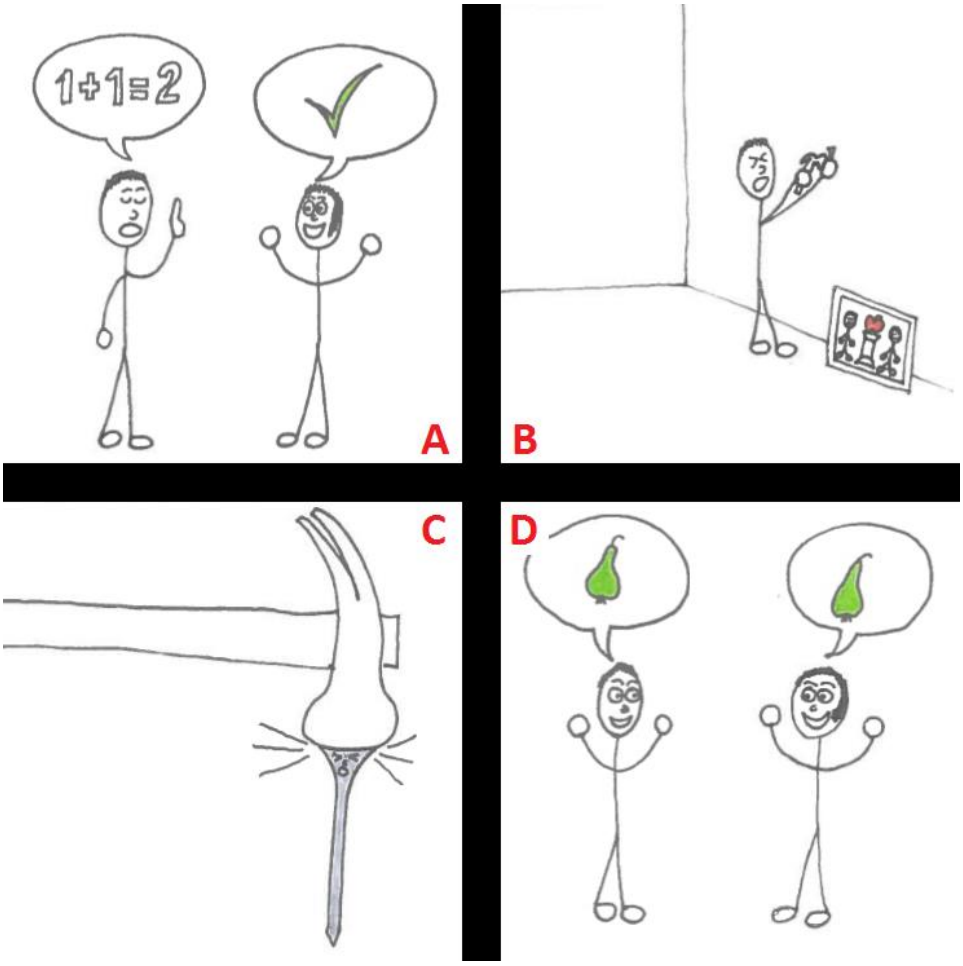
Choose the picture that shows the meaning of "to be in the same boat"



Be in the same boat
Jim and Tim both made poor choices. Now they are in the same boat.

- A
- B
- C
- D

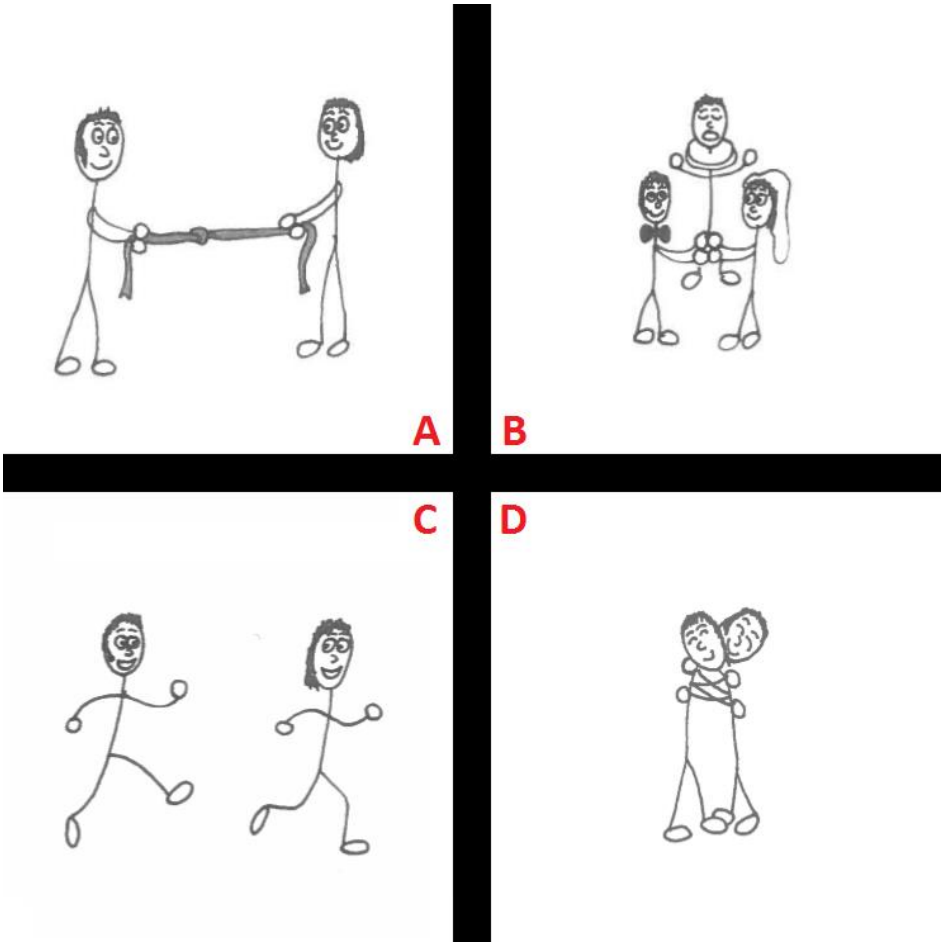
Choose the picture that shows the meaning of "to hit the nail on the head"



Hit the nail on the head
Tim is very clever. He often hits the nail on the head.

- A
- B
- C
- D

Choose the picture that shows the meaning of "to tie the knot"



Tie the knot

Jim and Sara had been waiting for a long time. They finally decided they would tie the knot.

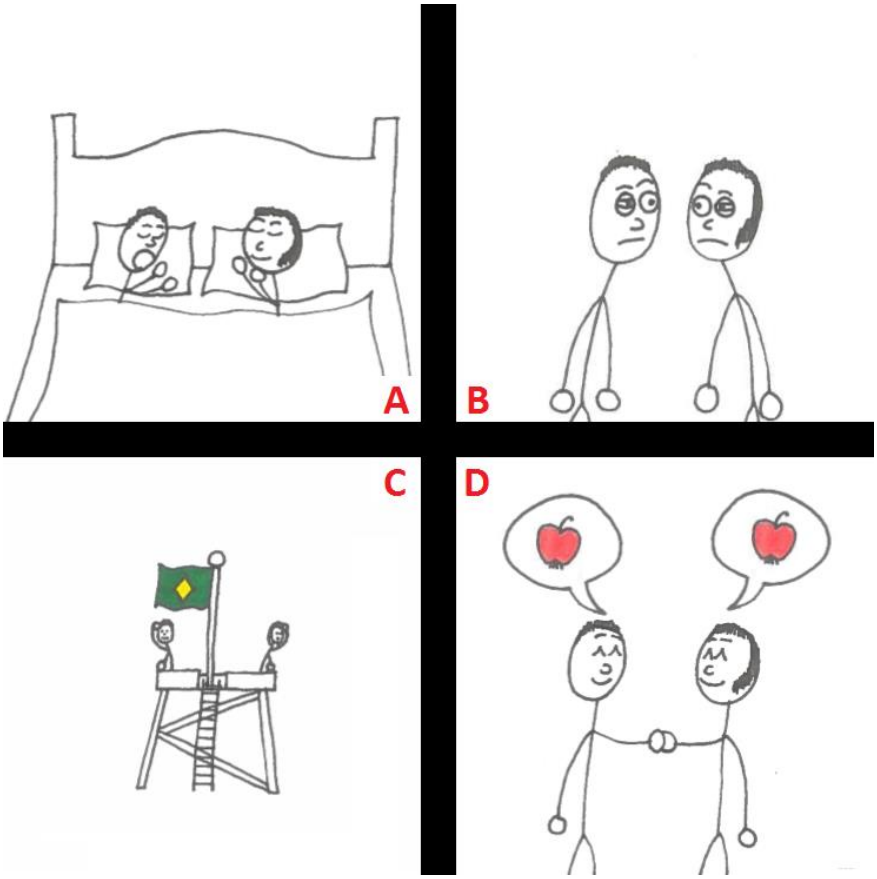
- A
- B
- C
- D

Choose the picture that shows the meaning of "it's raining cats and dogs"

It's raining cats and dogs
Jim decided to go outside. Then it started raining cats and dogs.

- A
- B
- C
- D

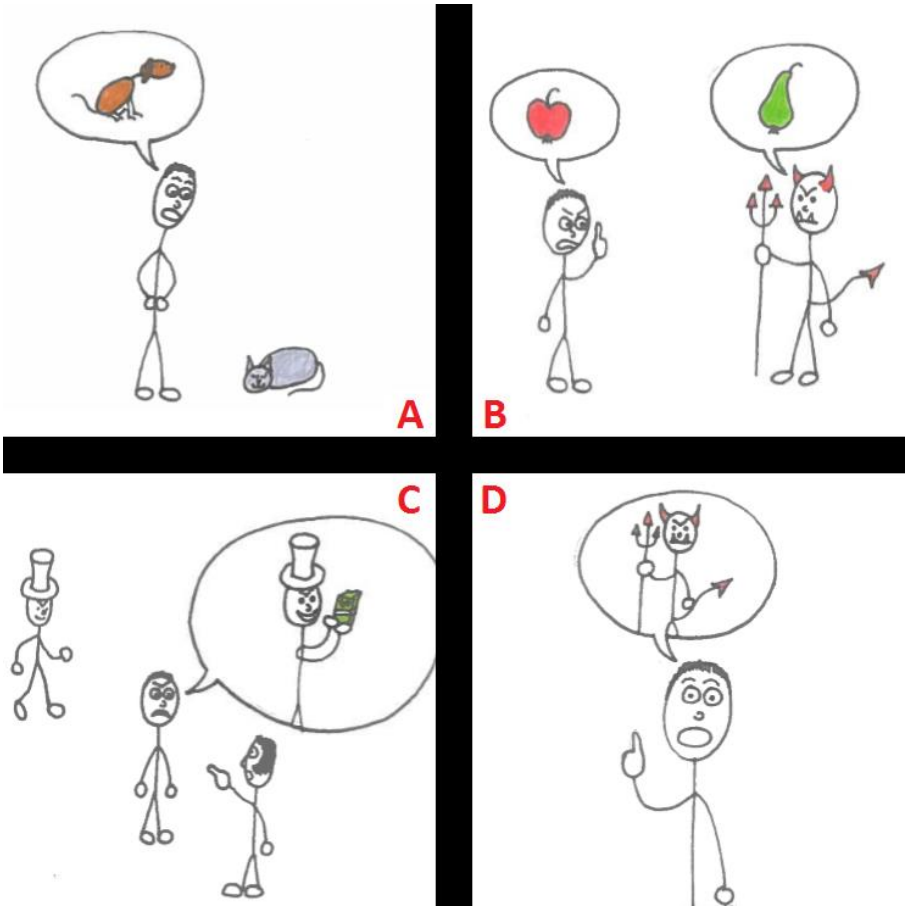
Choose the picture that shows the meaning of "to see eye to eye"



See eye to eye
Jim and Tim have been friends for a long time. That is because they very often see eye to eye.

- A
- B
- C
- D

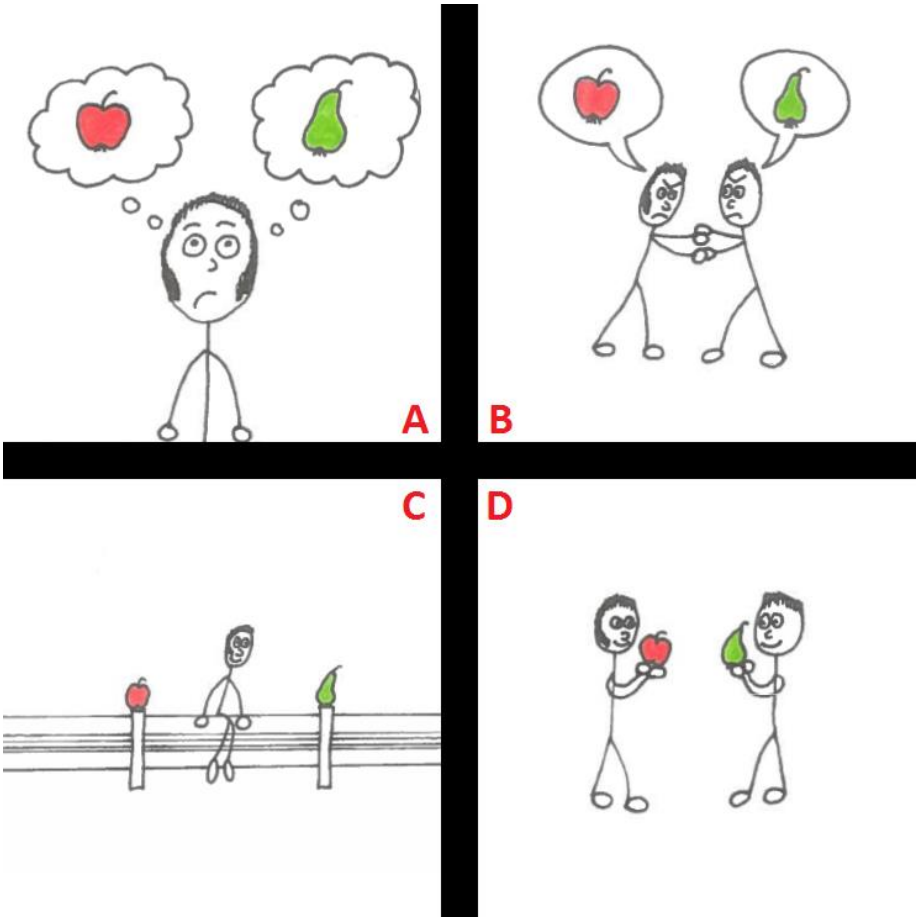
Choose the picture that shows the meaning of "to speak of the devil"



Speak of the devil
Tim is saying mean things about others. Jim warns him by saying "Well, speak of the devil".

- A
- B
- C
- D

Choose the picture that shows the meaning of "to sit on the fence"

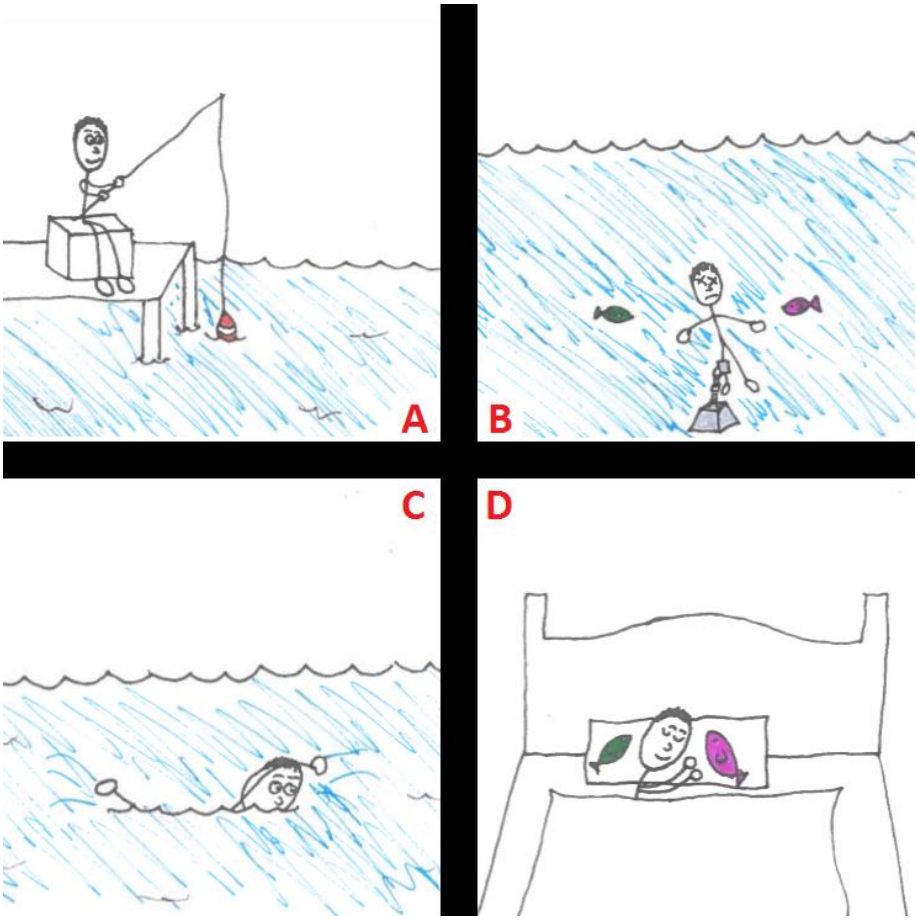


Sit on the fence

Jim is having a hard time. He is sitting on the fence

- A
- B
- C
- D

Choose the picture that shows the meaning of "to sleep with the fishes"

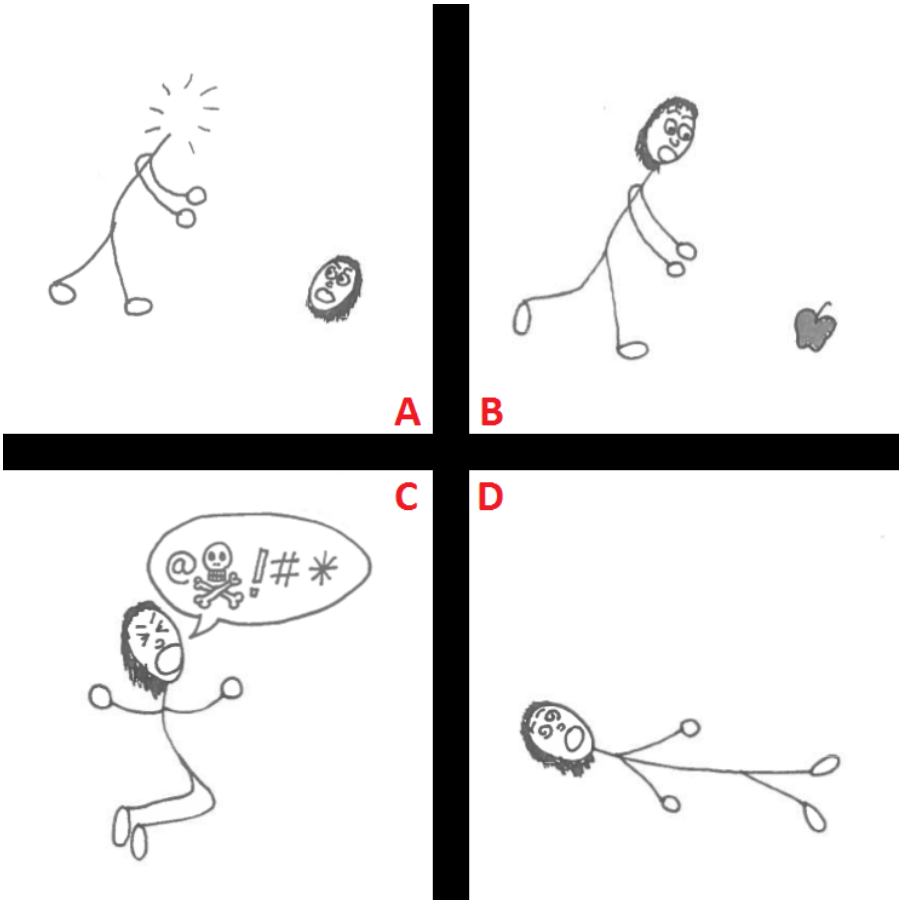


Sleep with the fishes *

Someone decided to take care of Tim. Now he is sleeping with the fishes.

- A
- B
- C
- D

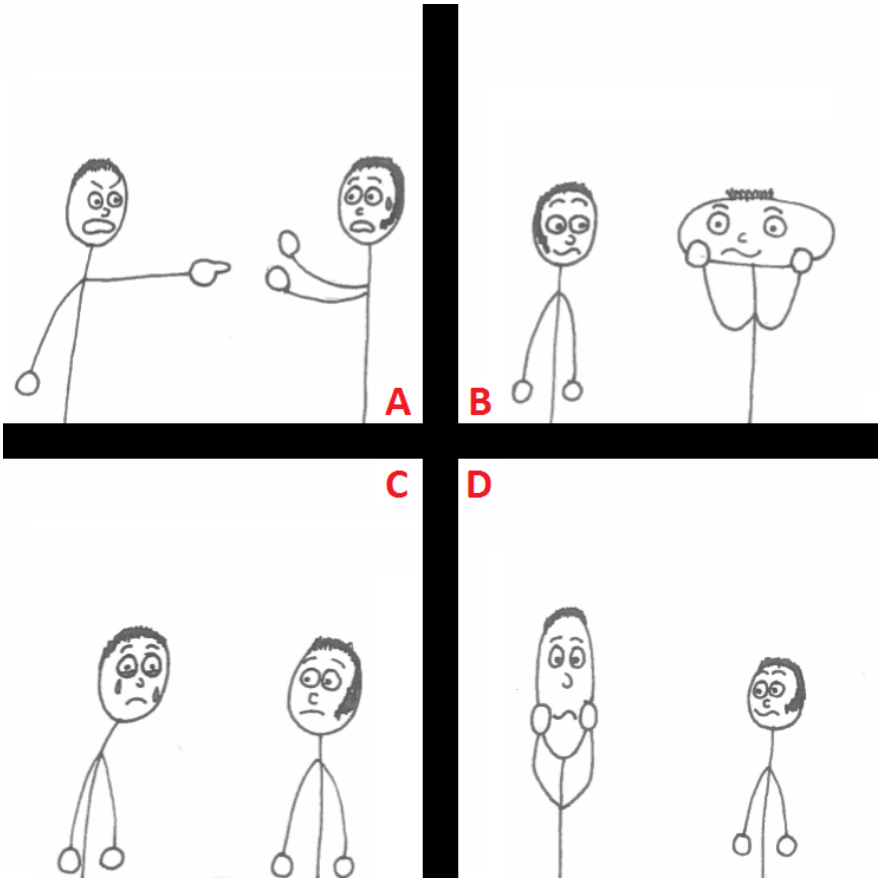
Choose the picture that shows the meaning of "to lose your head"



Lose your head
Sara has had a long, hard day. Now she's losing her head.

- A
- B
- C
- D

Choose the picture that shows the meaning of "to pull a long face"

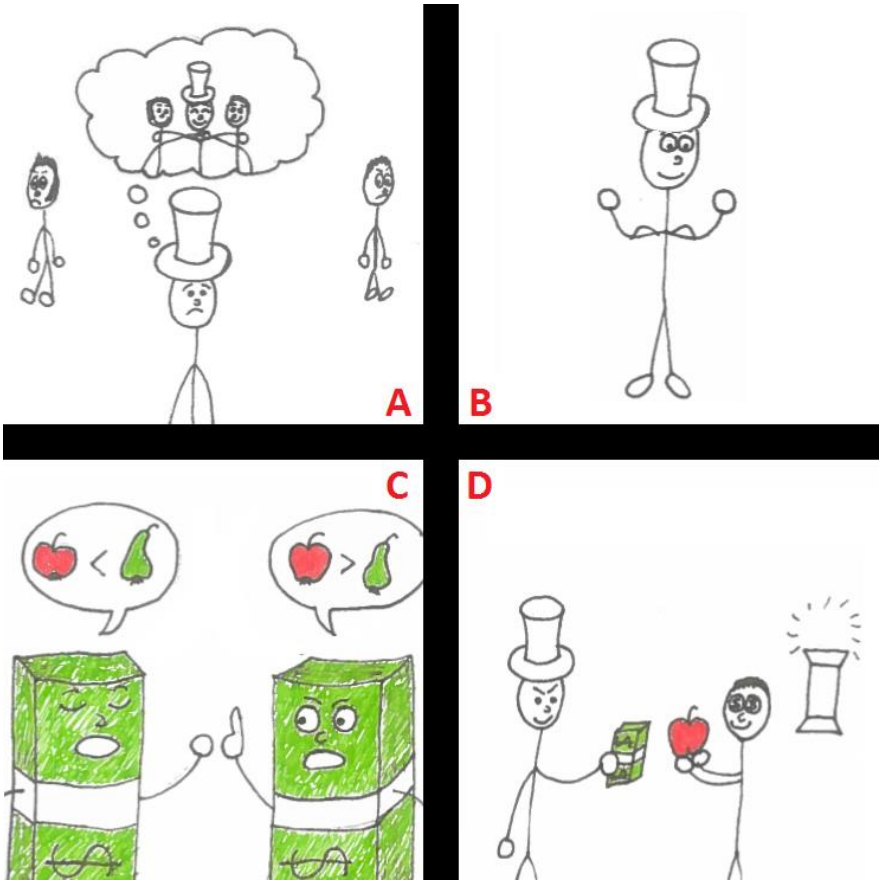


Pull a long face

When Jim sees Tim he can tell something is wrong. "Why are you pulling that long face?" Jim asks.

- A
- B
- C
- D

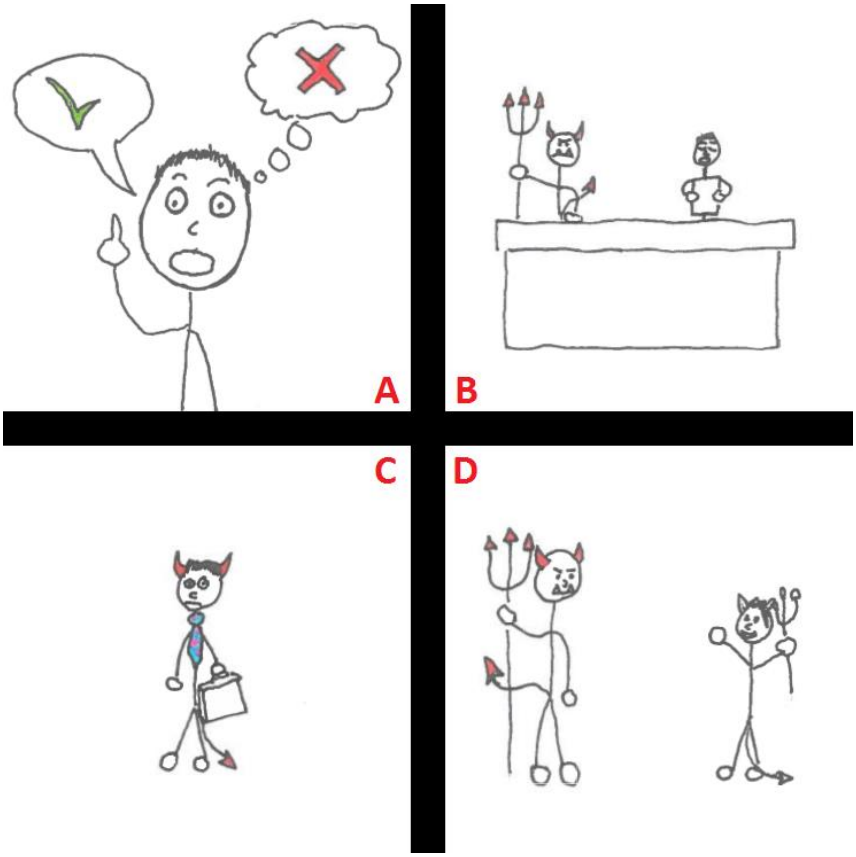
Choose the picture that shows the meaning of "money talks"



Money talks
The businessman often gets what he wants. That is because money talks.

- A
- B
- C
- D

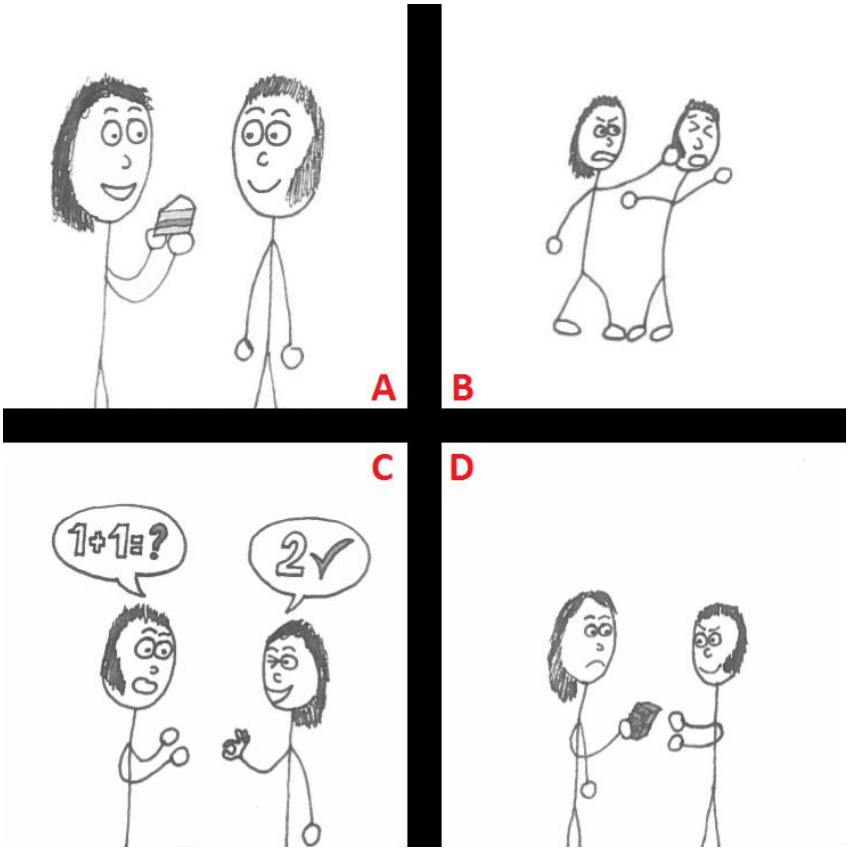
Choose the picture that shows the meaning of "to play devil's advocate"



Devil's advocate
Tim wants to start a discussion. He plays devil's advocate.

- A
- B
- C
- D

Choose the picture that shows the meaning of "a piece of cake"



Piece of cake
Jim needs help, so he asks Sara. Sara thinks it's a piece of cake.

- A
- B
- C
- D